

**Bridging the digital divide: Critical analysis
of the
South African Broadband Policy**

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STATEMENT OF ORIGINAL AUTHORSHIP

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Date

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#Power!

ACRONYMS

ITU	International Telecommunication Union
ICASA	Independent Communication Authority of South Africa
DTPS	Department of Telecommunication and Postal Services
WOAN	Wholesale Open Access Network
NDP	National Development Plan
DoC	Department of Communication
RDP	Reconstruction Development Programme
GEAR	Growth, Employment and Redistribution
UN	United Nation
A4AI	Alliance for Affordable Internet
UABS	Universal Access to Broadband Services
FCC,	Federal Communication Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization
OECD	Organisation for Economic Co-operation and Development
ISRDS	Integrated Sustainable Rural Development Strategy Document
WEF	World Economic Forum
USAASA Africa	Universal Service Access Agency of South Africa

ICT	Information Communication Technology
RSA	Republic of South Africa
ECA	Electronic Communication Act of 2005
GCIS	Government Communication and Information System
COMTASK	Communication Task Group
ANC	African National Congress
COSATU	Congress of South African Trade Unions
WOAN	Wholesale Open Access Network

KEY Words

Digital Divide, Broadband Policy, SA Connect, Public Access Centres, Rural communities, Digital Exclusion, Information economy

DEDICATION

This study is dedicated to all rural communities who have been deprived the right to internet access and inclusion in the digital economy.

ABSTRACT

The aim of this study was to examine how the South African Broadband Policy (SA Connect) had sought to address problems related to the adoption of broadband in rural areas. It interrogated policy initiatives and regulations proposed by the SA Connect in attempts to bridge the digital divide. In addition, the study examined legislative processes and measures undertaken in South Africa from the era of the Reconstruction Development Programme of 1994 to the promulgation of the SA Connect in 2013. It also probed the inter-play between incumbent mobile operators and the Regulator, the Independent Communication Association of South Africa (ICASA), in expediting broadband penetration and adoption in rural South Africa. The study was guided by a theoretical framework grounded on the Knowledge Gap Hypothesis and Community Informatics approaches.

The bulk of data was obtained through content analysis of various telecommunication policies and legal documents. Themes emanating from content analysis were presented to experts in the telecommunication industry in the form of in-depth interviews for further interrogation and clarification. In addition, data was obtained from parliamentary submissions made by operators and Non-Governmental Organisations (NGOs) to the Telecommunication Portfolio Committee.

The study concludes that the lack of proper policy coordination, implementation and decisive regulation led to the failure to reduce the digital divide. It contends that these policy failures perpetuated the deep-seated economic inequalities in South Africa, thereby sustaining the rural digital exclusion. Thus, despite relentless attempts to address these challenges at policy level, the South African rural areas remain excluded from the emerging information and digital economy. This confirms views of critical perspectives that the more new technological adaptations are made the more communities of low economic strata are left out.

TABLE OF CONTENTS

CHAPTER 1.....	1
Setting the scene	1
OVERVIEW OF THE STUDY	
1.1.1. The digital divide defined.....	4
1.1.2. Definition of Broadband Ecosystem	7
1.1.3. Socio-economic benefits of broadband	10
1.1.4. Rural South Africa.....	11
1.2. Statement of the Problem.....	14
1.3. Research Aim, Objectives and Questions	16
1.3.1 Aim.....	16
1.3.2 Research Objective.....	16
1.3.3 Research Questions.....	16
1.4. Significance of the study.....	17
1.5 Delimitation of the study.....	18
Chapter summary.....	18
STRUCTURE OF THE STUDY	19
CHAPTER 2	28
LITERATURE REVIEW	28
INTRODUCTION	28
SECTION 1	29
2.1 Towards Rural Digital inclusion across the globe: Policies and Practices	29
2.1.1 South Korea	29
2.1.1.1. Lessons Learnt.....	31
2.1.2. Malaysia Broadband Policy	35

2.1.2.1 Funding Model Imposition of Universal Access Obligations	33
2.1.2.2 Lessons Learnt	34
2.2 North and South America	35
2.2.1 Rural America	35
2.2.1.1 Lessons Learnt	36
2.2.2 Dominican Republic: Connecting Rural Population	37
2.2.2.1 Findings.....	39
2.2.2.2 Lessons Learnt	41
2.2.3 Mexico	43
2.3 European Countries	44
2.3.1 Australia: Broadband Community Networks	44
2.3.1. Lessons Learnt	45
2.3.2 Russia	47
SECTION 2	48
2.4 . BROADBAND ROLL-OUT IN AFRICA	48
Introduction	48
2. 4.1 Kenya.....	48
2.4.1.1 Spectrum Conundrum	50
2.4.1.2 Lessons Learnt	53
2.4.2. Nigeria	55
2.4.2.1 Policy Approach.....	55
2.4.2.2 The Wire Nigeria Project.....	56
2.4.2.3 State Accelerated and Rural Broadband Initiative.....	57
2.4.2.4 Universal Service Provision and Rural Broadband Internet.....	57
2.4.2.5 Community Communication Centre.....	58
2.4.2.6 Lessons Learnt.....	59

2.5. Wholesale Open Access Network Case Studies: Europe and Africa.....	60
2.5.1 Kenya	60
2.5.2 Rwanda.....	61
2.5.3 Lessons Learnt	62
Chapter Summary	63
CHAPTER 3.....	64
THEORETICAL AND METHODOLOGICAL FRAMEWORK.....	64
SECTION 1.....	65
3.1. Theoretical Perspectives and Conceptual Frameworks.....	65
3.1.1. Knowledge Gap Hypothesis Theory	65
3.1.2. Community Informatics.....	67
3.1.3 The ICT Rainbow Model	69
3.1.3.1 Governance and Policy	69
3.1.3.2 Literacy Social Facilitation, Devices and Software Tools	70
3.1.3.3 Content and Services	72
3.1.3.4 Service and Access Providers	72
3.1.4 Dialogue and Praxis: Critical Reflection of state of broadband in rural South Africa.....	76
3.1.5 Universal Service.....	78
3.1. 6 Universal Access	79
3.1.7 . Access to Internet: A Basic Human Right.....	81
SECTION 2.....	84
3.2. Methodological Frameworks	84
3.2.1 Qualitative Methodology	85
3.3. Research Design	87
3.3.1 Population.....	87

3.3.2 Unit of Analysis.....	89
3.3.3 Data Collection Methods.....	90
3.3.4 Data analysis	91
3.3.5 Chapter summary	92
CHAPTER 4.....	92
UNIVERSAL ACCESS AND UNIVERSAL SERVICE POLICIES IN SOUTH AFRICA: PERIOD FROM 1995 TO 2005.	93
Introduction.....	93
4. 1 Historical Background.....	94
4.2 The Reconstruction Development Programme Policy Framework	95
4.2.1. The Genesis of the RDP.....	95
4.2.2 The canons of the RDP.....	96
4.2.3 The RDP and Telecommunication Services.....	96
4.2.4 Successes of the RDP.....	100
4.2.5 Failures of the RDP.....	102
4.3 Growth Employment and Redistribution Policy (GEAR) and its Reform	103
4.3.1 Gear and disregard for public good.....	105
4.3.2 The shortcomings of the RDP and GEAR.....	106
4.4 COMTASK: TOWARDS DEVELOPMENT COMMUNICATION, MODEL OF SHARED ACCESS.....	113
4.4.1 Comtask's constitutional and policy imperatives.....	113
4.4.2 Development Communication Imperatives.....	114
4.4.3 The quintessence telecentre model	117
4.4.3.1 The telecentres in the South African context.....	118
4.4.3.2 Chapter summary.....	125

CHAPTER 5

5.1 THE HISTORY OF THE SOUTH AFRICAN TELECOMMUNICATION SECTOR: THE PRE-AND POST APARTHEID ERA 126

5.1.1 The Ancient Regime.....	126
5.1.2 The transformation process.....	127
5.1.3 The Telecommunication White Paper 1995.....	131
5.1.4 The Telecommunication Act of 1995.....	133
5.1.5 The Post-Apartheid: Negotiated Liberalisation.....	134
5.1.6 Telkom's universal service mandate.....	135
5.1.7 Effects of negotiated liberalisation: Ministerial Domination and Regulation Constraints.....	136
5.1.8 Telkom's failures and market monopoly.....	137

5. 2 The role of USAASA in shared access.....140

5.2.1 Shared Access Model (Telecentres).....	142
5.2.2 USAASA's failures.....	143

5.3 South Africa Connect implementation timeline	146
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Chapter summary	148
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CHAPTER 6 146

DATA PRESENTATION AND FINDINGS 149

6.1 Analysis and Interpretation of the Research Findings..... 150

Introduction

SECTION 1 150

6.2 Perspectives: SA Connect, Industry experts and operators	151
6.3 Market structure	152
6.3.1 SA Connect	152
6.3.2 Industry expert and Operators Perspectives	153

6.3.2.1 High costs of communication.....	156
SECTION 2.....	164
6.4 Spectrum and Wholesale Open Access Networks: Perspectives....	164
6.4.1 SA Connect on Spectrum: Policy Position	165
6.4.2 SA Connect on Wholesale Open Access Regimes- Policy position and debates	165
6.4.2.1 The Wholesale Open Access Networks Debates and ECA Bill 2017.....	168
6.4.2.2 Interviews and Submissions	169
6.4.3. Digital Migration Impasse.....	175
6.4.3.1 Reasons behind the delay	176
SECTION 3	180
6.5 Community Access Centres and digital literacy: Perspectives	180
6.5.1 SA Connect : Policy stance on community access centres	182
6.5.2 DTPS: Perspective.....	183
6.5.2.1 Wired Schools	183
6.5.2.2 Wired Communities- Community Access Centres.....	186
6..5.3. Digital literacy Programmes	189
6.5.3.1 NPOs Perspective on community access centres and digital literacy programmes	192
Chapter summary	197
CHAPTER 7	197
SECTION 1	
DISCUSSIONS AND ANALYSIS.....	198
Introduction	198
7.1 Objective One: Challenges of implementing broadband in rural areas	199

7.1.1 Policy Position: Coordination Problems and Spectrum delays	200
7.1.2 Infrastructural access : Incessant dilemma.....	202
SECTION 2	205
7.2 Objective two: The role of ICASA in accelerating broadband penetration in rural South Africa	205
7.2.1 Market Structure.....	205
7.2.1.1 The mobile broadband market	205
7.2.1.2 The fixed line Market.....	208
7.2.3. Spectrum impasse and WOAN debates.....	209
7.2.4 Reasons behind high costs of communication:	215
SECTION 3	217
7.3 Objective three: The role of DTSPS in accelerating adoption and use of broadband services in rural South Africa.....	217
7.3.1 Community Access Centres and Digital Literacy Programmes	217
SECTION 4	223
7.4 Objective 4: To what extent will rural communities in South Africa benefit from the roll-out of broadband infrastructure in their areas.....	223
7.4.1 Income inequality: barrier to broadband adoption in rural South Africa.....	223
Chapter Summary	227
CHAPTER 8	228
CONCLUSION AND RECOMMENDATIONS.....	228
Introduction	
Revisiting the objectives of the study and possible solutions.....	228
CONCLUSION	228

RECOMMENDATIONS.....	230
1. Communities First: Inclusive Participation in Policy Making.....	231
2. Dissecting Market to regulate the dominance of incumbents.....	232
3. Investing in community access centres	232
4. Free bandwidth through UFS and CSR.....	233
5. Lessons from other Countries	234
6. Limitations Study of the study.....	235
7. Future Research	236
Chapter summary	236
REFERENCES.....	237
APPENDICES DATA SOURCES.....	259
Appendix 1: Policy Documents.....	259
South Africa Connect	259
Reconstruction and Development Programme (RDP).....	259
Growth, Employment and Redistribution (GEAR).....	259
Broadcasting Digital Migration Policy for South Africa.....	259
Telecommunication Act of 1996.....	260
Appendix 2: Broadcasts.....	260
MTN.....	260
Vodacom.....	260
Cell-C.....	260
Makwakwa, O representing A4AI.....	260
Mann, D. Representing A4AI.....	260
Appendix 3: Interviewees.....	260
1. Indra de Lanerolle:	260
2. Duncan McLeod :	261

3. Siya Qoza:	261
Appendix 4: Electronic Communication Amendment Bill.....	261

CHAPTER 1

OVERVIEW OF THE STUDY

Setting the scene

Chapter 1 outlines the background of the study and defines key concepts namely, the digital divide and broadband as an ecosystem approach. The chapter further explains the study's research problem, questions, delimitation of the study as well as the study's significance. It provides the context of the study in relation to rural communities and their rights to access to information. It further touches on preliminary literature concerning the digital divide and highlight gaps identified in these studies.

SA Connect is South Africa's Broadband policy document which gives expression to the country's vision found in the National Development Plan. This vision calls for "a dynamic and connected vibrant information society and knowledge economy that is more inclusive, equitable and prosperous" (DoC, 2013:1). In order to meet the national objective of access to affordable broadband for all, South Africa Connect allows for both demand- and supply-side policy interventions. These are reflected in a four-pronged strategy that seeks to bridge the digital divide in the country by making broadband universally accessible at a cost and quality that meets the needs of citizens by 2030. It does this by indicating possible adjustments to the structure of the market and the institutional framework necessary for effective regulation of an open and fair competitive environment. The four pillars of this strategy comprises of Digital Readiness, Digital Development, Digital Future and Digital Opportunity (DoC ; 2013).

For the purpose of addressing the key themes relating to affordability, access and digital literacy, this study focused on two pillars of the strategy, namely, Digital Readiness and Digital Development. The first pillar, Digital readiness seeks to lay the foundations for South Africa's future of broadband success by eradicating policies that constrain competitiveness in the telecommunication market and the rolling out of broadband (DoC,

2013). Programmes under this pillar calls for the restructuring of the sector and state institutions. The rationale behind this restructuring is to create an environment conducive to public and private investment in extending broadband to all parts of the country, and to improve levels of service-based competition.

Digital Readiness notes that to achieve this objective, an autonomous, accountable and well-resourced regulator, with the capacity and competencies to ensure that this broadband policy is implemented effectively and urgently will be requisite. It calls for a flexible regulator that will respond to dynamic shifts in the broadband sector. However, critical to note is that the pillar does not give a road-map to achieve this; neither does it show how the implementation programmes will be monitored. Nevertheless, it calls for a regulator that is capable of fulfilling its central role in the implementation of SA Connect. These include creating a fair and competitive environment. This ought to be done by enabling service-based competition through the enforcement of the wholesale access regulation to dominant market players' networks and mandatory open access to infrastructure rolled out through public investment (DoC, 2013).

Furthermore, SA Connect calls for the elimination of administrative bottlenecks and the lowering of hurdles to accelerate the rollout of both the wired and wireless broadband in rural South Africa. These subsequently, laid colossal responsibilities upon the Independent Communication Authority of South Africa (ICASA) to level the playing field within the telecommunication market and thus expedite the goals of universal access to broadband services. One of these main responsibilities was for ICASA to accelerate the assignment of broadband spectrum so as to accelerate broadband connection in rural areas.

This research sought to examine how South African broadband policy (hereafter, SA Connect) sought to address the problems that prevent seamless implementation and adoption of broadband in rural South Africa. Located within the aspirations of universal access, the study sought to find

out the progress made by SA Connect in relation to achieving the goals of universal access since the policy's promulgation in 2013. It traces the impact made by previous universal access policies in bridging the digital divide between the rural based communities and the affluent urban areas in South Africa. It further unpacks these experiences from the epoch of Reconstruction Development Plan (RDP) of 1994, a programme that contained elements of social security and which was later adopted by the Government of National Unity as a barometer upon which all development policies would precede; to the promulgation of the South African Broadband policy (SA Connect) in 2013. It unravels the pros and cons of digital divide policies and other related legislative experiences in the digital divide conundrum in South Africa. This is concluded by evaluating critical themes and emerging themes emanating from SA Connect and the topical debates around spectrum allocation in South Africa. The study focused specifically on themes which seek to guarantee the provision of universal broadband services for people in the outskirts areas of South Africa and their inclusion in the digital economy.

Access to internet and broadband services has become a basic need and an inevitable right to the human race. This expression finds resonance in Article 19 of the Universal Declaration of Human Rights which states that: "Everyone has the right to freedom of opinion and expression, this right include freedom to hold opinion without interference and to seek , receive and impart information and ideas through any media regardless of frontiers"(UN, 1948: 74). In South Africa, this expression is echoed in Chapter 2 section 32 subsection of the Bill of Rights in the South African Constitution which highlights that: (a), "Everyone has the right of access to any information that is held by state or another person and that is required for the executive protection of rights". These include the freedom to hold an opinion and to impart information among others (SA Constitution, 1996). It is these rights that, among others, gave birth to a plethora of policies and laws in the post 1994 era that seek to change the legacy of apartheid on information production and usage. These policies sought to work towards

achieving universal access to ICT and digital inclusion of all citizens (Lesame, 2009).

It is critical for the reader to note that the rights mentioned above can only be understood and appreciated against the historical background of colonialism and apartheid. These regimes violated the full spectrum of human rights as recognised in the 1948 Universal Declaration of Human Rights (Liebenberg, 2000). Backed up by gamut of segregation policies, apartheid consisted of the enforced political, economic and social exclusion of people along racial lines (ibid). Chapter 4 of this study traces how these policies and laws negatively impacted the country's path to development by looking at the universal access and service policies during this period.

The 21st century has experienced the advent and proliferation of new digital media platforms which have become critical channels and tools through which information and ideas are circulated. Thus critical to the above-mentioned right, is the right of access to broadband internet and the ability to leverage these digital media platforms. It is therefore, the state's responsibility to ensure that Internet access is broadly available, and that states may not unreasonably restrict an individual's access to the Internet. However, despite the clarion call made by the Universal Declaration of Human Rights Article, a historic document that was adopted by the United Nations General Assembly on the 10 December 1948, there has been a slow pace on the side of some developing countries to respond appropriately to access challenges, particularly in the outskirts areas of these countries.

1.1.1 The digital divide defined

The gaps between the poor and rich in underdeveloped and developing countries, and between those who have access to these information carrying devices and those who do not, still exist (Naude, 1999). This divide is referred to as the digital divide and may lead to information and knowledge poverty which contribute to underdevelopment (ibid). Digital divide suggests that individuals in certain demographic groups, such as rural communities, and individuals of lower socioeconomic status, are at a disadvantage due to

unequal access to ICT services (ITU, 2002, Rubin, 2010). The International Telecommunication Union (2006:3) notes, “digital divide exist not only between developed and developing countries. It also exists within each country, separating metropolitan cities from rural areas, the rich from the poor, and those with higher education from those with low or no education at all, men from women, and the young from the elderly”. As it is the case in South Africa, digital divide is further referred to as inequalities in access to the Internet, extent of use, knowledge of search strategies, quality of technical connections and social support, ability to evaluate the quality of information, and diversity of uses (DiMaggio *et al.*, 2001).

It is perceived as the invisible border that separates those who can afford ICTs and those who cannot, and it could, therefore, have far-reaching consequences (ibid). Servon (2008) observes that the widening gaps are mainly caused by failure of policy makers and experts to understand the real problems which aggravate the divide even further. For Lisa, the definitions of digital divide by the media and policy makers have been very narrow and incomplete. Lisa argues that digital divide gap has been defined in the narrow sense of having computer or permission to use internet. These narrow and incomplete definitions of the digital divide as access problem, has also created policies and programmes that are narrowly focused (ibid). As a result, policies meant to bridge the digital divide have failed to perfect the digital exclusion challenges. Observing the interplay of these erroneous policy conceptualisations, speaking at Global Commission on Drug Policy, Kofie Anan (2014:1) developed a punch line which he uses throughout his outreach programmes and he had this to say: “drugs may have destroyed many people, but wrong governmental policies have destroyed many more”.

In South Africa, these disparities and disfigurement which were mainly caused by skewed allocation of resources under apartheid policies were immensely felt in the telecommunication sector. Rural areas were excluded from telecommunications and new technologies benefits as the apartheid policies and laws ensured that these areas were starved of access to

telecommunications infrastructure (ANC, 1994). The aftermaths of the policy of separate development (apartheid) continue to confirm that rural communities across South Africa still face several challenges in accessing these critical ICT services, which broadband forms part of.

The purpose of this study was to critically analyse the relevancy of the current South African broadband policy against the backdrop of digital divide challenges that hampered the country for the past decades. As highlighted above, the study traced attempts by the government to bridge the divide between the urban and the rural populations by evaluating previous policies and legislations from the 1995 White Paper on Telecommunication to the promulgation of the 2013 Broadband Policy, with the latter being the core of the current study.

It must be noted that bridging the digital divide as espoused by the proponents of universal access and services, previously focused on the narrowband dimension of divide, namely landline telephony connections. Currently the focus is universal access to broadband which uses both the Wi-Fi connections and fibre networks. This calls for stern emphasis on policies and regulations that focus on the most sophisticated, complex and multifaceted broadband networks which encapsulate both data and voice transmission. Macharia (2013) rightly argues that, in order to extend the economic benefits and drive adoption of broadband services in rural areas, the inclusion of broadband into the universal access and service policy is critical and inevitable. Thus, whilst the study is located within the perspectives of universal access and services, thenceforth it will be termed universal access to broadband services (UABS). Thus, in order to address these challenges and achieve the goals of digital inclusion of rural areas, broadband ecosystem approach has been commended as apposite and inevitable during policy conceptualisation and formulation phases. Many developing countries have hailed broadband ecosystem as the relevant approach and panacea to the problems of digital isolation (FCC, 2011).

1.1.2 Definition of Broadband Ecosystem

The first critical factor that the researcher looks into is to find out the definition of broadband that fits well within the bounds of this study. Popular definition of broadband encompasses speed, where the broadband is defined in terms of speed per seconds, by and large espoused as megabytes per second (mbps) (Yongsoo Kim, Tim Kelly & Siddhartha Raja, 2010). But this definition leads to an incomplete conceptualization of broadband. More than just a network, broadband is an ecosystem comprising various elements that depend on high-speed connectivity to interact in different ways (ibid).

Thus the definition of broadband in terms of speed does not fit in the current project, since broadband speed alone fails to capture the deep underlying socio-economic challenges which may preclude broadband adoption in rural areas. Yongsoo Kim, Tim Kelly, and Siddhartha Raja (2010) define broadband as an ecosystem that includes its networks, the services that the networks carry, the applications they deliver, and users. Broadband is more than the supply of access to networks and services and, thus, represents a significant shift away from the models used with telephones. Hence perceiving broadband as an ecosystem helps define the likely roles that governments will need to play in using broadband as a tool in ICT for development.

This is to say, to foster broadband adoption, governments will have to move beyond their traditional “push” role of focusing only on supply-side growth in ICT infrastructure and development and neglect the demand side of the ICT sector. Infrastructure roll-out alone should not be perceived as the means to the end or better still, as a cut and dry solution to the digital divide challenges. It is for this reason that there is a need for developing countries, including South Africa, to consider a broader conceptual framework that leads to rethinking of the areas of focus for broadband policies and strategies. Therefore, to expand the ecosystem, governments will have to design or re-design various policies and programs that focus on

different components of the ecosystem. It is on these grounds that the study chose the broadband ecosystem definition as an ideal approach in dealing with deep seated problems of broadband connections in rural South Africa. This is a mammoth task for the current government when one looks at damage done by a gamut of segregation policies which were enforced by the apartheid government.

Interlaced with the aspirations of universal access and universal service, broadband is seen as a universal panacea to digital divide challenges. However, there are still a plethora of factors which require authentic attention before rolling-out the same in destitute areas. The Federal Communication Commission (2010c, 2011b) maintains that as broadband access becomes the new standard, a new digital divide opens. A stance which confirms the Knowledge Gap Hypothesis theory by Donohue *et al.* (1970) which posit that the more new information is spread through mass media conduits, other divides, such as knowledge gap between the communities of high economic status and low economic status also widens.

The FCC affirms that as the ICT space evolves, the same groups that previously had unequal access to basic internet connections are also stifled of access to broadband services. Looking at the perpetuation of these disparities, Les Guepes, (1849) once argued that, “the more things change, the more they remain the same”. Thus as broadband internet connections become essential, critical online activities such as access to education, government services, and social interaction; the provision of public access centres or points of presence and improved access to home; broadband services in vulnerable communities assumes greater importance (FCC, 2011).

d’Oultremont (1998) posits that there has been a growing emphasis on the potential of broadband communication infrastructures as crucial facilitators or drivers of bridging the digital divide in various countries, thus boosting the industrial and economic growth. Some developed countries have used broadband to address their economic crisis around the period 2005 and

2010. For instance, in order to boost the country's economy the United States launched the 7.2 billion broadband stimulus programmes which focused on providing service to un-served and underserved areas (ITU, 2012). The Australian government intended to spend about 43 billion for the construction of the National Broadband Network. Furthermore, to boost the country's economy, Portugal announced a EUR 800 million budget for its roll-out. On the same breadth, to complete the country's coverage the Ireland government invested EUR 322 million in a National Broadband Scheme (ibid).

In 2010, ITU in conjunction with the United Nations Educational Scientific and Cultural Organisation (UNESCO) launched the Broadband Commission for Digital Development. The aim was to encourage governments to implement national broadband policies and to increase access to broadband applications and services. Broadband was also recognised as a critical modern infrastructure contributing to economic growth at Broadband Leadership Summit held in October 2011 in Geneva (ITU, 2012). Subsequently, the summit set new targets for situating broadband policy within the universal access and universal service definitions to boost affordability and broadband uptake (Toure, 2012). These, as an effort to ensure seamless information exchange within and among countries through broadband communication services.

In an attempt to keep the country abreast with these global broadband trends, the South African government drafted a broadband policy in 2010. In the draft, the Department of Communication (2010) noted that broadband penetration in South Africa was very low, for that reason, intervention to address the same was required. The draft recognised the role, importance and impact of broadband in respect to economic development and growth as well as social benefit. In 2013, the South African national broadband policy was officially approved and gazetted. The policy gives expression to South Africa's vision in the National Development Plan (NDP) of "a seamless information infrastructure by 2030 that will underpin a

dynamic and connected; vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous” (SA, 2013:16). Primarily the main objective of this policy is to ensure universal access to broadband services by all South Africans in the year 2030.

1.1.3 Socio-economic benefits of broadband

In the 21 century, broadband may have a significant impact on productivity and may extensively affect how people live and work. Broadband is a key driver of economic growth and national competitiveness as it can contribute to social and cultural development (OECD; 2009). Research conducted by the World Bank shows that in low- and middle-income countries, every ten (10) percent increase in broadband penetration accelerates economic growth by 1.38 percent (ibid).

Booz and Company (2009) also found that, ten (10) percent higher broadband penetration in a specific year is correlated to 1.5 percent greater labour productivity growth over the following five years. Cities and countries which are broadband compatible attract more service firms and thus create more jobs than their narrowband counterparts. Broadband internet is ideal for new business models which allow information to be shared more quickly and stored more efficiently. It changes economic landscape, paves way for greater competition, increased labour productivity and ultimately stronger economic growth (Czernich, Falck, Kretschler & Woessmann, 2011).

Broadband paves way for fast internet access, subsequently giving the communities enhanced real and virtual opportunities to communicate with each other and to access government services, public officials and creating new businesses, among others (ibid). To attest to the imperativeness and the inevitability of broadband in the twenty 1st century, the United Nation established a Broadband Commission in 2010 as a top level advocacy body to promote broadband as an accelerator of global development and integrated the same with Sustainable Development Goals in 2015. This is to say, the Broadband Commission started to look at ways of promoting the

use of broadband to achieve the Sustainable Development Goals (Broadband Commission; 2016).

Critical to note is that the new digital divide does not just separate the mostly high income countries that are broadband leaders from the mostly middle- and low-income countries that are broadband laggards (Kim *et al.*, 2010). In contrast, the digital divide also works within countries and communities, separating those who use broadband from those who cannot or do not (*ibid*). The bitter truth is that, countries, communities, corporations, and individuals that lack easy access to broadband may miss social and economic opportunities. It is on these grounds that the current study believes that new digital divide interventions should make a clarion call for policy intervention strategies which are more topical, relevant, conscious and cautious of the ever-changing world of technology.

1.1.4 Rural South Africa

The challenges of broadband roll-out have been very massive, particularly in remote areas of developing countries which are vastly characterised by sparsely populated areas. South Africa is not an exception in this regard. The challenge here is that most rural areas are marked by scattered population. Lesame (2005: 100) highlights that “these areas are mostly found in the former homelands, created by apartheid removal system”. The South African government in an Integrated Sustainable Rural Development Strategy Document (2000) identified that rural areas generally have common characteristics such as dispersed populations with agriculture as the only dominant economy. “Apartheid policies exacerbated rural poverty by creating former homelands that had high density populations, dislocated settlements and poor housing, infrastructure and access to social amenities. These communities have been excluded from the benefits of economic growth and of modernisation” (ISRDS 2000: 8). Resource mobilisation opportunities are very limited in these areas and digital literacy is lacking.

Thus, the spatial dispersion of rural communities brings about tremendous challenges to any exogenous development initiatives, including broadband.

It is difficult for the provision of quality services as service providers face the challenge of bringing services at a very high cost to these areas (ISRDS, 2000). The American Rural Broadband Policy Group (2011) argues that the problem of dispersed populations has served as an excuse for telecommunications corporations to deny extending broadband infrastructure to rural areas. This is the stance that continues to aggravate the digital divide challenges, thus leaving rural areas destined to lack access to broadband.

Subsequently, rural residents miss out on opportunities for education, telemedicine, economic development, suffocate innovation, emergence of rural entrepreneurs and civic participation thus leaving rural areas are in danger of falling further behind in the digital space. The Rural Broadband Policy Group (2011) challenges policy makers to coin broadband policies that acknowledge high-speed internet access as a necessity and consider that all communities must participate in the digital future programmes.

Stats SA (2016) population statistics approximate that 19 million or 42% of the population in South Africa's is based in the rural areas. According to South Africa's Integrated Sustainable Rural Development Strategy report (2000), 70% of these rural residents are classified as poor. Rural areas in South Africa are distinguished by exceedingly low access to basic services in areas such as sanitation, social services, transport, water, electricity, waste removal and communication infrastructure. This has resulted in these communities living in higher cost more than their urban counterparts. Patel (2010) noted that the poor quality of services in rural South Africa has been substantiated by low and declining levels of economic productivity. For Patel (2010) , lack of a vibrant rural economy, attractive jobs and limited entrepreneurial opportunities, rural income is constrained and this lead to massive exodus of these communities to the city centres.

These insalubrious socio-economic conditions reduce opportunities and the limited tax base also has a negative impact on the ability of the rural areas to garner resources to fund their own development programmes. This

subsequently creates a dependence syndrome as they search for help from outside (Burger, 2000). The Integrated Sustainable Rural Development Strategy (ISRDS) (2000) notes that rural areas are often unproductive and politically marginalised, this subsequently, rendering them powerless in influencing government policies. While the researcher concurs with the ISRDS assertions, the critical question one needs to consider is: If these communities are ostracised in the formulations of uncomplicated basic service policies like water, housing and sanitation to mention a few, how then can their participation be considered genuine and worthwhile in the formulation of sophisticated policies like Broadband? Rhetoric as it may seem to be, this question will be answered as this study progresses.

In his writings on Development Theory and Foundations of Universal Access Policies, Neto (2005) argues that the fact that there might be other validations for public policies, does not put away the need to consider whether a given policy is relevant, it advances, deters or does not stimulate any impact in the development process. This is a point in policy debate that remains central, Neto argues. Suffice to say, this is exactly what the current study intended to achieve, that is, critically analysing the saliency of South African Policy in rural areas. Thus, for the purpose of this research the definition as espoused by the ISRDS (2000) and Lesame (2005) is used; and that is; rural areas consist of dispersed and destitute communities; and very complicated areas to service.

The current study holds that without a full understanding of the complex broadband ecosystem, the strengths and flaws that exist within the different elements of the broadband ecosystem, it is impossible for policy makers to formulate effective policies that will effectively guide the rural economy to be part of the global knowledge economy, the same stance which was previously advocated by Melody (1996). According to Kim *et al.* (2010), the Broadband Ecosystem policy strategy proposes a holistic approach to broadband development which policy makers in developing countries can

adopt when outlining a framework that supports the development and universalisation of broadband in their respective countries.

The broadband ecosystem framework proposes that governments develop policies and programmes that focus on the different components of the broadband ecosystem (Kim *et al.*, 2010). These components include investment and demands, high speed networks, availability, services, affordability and relevance, access and application.

The unfortunate part is that many policies have been concentrating on certain components of the ecosystem and neglecting others. The current study approaches the broadband policy analysis taking into account broadband as an ecosystem. This is to say, the following components of broadband ecosystem are explored: users, affordable access and relevance, availability, and service. These elements reverberate appositely with objectives and aspirations of the current study. Kim *et al.* (2010) harness the stance of integrated approach (broadband ecosystem approach) by highlighting that, to produce better results and avoid an incomplete policy or strategy, holistic approach is inevitable.

1.2 Statement of the Problem

Since 1994, South Africa has experienced remarkable changes in the communications sector, characterised by rapid changes in technology and potential technological growth (Barker 2001). The Government of National Unity introduced policies and legislation, such as the Reconstruction Development Programme Policy, White Paper on Telecommunications and Telecommunications Act of 1995 as well as the Electronic Communication Act of 2005. The rationale behind introducing these policies, Acts and legislations was to enable provision of universal access services to previously disadvantaged and excluded communities, among others. However, despite these technological metamorphosis and attempts by the government to reach people in rural areas, there is still a significant gap between the information-rich, a small minority, and the information-poor, the majority of the rural population in South Africa. Challenges include among others,

lethargic penetration and adoption of internet in rural South Africa due to the high cost of connectivity, data and bandwidth. In a study conducted by Attwood, Diga, Braathen and May (2013), it was discovered that policies meant to implement information access points through telecentres in South Africa were far from accomplishing the national objectives. Subsequently, this calls for a policy intervention that will resonate with the digital divide challenges in rural South Africa. Rural areas are the ones that bear severe brunt of this divide as the gap continues to widen despite a plethora of policies aimed at arresting the problem.

To aggravate matters even more, the recent rankings show that South Africa's state of ICT readiness remains very low at position 102nd due to poor quality of broadband infrastructure (WEF, 2015). The cost of ICTs in South Africa has been too high with South Africa ranked at 107 positions out of 143 countries. The level of ICT use by the government still lags behind with South Africa ranked at position 105th out of 143 countries, earning very low marks in terms of online services provided to the population (ibid). South Africa's broadband penetration remains poor compared to that of other lower and middle income countries and the last two decades South Africa has gradually declined on global ICT Indices (DoC, 2013). At the backdrop of the above, it is unequivocally clear that, from 1996 to date, universal access interventions in South Africa have been unsuccessful and had derisory impact on socio-economic development of this country.

Against the backdrop of the aforementioned failures and challenges, this study evaluated the current South African Broadband policy's strategy of underpinning dynamic, connected, vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous by 2030.

1.3 Research aims; objectives and questions

1.3.1. Aim

The aim of this study was to examine how SA Connect broadband policy could effectively be implemented in rural South Africa in order to bridge the digital divide so that rural communities may gain from the perceived benefits of broadband.

1.3.2 Research Objectives

In order to achieve the aim of the study, the study addressed the following objectives:

- ❖ examined how the South African broadband policy sought to address problems that prevent the implementation and adoption of broadband in rural South Africa .
- ❖ interrogated the role of the Independent Communication Authority of South Africa (ICASA) in accelerating the penetration of broadband in rural South Africa.
- ❖ interrogated the role of the Department of Telecommunication and Postal Services in the adoption and use broadband services in rural South Africa.
- ❖ assessed if rural communities were benefiting from the roll-out of broadband infrastructure in their areas.

1.3.3 Research Questions

The study was guided by the following research question:

How can the South African Broadband policy help bridge the digital divide in South Africa? In order to answer the above question, the following sub-questions were addressed:

- ❖ How does the South African broadband policy sought to address problems that prevent the implementation and adoption of broadband in rural areas?

- ❖ What is the role of the Independent Communication Authority of South Africa (ICASA) in accelerating the penetration of broadband in rural South Africa?
- ❖ What is the role of the Department of Telecommunication and Postal services in the adoption and use of broadband in rural South Africa?
- ❖ To what extent will the rural communities benefit from the roll-out of the broadband in their areas?

1.4 Significance of the study

The Federal Communication Commission (2010b) argues that for many years, digital divide problems have been escalating despite countries endeavours to close these widening gaps. The significance of this study precedes from the fact that despite many test bed projects such as that of Mandioma (2006) and Johnson (2008) to bridge the access divide between rural and urban areas, research studies investigating how policy tackle digital divide problems in rural South Africa have been minimal.

As broadband access becomes the new standard of universal access and services, policy formulators ought to have a clear understanding of the background and the challenges facing the beneficiaries of the policies in question, in this context; SA Connect. The rationale behind formulating any public policy is to solve problems or to provide particular services to communities. Therefore, critical thinking, serene ideas characterised by inclusiveness and dialogue with the beneficiaries should be hierarchized at the policy conceptualisation stage. Subsequently, this will dispel the notion that decision-making rests in the hands of few elites in one country. Innovatory policies developed elsewhere and imported with the belief that they will be successful in a different context should be dispelled (Stone, 1999).

It is expected that the findings of this study will inform policy formulators on salient digital inclusion strategies which resonate well with the South African rural communities. For academics and researchers, it is expected that the study will shed light to these fields by developing better

propositions; and theoretical understanding of how the broadband policy can be useful in solving the digital divide problems in rural South Africa. With regard to the telecommunications operators and the corporate world, it is expected that the study will present strategies that are feasible in achieving seamless connection in rural South Africa.

1.5 Delimitations of the study

Delimitations are restrictions laid down by the researcher in order to control the range of a study (Marzieh, ND). They are constructed prior to carrying out a qualitative research. This is done so as to reduce the amount of time spent in certain areas that may be unnecessary and perhaps even unrelated to the overall study (ibid). Thus, the analysis of the study was restricted to specific components of the broadband policy which were regarded as key to broadband adoption and relevance in rural areas. These included, among others, the users' digital literacy level and how the policy capacitated them, affordability and equitable access to broadband services by rural communities and the policy's relevance (socio-economic benefits) to these communities.

The components mentioned above are similar to the core pillars of universal access and universal service; namely, availability, access and affordability, and the same formed conceptual base of this study. The researcher did not include some components of the ecosystem as they have been conspicuously covered in past studies. They are more like desktop components which are always within the radar of broadband proponents and policy makers across the globe, e.g., broadband speed and applications.

Chapter summary

Chapter 1 outlined the background and defined key concepts of the study, namely, the digital divide and broadband as an ecosystem approach. It further explained the study's research problem, questions, delimitation of the study as well as its significance. It provided the context of the study in relation to rural communities and their rights to access to information. The

chapter further discussed preliminary literature concerning the digital divide and highlighted some gaps identified in these studies.

STRUCTURE OF THE STUDY

CHAPTER 1

OVERVIEW OF THE STUDY

Chapter 1 outlines issues to the background of the study; defines key concepts of the chapter, the digital divide and the broadband ecosystem approach. The chapter explains the study's research problem, aim, objectives, research questions, limitation and de-limitation as well as the study's significance. It provides the context of the study in relation to rural communities and their rights to access to information. It further expounds on preliminary literature to which gaps requiring insight concerning the digital divide were identified.

CHAPTER 2

LITERATURE REVIEW

Chapter 2 presents the literature review of this study. It tackles the discourses and perspectives around the digital divide in developed and developing countries. The Chapter is divided into section 1 and 2.

Section 1

Towards rural digital inclusion across the globe: policies and practices

Section 1 evaluates policy initiatives and regulatory reforms regarding universal access to broadband in developed and developing countries across the globe. It explains how these policies reformed and led to the liberalisation of telecommunication markets in these countries.

The chapter further unravels how a sound regulatory environment can help facilitate healthy competitions which in turn will accelerate goals of universal access to broadband for all. It looks at salient ways of bridging the digital in rural areas. The significant role played by communities in setting up their own broadband community networks to bridge the digital divide is

also discussed. It evaluates the essentials of broadband penetration and adoption in various countries across the globe. It further gives the reader broader perspective on the importance of community broadband networks and the need for policy makers to consider adopting this model in rolling out broadband in rural areas. It finally draws from the views of various scholars who critique the negligence of policy makers to distinguish between availability of ICT infrastructure and its accessibility. For these scholars, this erroneous conceptualisation of conflating availability with access, be it physical usage or cognitive abilities of the users, has been among others, the main cause behind lack of broadband uptake in rural areas.

Section 2

Broadband penetration and adoption in Africa

Section 2 zooms into Africa and interrogates the continent's broadband experiences. Since Broadband is a new phenomenon, its literature and success stories in Africa are few. The section shows how due to exorbitant costs most of the developing countries have compressed their broadband roll-out programmes to urban areas, (affluent areas), thus escalating the digital divide even further. Many seem to be neglecting the rural areas because of high costs which come with connecting these areas as well as expensive broadband devices.

CHAPTER 3

THEORETICAL AND METHODOLOGICAL FRAMEWORKS

The chapter deals with theory and conceptual frameworks as well as the methodological perspectives of the study. It is divided into two (2) sections. Section 1 introduces theoretical perspectives and conceptual frameworks while section two looks at the methodological issues of the study.

The first section presents the lenses through which the researcher selected to approach issues pertaining to the study. It draws from the cannons of Knowledge Gap Hypothesis theory as espoused by Tichenor, Donohue, Olien

(1970). Through the use of Knowledge gap hypothesis, the study sought to find out how SA Connect, the market and the Regulator intended to ensure digital inclusion of the socio-economically challenged rural communities. Drawing from Gusteirn's Community Informatics, the Access Rainbow conceptual framework and principles of universal service and access.

The Chapter provides possible and salient trajectories that South Africa could adopt to ensure broadband adoption in rural areas. Chapter 3 also encapsulates some key Freirean participatory concepts such as; dialogue, conscientisation and praxis (that is action/reflection) as apposite lenses through which the main themes of this study were analysed. In its pursuit of finding how the debates around digital inclusion could be advanced, the Chapter draws from Article 19 of the United Nations' Universal declaration of Human Rights (1948) and Chapter 2 of the South African Constitution's (1996) Bill of Rights to advance that internet access should be perceived as a basic human right.

Section 2: Methodological Frameworks

Section 2 of this Chapter provides an overview of the methodological issues of the study, drawing mainly from the Qualitative methodological appliances. It explains how the methodology fits within the bounds of the study. It also explains how commonly it is accepted that critical studies cannot be articulated and addressed adequately within the limits of by positivists' approaches which subject their analysis to quantifiable data measurements, (Du Plooy, 2009). Drawing from its flexible strengths and ability to investigate the deep seated underlying challenges, the approach gave the researcher leeway to investigate deep-seated digital divide cons in rural South Africa. Its potency and aptitude to address issues within spatial and socio-cultural milieu (Neuman, 2011) could not be ignored by the study. It is therefore the explorative and descriptive nature of this method that gave the study an ideal freedom to critically analyse the role of broadband policy within the context of South African rural communities. Through its flexible non probability data collection techniques and tools, the researcher was able

to explore ways of eliciting rich data from the policy documents, reports, literature, submissions and through in-depth interviews with few selected experts. The study was conducted on the longitudinal basis and interviewees were selected by virtue of their expertise in the field of telecommunication sector and their proximity to the South African broadband policy.

CHAPTER 4

UNIVERSAL ACCESS AND UNIVERSAL SERVICE POLICIES IN SOUTH AFRICA: PERIOD 1995-2005

Chapter 4 introduces South Africa's universal access attempts to bridge the digital divide. It provides historical background and the overview of South Africa's legislative and policy attempts to bridge the digital divide between the rural and urban areas. It focuses on the impact these policies and legislative attempts made in ensuring digital inclusion of the communities in rural South Africa.

The Chapter traces these attempts from the epoch of the Reconstruction Development Plan of 1994 to the promulgation of Electronic Communication ACT of 2005. The chapter unravels the pros and cons of digital divide policies and other related legislative episodes in the digital divide conundrum. The first part of this Chapter provides South Africa's historical background and the essence of Reconstruction Development Policy Framework in relation to the state's universal access and universal service targets.

It explains the reasons behind the genesis and the rationale behind the conceptualisation of the Reconstruction and Development Programme. It explains the principles, success and failures and reasons behind the RDP. It further touches base on the neoliberal Growth, Employment and Redistribution (GEAR) policy by bringing to the surface the tendency of

neoliberals of undermining the public good. It also looks at the government's communication imperatives to address issues of exclusion by bridging the communication divide between the state and its citizens post 1994. This epoch saw the government adopting a new philosophical way of communicating with its citizens, namely, participatory development communication approach as espoused and popularised Freire in the 1970's. Through this philosophy, the government sought to usher a new way of bringing information to previously disenfranchised communities. Critical to achieving this objective, was the use of Thusong ICT telecentres which the state perceived as an ideal shared access model of bridging the digital divide. The Chapter looks at the quintessence of this model and how it fared in rural South Africa.

CHAPTER 5

THE HISTORY OF THE SOUTH AFRICAN TELECOMMUNICATION

SECTOR: THE PRE-AND POST APARTHEID ERA

Chapter 5 looks at the history of the South African Telecommunication sector. Drawing mainly from the writings of Horwitz 2001, it presents how the early telecommunication regime fared. It further unravels the transformation processes of the sector by looking at the White Paper on Telecommunications and transition to promulgation of the Telecommunication Act of 1996. It further explains what Horwitz (2007) calls negotiated liberalisation and the ministerial domination and regulatory constraints effects it caused in the South African telecommunication sector. The Chapter concludes by providing a brief analysis of the role of state institutions in provision of universal access and universal service, namely, Universal Service Agency of South Africa and Telkom.

In a nutshell, Chapter 4 lays a strong foundation for Chapter 6, 7, and 8. Thus, some of the interpretations, analysis and findings in the aforesaid Chapters appositely connect with explanations made in this Chapter. It is

critical for one to clearly grasp how this Chapter is compounded and how it appositely connect with the last three Chapters of this study.

CHAPTER 6

DATA PRESENTATION AND ANALYSIS

This Chapter analyses and discusses the findings of this study. It is divided in 3 Sections and each section analysed a selected theme in line with the research questions and objectives of this study.

Section 1: Market Structure

This section provides the policy position and views of the industry experts and operators on the structure and current state of the South African telecommunication market. It investigated the reasons advanced by the operators in relation to high communication (data) costs and whether the same were justifiable.

Section 2: Spectrum and Wholesale Open Access Network: Perspectives

Section 2 looks at the position of SA Connect on two themes, namely; spectrum allocation and open access regimes. It further took issues emanated from the policy and needed more clarity to industry experts for further interrogation. It investigated the reasons behind postponement of South Africa's migration from analogue to digital broadcasting and how this has affected the acceleration of broadband roll-out in rural South Africa. The section concludes by looking at the discussions around the hotly contested spectrum allocation debates.

Section 3: The role of community access centres in facilitating digital literacy programmes in rural South Africa.

Section 3 explains the last two themes of the study, namely, Points of Presence and their role in facilitating digital literacy programmes in rural South Africa. It looks at the submissions made by the made by Department

of Post and Telecommunication and Postal services about the progress the government made in connecting rural areas. It analyses the views of the government, industry experts and the NGO's perspectives on the importance of community (public) access centres and digital literacy programmes. The section provides the basis on how the two themes, digital literacy and public access centres relate in bridging the digital divide. Suffice to remind the reader that in terms of access penetration (not adoption), SA Connect states that South Africans shall have universal access to Broadband services by 2020. Universal access means that there will be a public ICT access point within a two kilometre radius of any person in a sparsely populated area (DoC, 2013).

The collected Data were analysed and interpreted in order to put together findings that correlate with the research questions and objectives of this study. This study used thematic analysis approach which focused on describing the main themes in the policy itself which speaks to broadband roll-out in rural South Africa.

CHAPTER 7

DISCUSSIONS AND ANALYSIS

This Chapter is about analysis and interpretation of the collected data. It points out at the factors that prevent the speedy acceleration of broadband penetration and adoption in rural South Africa. It highlights the difficulties around the conceptualisation of apposite policies that could accurately diagnose the rural and urban digital divide mantras in South Africa. It further discusses the implications of inaccurate timing of pronouncement of policies by the state; unreformed telecommunication market structure; the spectrum impasse as well as the inferences that result from poor and incompetent regulation. It notes that these factors are significant barriers of broadband penetration and adoption in rural South Africa.

The Chapter further provides brief discussions around the hotly debated wholesale open access network. It highlights contrasting views of the key

operators and state. It discusses these contrasting poles and inculcates the reasons behind high costs of communication in South Africa as submitted by operators.

In conclusion, the Chapter discusses the more apposite digital inclusive strategies that South Africa may employ to bridge the digital divide. Critical to these strategies is how they hold public access centres and access to internet as a basic human right in high esteem. It affirms this right by making reference to Chapter 2 of the Constitution of South Africa and argues that internet access is a basic human right and thus rural communities should not be deprived this right in anyway whatsoever.

CHAPTER 8

CONCLUSION AND RECOMMENDATIONS

Chapter 8 provides recommendations of this study. Drawing from the findings of the study, conceptual frameworks and the literature reviewed, the chapter suggests smart ways which the state may explore in bridging the digital divide. It argues that if South Africa indeed seeks to achieve a dynamic, connected and vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous for all its citizens, dialogue and praxis (continual engagement and reflections) with its citizens are inevitable. It further endorses broadband community initiatives and argues that policy makers and the state should learn some best practices from these initiatives and inculcate the same in their policy conceptualisations. One way of supporting these initiatives is for the state to support public accesses and digital literacy programmes, the study argues.

CHAPTER 2

LITERATURE REVIEW

INTRODUCTION

This chapter presents the literature reviewed for this study. It tackles the discourses and perspectives around the digital divide in developed and developing countries. It is divided into two sections. Section 1 explains the policy initiatives and regulatory reforms regarding universal access to broadband in developed and developing countries across the globe. It elucidates how these policies reformed and led to the liberalisation of telecommunication markets in these countries.

The chapter unravels how a sound regulatory environment can help facilitate healthy competitions which in turn accelerate goals of universal access to broadband for all. The Chapter also looks at the significant role played by communities in setting up their own broadband community networks to bridge the digital divide. It evaluates the essentials of broadband penetration and adoption in various countries across the globe. It gives the reader a broader perspective on the importance of community broadband networks and the need for policy makers to consider adopting this model in rolling out broadband in rural areas. It finally draws from the views of various scholars who critique the negligence of policy makers to distinguish between broadband availability and access. For these scholars, this negligence is one of the causes behind lack of broadband uptake particularly in the outskirts areas, among others.

Section 2 zoomed into Africa and interrogates the continent's broadband experiences. Since Broadband is a new phenomenon, its literature and success stories in Africa are few. The section shows how due to exorbitant costs, most of the developing countries have compressed their broadband roll-out programmes to urban areas (affluent areas), thus escalating the digital divide even further. Many seem to be neglecting the rural areas

because of high costs which come with connecting these areas as well as expensive broadband devices.

SECTION 1

Towards Rural Digital inclusion across the globe: Policies and Practices

2.1 ASIA

2.1.1 South Korea

The study conducted by Richard John Simpson (2013) revealed that South Korea has emerged as a world leader in the growth of broadband connections, and by 2009 had achieved a penetration rate in excess of 94%. Simpson attributes Korea's success/performance to a combination of aggressive regulatory policy reforms aimed at the rapid liberalization of the telecom marketplace and an intense commitment to a knowledge-based economy that drove the adoption of broadband across the entire economy. According to Simpson (2013), it all started in 1998 when the Korean government engaged in a series of regulatory policy reforms to promote a new entry and facility based competition as well as a series of adjusting regulatory policies which further reinforced competition. Simpson puts forward that this progressive liberalisation of the market paved way for a huge number of network providers who by entering the broadband market, produced aggressive inter-modal competition (ibid).

John Simpson (2013) highlights that to increase demand, the broadband national strategies announced in (e-Korea) and (u-Korea) placed a heavy emphasis on the computerization of all aspects of Korean society, which then helped to accelerate rapid broadband adoption and use. Subsequent to computerisation, South Korea also made efforts to ensure broadband adoption and use by making their services available online which greatly encouraged businesses and the general public to take advantage of relatively cheap broadband Internet services. As if it was not enough, the state also

financed e-learning and implemented digital literacy initiatives to ensure that the general public enjoy the benefits of broadband (ibid).

Ahn (2012) and Akamai technologies (2012) recorded that by 2012, Korea had turned to be arguably the world's most intensively networked economy, with close to universal Internet availability and mobile coverage, and at least 80% take-up of broadband nation-wide with the highest overall connecting speed of all countries.

From the Korean study, some factors which the country did exceptionally right were highlighted and these subsequently, took the country to the pinnacle of broadband indices. Some of the key factors included, the liberalisation of the market to allow free competition, and strong regulatory policy which ushered both facility and service based competitions. It was the institution of strong regulatory agency which introduced fair competition within the South Korean telecommunications sector. This is the sector which when the objectives of Broadband roll-out are to be realized, new entrants ought to be treated fairly by both the regulator and the incumbent telecommunications operators to ensure healthy competition.

Kim, Kelly and Raja (2010) maintain that competition is critical to successful broadband market promotion. The significant notable factor in Korea is the country's exquisite strategy on digital literacy programmes which encapsulated the entire nation. It is important to note that the current study's setting is rural South Africa, which means the geographical and demographic constraints of broadband roll-out in the two countries may be vastly dissimilar. Nonetheless, it will be appropriate to learn something out of South Korea's impeccable approach in rolling out of broadband.

The Korean scenario clearly showed the crucial role played by the government in instituting aggressive regulatory policies to expedite liberal telecommunication sector so as to achieve broadband penetration and adoption. The Korean government made broadband growth and adoption its

prerogative by initiating projects and supporting the same with relevant policies. The country chose an integrated approach towards universal access by involving the private sector in most of its broadband roll-out strategies (Zabballas 2014). As if it was not enough, the government made direct investments and provided subsidies and loans to both electronic communication network and service providers.

John Stutter (2010) a CNN reporter on the caption “Why internet connections are fastest in South Korea”, highlighted that the South Korean success has been accredited to the country’s long term vision in broadband and very fast broadband. The country set a long term broadband policy plan in which it set standards that around the 1990’s that it would be a highly connected country and with a high degree of internet literacy by 2013(ibid). Stutter’s sentiment was echoed by Zabballas (2014).

Research shows that the Republic of Korea is one of the most advanced countries in the world in terms of broadband development (Stutter, 2010; Simpson 2013; Zabballas, 2014). Zabballas accredited these successes to a combination of factors, which inter alia include, strong economic growth, a densely populated country with a small proportion of the population residing in rural areas, and most importantly, effective and extensive broadband policies that were put into place at an early stage. These policies were implemented through various master plans, funded by the government and the private sector. Within these master plans, Korea’s broadband was able to design a crystallised, centralised as well as a detailed and well-designed approach to ICT and broadband development conditions, subsequently, bridging the digital divide.

2.1.1.1 Lessons Learnt

Some lessons learnt from the Korean experience confirm the adage that says, it is the early bird that catches the fattest worm. One notes that Korea’s position was inspired by two factors. Firstly, the country seems to understand that bridging the digital divide must be preceded by appropriate

policies and aggressive, competent and active regulation. Countries aspiring to follow the Korean example, such as South Africa, may learn that it is not only crafted policies that bridge the digital divide, but that policies must be relevant and be accompanied by programmes of action (such as e-Korea, u-Korea and GigaKorea).

The secondly lesson learnt include Korea's intense focus on meeting the policy targets which the country set around the 1990's as well as its will to provide quality broadband services with ease. The aggressive approach which Korea chose clearly shows that active regulation is significantly critical in bridging the digital divide. South Africa Connect implementers may learn one or two lessons from Korea's experience. These include among others, meeting its telecommunication sector's regulatory demands. It is important to note that the researcher is not submitting that South Africa should equate itself to Korea; however, the submission made here is that policy makers and implementers can benefit greatly by learning appropriate methods and sequence of bridging the digital divide.

2.1.2 Malaysian Broadband Policy

The study noted how Korea through a combination of aggressive regulatory policy reforms and commitment to knowledge economy accelerated broadband adoption. The literature review also picked up how communities in the rural America and Australia became architectures of broadband roll-out in their own spaces. These communities drove their own connectivity programmes through broadband community networks. Some of these communities could not wait for the government to connect them; conversely, they were actively involved in connecting their own villages using broadband community networks.

Whilst this is a worth commendable exercise, it is imperative to note that the level of awareness regarding the socio-economic benefits of broadband between rural Americans and rural South Africans may not necessarily be the same. For example, their level of education and comprehension may differ. Subsequently, the latter may be subjected to perpetual digital

exclusion. However, there are good lessons to be extracted from communities in rural America. They did not wait for the government to connect them; in contrast, they took it upon themselves to connect their own spaces. Similarly, in Australia we note that community participation in policy formulation took the centre stage.

2.1.2.1 Funding Model: Imposition of Universal Service Obligation

In Malaysia the study noted how the government comprehensively rolled out broadband to previously marginalised communities using the Universal Service Funds (USF). Adopted in 1998, the Malaysian universal broadband policy's goal was to provide access to telecommunication services to underserved areas. The state used Universal Service Funds to provide PCs and one year of free broadband Internet access to underserved communities around Malaysia (ITU, 2014). This is an approach similar to the one adopted by Korea called (e-Korea) and (u-Korea) which placed a heavy emphasis on the computerization of all aspects of Korean society. For thousands of citizens in remote areas, the programme offered their first introduction to modern technology and all of the social and economic benefits it offers (ibid). In his analysis of the attributes of innovation, Rogers (2003) termed this trialability and observability. This is the stage where the new innovation is tried and its rate of adoption by members of a social system is observed for a certain period of time, a case noted with Malaysian roll-out programme.

Malaysia had already distributed the first 127,000 PCs towards broadband access in underserved areas by 2011 (ITU, 2014). The second phase with more than 300,000 units was to be distributed by 2013 (ibid). The state managed to develop a local ecosystem of suppliers, system integrators, and telecom service. One key aspect of this programme that resonates well with the current study is that it gave birth to sustainable broadband community centres. This is a paragon of American and Australian broadband community networks, but this time driven by the government and one which the study believe could be applied in the South African context.

For nearly a decade, Malaysia used USF effectively to build and operate community broadband centres in rural and remote areas. During the first three years, the USF pays for the construction and operation of the centres, while the centres use that time to develop their own sustainable funding methods (ITU, 2014). And the results have been positive with evident success recorded in the following:

- ❖ hundreds of community broadband centres with broadband Internet access have been built and training provided to serve remote and rural regions; and
- ❖ the community centres managed to develop a variety of sustainable funding methods, including requiring payment for services (ICT training, printing, copying, faxing, etc.) and selling ICT-related devices such as PCs and USB thumb drives (ITU, 2014).

2.1.2.2 Lessons Learnt

The current study accedes that the one size fits all approach in policy formulation and implementation should not be encouraged. As highlighted above, challenges of broadband roll-out differ from country to country. Therefore, South Africa's digital divide challenges may not necessarily be similar to those of Malaysia owing to historical variations of the two countries. However, the Malaysian experience provides a very salient universal broadband trajectory for most of developing nations since it focused solely on broadband in rural and underserved areas. It provides lessons as to how the Malaysian government managed to use Universal Service Obligations policy to force the nation's operators to contribute six percent of their total net revenue. Subsequently, accrued revenue was used to build and operate community broadband centres in rural and remote areas of Malaysia. We note that in this study an impartially regulated telecommunication market may trigger healthy competition and thus accelerate broadband penetration and adoption in rural areas. The current study submits that Malaysian approach provides a little bit of insight into

broadband penetration and adoption in rural areas and to a certain extent can be helpful for developing countries.

2.2 NORTH AND SOUTH AMERICA

2.2.1 Rural America: Broadband Community Initiatives

Pospisil '13 (2013) provides a very informed contribution within the telecommunications field with reference to the roll-out of broadband communication in rural areas. In a broadband study conducted in rural America, he confirmed that it is not a simple task to bridge the digital divide in the rural areas owing to factors such as expensive and obsolete technologies which are unable to provide the essential services to America's underserved economic and social life. Pospisil '13 (2013) highlights that investing in new broadband infrastructure in rural areas is a challenge, hence the need for the state policy makers to explore new innovative policy options to support broadband deployment to achieve universal access to broadband, and these requires a strong supervision, he argues.

Why is it imperative for the policy makers to keep up with the rapid pace of technological change? Pospisil makes a valid and authentic point when alluding that the telecommunication services demanded by the consumers now bear no resemblance of the ones of the past two decades. Fixed telephones are almost outdated and have been replaced by flexible Smartphones and broadband communications gadgets such as tablets (ibid). However, this study argues that such arguments cannot be salient in the context of developing countries, particularly in their rural settings. It must be noted that as a result of the communities of low economic status, mainly the rural communities, access to broadband services in the context of this study is professed in a sharing mode, that is, public access centres, not necessarily in the use of expensive smartphones and tablets.

In the words of Pospisil '13 (2013), broadband community network is the most salient and functional approach not only to roll-out broadband in the

rural areas, but also to decrease costs. The author correctly notes that this non-traditional way is one of the most feasible and workable strategy which the state policy makers can plan around when deploying broadband services in rural areas. What is of significant note in this approach is that rural communities do not need to wait for telecommunication operators to decide on their behalf as to when to roll-out broadband. Despite failing to connect these communities on time, most of the telecommunication operators were not fond of this approach; hence at one point they interdicted these communities from digitizing their own spaces (ibid).

2.2.1.1 Lessons Learnt

A valuable lesson which state policymakers can learn from these communities is that they invested in their own broadband networks. It is this investment that transcends into community ownership of these networks. It is on these grounds that Pospisil '13 (2013) opines that the state policy makers should make a provision that if a community chooses to build a broadband network, policy should be developed that give them the freedom to do so. Having spoken about the network, it is important for the reader to note the current study is focusing on the ecosystem approach to broadband, which include the imperatives of capacitating the users with the necessary skills for usage as well the affordability means.

While the study provides an approach which is salient in the context of the rural communities, it did not delve on some ecological issues of broadband such as the users themselves. For instance, it neglected the capacity building programmes such as the digital literacy programmes, the socio-economic conditions and the demographics of the communities in question. These factors, including sound regulatory framework which deals with the anti-competitive behaviour of some incumbent operators, ought to be addressed extensively if broadband is to be sustainably used in the rural areas. This calls for the need to conduct an extensive feasibility study on geographical constraints and demographic limitations of the supposedly beneficiaries before rolling out broadband.

There are notable successes of the rural American broadband community network story. Thus it would be ideal for policy makers to see how these community models can be accommodated within their policy frameworks. Suffice to say it is imperative for policy makers to note that digital divide challenges differ from continent to continent and country to country. Some of the factors aggravating digital divide should not be looked at through the same spectacles. For instance, in South Africa, which is the setting of the current study, the legacy of apartheid had an immense impact on unequal distribution of resources and services, including the telecommunication sector which broadband forms part of. Policies of separate development skewed resources distribution and fibre connections which later turned to be a very critical component of broadband connection. It is also important to note that some countries have never experienced these strange policies, that is, of separate development. While the study touched base on the effects of these policies in Chapter 1, this Chapter unravels the history of the South African telecommunication sector, and these include universal access policies.

2.2.2 Dominican Republic: Connecting the rural populations

As it was the case in Malaysia, the researcher perceives a common thread between Malaysia and the Dominican Republic which relates to the use of Universal Service Funds to fund broadband roll-out in rural areas. Antonio Garcia Zabballas (2014) notes that from the inception, Dominican Republic experienced challenges in installing broadband in its rural areas. Some of the factors that hampered connections in these areas included among others:

- (i) Low purchasing power of the local population in some rural and sub-urban areas, combined with low levels of education;
- (ii). Low affordability of broadband services, a main barrier to the adoption of broadband by a high proportion of the population, since many households do not yet have access to basic commodities, such as drinking water and electricity;

- iii High cost of installing broadband infrastructure in rural areas, combined with a lack of critical infrastructure, such as a national fibre optic backbone,
- v. High cost of national connectivity- connectivity costs are high and can significantly affect the economic viability of broadband in rural areas (Zaballos, 2014:48).

In responding to these abovementioned challenges, the Dominican Republic established a Universal Service Fund (USF). The rationale behind the establishment of this Fund was to develop the country's telecommunications sector with the aim of expanding broadband coverage to people in the most remote areas. The USF is administered by the national regulator, INDOTEL, and as it is the case with Malaysia, it is funded from the revenue that originates from telecom operators. Instituto Dominicano de las Telecomunicaciones (INDOTEL) is an administratively decentralized telecommunications regulator with judicial and financial autonomy and legal personality established in 1998 (Joshi & Hammarström, 2013).

The operator was given both the policy setting and regulatory responsibilities for the telecommunication sector. One of its key mandates was to help on bridging the digital divide and to be the prime enabler, facilitator and promoter of telecommunications infrastructure deployment, in particular, broadband access throughout the country. In 2007, INDOTEL launched the Rural Broadband Connectivity Project as part of the eDominicana Strategy. The project provided 508 unserved municipalities with access to residential and public telephones; broadband services; broadband Internet access through Internet cafés; and telephony through public call centres. In March 2010, INDOTEL adopted Resolution No 024.10, which includes broadband as part of UAS. This underlined the need to include broadband in future development projects (Zaballos, 2014).

Joshi and Hammarström (2013) conducted a study in two villages in rural Dominicana. The purpose of the study was to establish key principles that

developing countries need to consider when expanding broadband networks and promoting adoption of broadband services in rural areas.

Critical to note is that in its endeavour to connect rural areas, Dominican Republic recognises geographical disparities, demographic challenges as well as the paramount significance of local knowledge. Hence prior to connect these areas, the state had to consult with key stakeholders in the said village, namely, Los Botados and La Naviza.

Rogers (2003) maintained that for an innovation to penetrate and be adopted in any society, interpersonal channels had to be taken cognisance of and be maximally used. In this context, the Dominican Republic took note of the significance of the local knowledge. A thorough knowledge of the country, its geography, demography and social and economic characteristics was essential in elaborating and guiding the country's universal access to broadband services. Through consultation with the local communities, project pioneers were able to identify where existing telecommunications infrastructure was located, its characteristics and plans for its expansion (Joshi & Hammarström, 2013). The stakeholders consulted included, the civil society groups, in particular, non-governmental organizations (NGOs) which many worked in the rural areas (ibid).

2.2.2.1 Findings

The findings of the study show that in both villages, Los Botados and La Naviza, long before the roll-out of broadband services, young people were in full swing using the broadband internet. Even though Los Botados had virtually no telecommunications services or training centres, many of its young people were already accessing ICT services in cybercafés and training centres in nearby towns, thus, affirming immense demand of broadband in rural Dominicana. Consultations with local knowledge, NGOs, young people and related stakeholders revealed the degree of harmony among all stakeholders and how all of them concurred in one voice that they needed

broadband services to be imperatively diffused with low costs in Los Botados (Joshi & Hammarström, 2013).

Similarly, such high demands for broadband internet use by young people were evidenced in the village of La Naviza. The day that the link and hot spot were turned on, ten computers from the CCI and 11 private computers were connected to the Internet via broadband. It did not take long for these young people to put Wi-Fi cards into their computers and went online. The CCI started to operate full time and many children, young people and even adults started attending training courses. This culminated in graduation of more than one hundred people from a basic computer courses. This was concrete evidence that people in rural areas were as well at ease as their urban areas counterparts in adapting to the new technology when given the opportunity (Joshi & Hammarström, 2013).

What transpired with the Dominican project is that the state mastered an appropriate order of precedence in rolling out broadband services. The initial stages of the project were spearheaded by team of experts which consisted of engineers, economists and lawyers to evaluate telecommunications infrastructure in rural areas as well as to get a grip of the dynamics of the country's rural areas. In other words, conducting a feasibility study prior to the actual implementation of the ICT projects is inevitable if the divide is to be successfully bridged. Among others, these experts found that:

(i) There was high demand for broadband use rural Dominicana, small entrepreneurs in rural areas, had already installed public telecentres, cyber-cafés and public call centres. The challenge was exorbitant prices that the local population had to pay.

(ii) Many people already knew about the Internet and were willing to pay to have access in a public place or even at home. This is a clear confirmation that people in the rural areas were willing to go an extra mile to have ICT services even if the costs were high. This was an evident prove that internet access and public telecentres was a need. Thus, this concurred well with the

views of Rogers (2003) who propounded that for an innovation to be rolled out successfully, it has to be preceded by a need or a problem (Joshi & Hammarström, 2013).

2.2.2.2 Lessons Learnt

The successes of the Dominican rural broadband strategy may be credited to among others, substantial demands of the broadband services in these areas. Also, success was due to the right order of precedence, which the state followed, such as consultation with stakeholders, raising awareness of the socio-economic benefits of broadband, capacitating rural end users and entrepreneurs with digital literacy skills, as well as proper management of cyber cafés and public call centres. Subsequently, this inculcated good business principles among rural entrepreneurs. The Dominican rural broadband strategy showed the importance of involving the local knowledge at the conception stage of the policy and the significance of consulting the supposedly beneficiaries both formulation and implementation stages. This is position noted above in the Australian case study.

Gillwald (2007) posits that effective regulation should be implemented concurrently with competition policies to accelerate broadband adoption. In her view, effective regulation has been the cornerstone of competitive markets, but the unfortunate part is that it has not been implemented alongside competition policies. Gillwald (2007) argues that the introduction of competition without regulatory capacity or political will can be counterproductive. Thus to achieve the very goals of liberalisation, regulations should be introduced together with sound regulation and political will, failing which the whole process of introducing competition will be counter-productive.

Gillwald (2007) accentuated the Global Internet Liberty Campaign position (2000) which highlighted that while open and competitive markets are necessary, they are not always sufficient in contributing to the objectives of universal access, affordable prices, pluralism and diversity. These

arguments continue to show the broadness of the digital divide conundrum and how solving the same cannot be confined to infrastructure roll-out only but rather calls for a more holistic approach if the same is to be arrested.

In conclusion, while the current study concurs with the objects of the Dominican Republic's policy and the essence of its strategies, it is also important within the bounds of this study to note some shortcomings. Even though the Dominican approach seems to be salient and apposite to the South African context, or better still to the current study, sustained efforts towards affordable access to broadband for rural communities is not vividly captured in the policy. There seems to be a deficiency in monitoring of electronic communication service providers in terms of costs. Perhaps the same finds resonance with the position of Global Internet Liberty Campaign and Gillwad's (2007) sentiments of diversified and pluralised telecommunication markets. Barkley (2015) highlights that when formulating policies, policy makers need to be cognisance of what Barkley called time, spatial and geographical challenges. In the context of the Dominican Republic, the challenges will be high costs. Barkley argued that factors such as time and space challenges differ from continent to continent, region to region, country to country and society to society.

The researcher found that the views of Barkley (2015) appositely resonate with the study. Most of the rural communities struggle to use both broadband services and gadgets sustainably due to exorbitant costs. Not to mention the costs which come with usage, acquiring these devices is very costly for rural communities. Thus policy interventions should help to ameliorate and redress these discrepancies. Therefore, if these communities are to be included in the digital economy, a clarion call must be made to policy makers and broadband proponents to capture all these complexities and dynamics.

Thus looking at time and spatial differences, the successes of broadband penetration and adoption cannot be pinned to active regulation and healthy competition alone, particularly in developing countries if the digital divide is

to be bridged in developing countries. It is important that in their quest to digital inclusion, developing states should inculcate different approaches as highlighted in this section. These approaches should however, consider geographical challenges and disparities across various continents, what Barkley calls time and space challenges.

2.2.3 Mexico

In Mexico, the roll-out of Wholesale Open Access Network (WOAN) was delayed several times (GSMA, 2017). Mexico failed to get the project off the ground, subsequently drawing attention to a few issues. According to the GSMA, most of the 21 original bidders who qualified struggled to establish a viable business case under the targets that were set by the government. Consequently, the investment target was reduced from \$10 billion to \$7 billion, and the number of cell towers to be established from 20,000 to 12,000. Furthermore, numerous postponements compelled the country's regulator to lower its ambitions on funding and coverage.

In order to foster competition in the telecommunications and broadcasting market, Mexico made constitutional changes. It proposed the deployment of a shared public network for broadband access and mobile telecommunication services. The roll-out was intended to begin in 2014 and be operational by 2018. The Altán consortium finally won the bid and got access to 90 MHz of contiguous spectrum in the 700 MHz band to build the wholesale LTE network.

The Mexican experience illustrated that while the business approach to the SWN/ WOAN might have been feasible, setting unreasonable targets was not a good idea as service providers struggled to meet the same, subsequently, the implementation process was delayed. The following section looks at the broadband experiences in two European countries, namely, Australia and Russia.

2.3. European Countries

2.3.1 Australia: Broadband Community Networks

According to Freeman and Park (2015), there is a need to consider the multi-layers of digital exclusion if rural connectivity issues are to be addressed. Neither availability, nor the provision of broadband leads to automatic adoption. Availability does not always transcend into access. Leung (2014) makes a valid and authentic argument that supports the position of the current study. The author distinguishes between broadband availability and accessibility, arguing that states/government may boost Internet availability for marginalised communities, but that accessibility relies on array of factors which include affordability and digital literacy, among others.

Leung (2014) observed that the Australian national policy emphasises that National Broadband Network access-for-all without recognizing that availability will not ensure uptake. The author argues that availability and accessibility are often conflated in the said policy. People ought to be willing and able to engage in effective uses and aware of potential benefits of access to internet (ibid).

In an attempt to find out how the digital exclusion affects the rural communities of Australia, Freeman and Park (2015) conducted a study looking at digital communication challenges in rural Australian Local Governments. The purpose of their study was to thrash out connectivity challenges troubling rural communities and generate dialogue around the National Broadband Network policy agenda, with the objective of identifying persistent barriers rural authorities face in expediting digital inclusion. Further, the study wanted to provide an analysis of the intricacies of rural connectivity from the perspectives of governments, citizens, businesses and local services so as to identify locally-suitable approaches to enhance digital

inclusion. Some of the stakeholders which the authors engaged included, local authorities, academics and experts, government official and citizens

2.3.1.1 Lessons Learnt

The findings reveal that digital isolation remains an unrelenting problem in Australia. There has been a constant apprehension that inequities faced by rural authorities and their communities were not sufficiently addressed (Morsillo, 2013; Park, 2012; Leung, 2014). Rural communities in Australia argue that they lacked reliable access and when they connect to the National Broadband Network satellite service it was extremely slow. It also appeared that the network providers in rural Australia were reluctant to upgrade their rural infrastructure, highlighting fears of redundancy of the same at some point. The challenge of access in the outskirts areas was also propelled by lack of political will. These factors and others negatively impacted the quality of access to broadband meant for the North Wales rural communities. Rural communities in Wales recognised that if access was to be enhanced for neglected rural citizens, this would allow better social inclusion and increase their participation in the digital economy (Goggin, 2014). Thus, despite the Australian National Broadband Network's guarantee of ubiquitous connectivity, considerable access discrepancies still remains between rural and urban areas.

These findings confirm the submission made by ITU (2006) that digital divide exists within each country's borders, separating metropolitan cities from rural areas, the rich from the poor, and those with higher education from those with low or no education at all. It is therefore, important for the South African government to get an explicit understanding of rural connectivity challenges. It is on these grounds that the drafting of digital divide policies cannot be left in the hands of the "experts" alone. Rural communities as the supposedly beneficiaries of their connected villages, should be part of the agenda to connect from the inception. For that reason, dialogue around digital connections must go beyond economic and party political arguments. Thus to deliver and connect rural areas effectively,

states (in the context of this study, South Africa) will have to design an authentic all-inclusive strategy and implementation plan, which allows the views of all stakeholders to be heard. These will not only ensure maximum use of infrastructure by the communities, but a sense ownership may be cultivated as well.

Furthermore, Parks (2012) and Freeman (2015) provide a genuine pertinent argument on idyllic steps that must precede broadband roll-out in the outskirts areas. They draw from the idyllic approach of engagement with relevant stakeholders affected directly and indirectly by digital exclusion. These include, inter alia, discussions around the need for Universal Access Obligations to graduate from serving the narrow landline telephony services, but to include the more data inclusive broadband services. They submit that this will increase opportunities for participation in the digital inclusion debates, subsequently, participation in the digital economy. One concurs with their views here, as the Universal Service Obligations (USO's) are meant to address the aspirations universal access and services, the same should be amended to service universal access to broadband. It is here where the tough stance of the regulator must be sought in setting measurable benchmarks for operators in terms of levy charges.

The other valid point the study highlights is the public interest policy approach which, it is argued that it may help remove potential service duplication while expediting other connectivity initiatives (Middleton and Park, 2014). This is a legitimate argument as well, considering the essence of dialogue in development communication, conceptualization and implementation of policies. It is projected that a public policy interest will open up a space for localised approach and debates that speak to local broadband connectivity issues. According to Walterova and Tveit (2012) and Middleton and Park (2014), to inform suitable infrastructure and services, it is inevitable to draw from local knowledge of spatial impacts and civic needs. Despite all the suppositions made above, many state led digital divide programmes has been focusing on the affluent areas. Thus Parks and

Freeman 2015 note that there has been a feeling of disdain that a lot of the policy discussion that happens around connectivity in rural areas is a bit of a token gesture.

2.3.2 **Russia**

In Russia, Scartel (brand Yota) was allocated 40 MHz of spectrum in the 2.6 GHz band and given the first license to offer LTE services with conditions that wholesale access must be provided to other mobile operators. The initiative reportedly failed due to carriers not being able to reach agreements with Yota and wanting to choose their own vendors. The problem surfaced when the government allowed Yota to operate at both supplier and store levels. This subsequently limited Yota's incentives to offer wholesale access terms to other operators with which it would compete at the retail/store level. The researcher notes that the failure emanated from failure to reach consensus, collaborate appositely by the stakeholders and a believe by pundits that the government favor was skewed towards Yota. As it has been the case where genuine collaboration and dialogue were neglected the rollout plan failed to materialize. Nevertheless, there was a plan to revive the roll-out of LTE services by the Russian mobile operators.

These findings resonate with the views of other proponents who made a clarion call to include marginalised communities into policy making decisions. For instance, Morsillo (2013) and McShane *et al.* (2014) posit that for access to be recognised as a fundamental right for citizens, broadband policy provisions must take a public interest approach. This is the stance that is also taken by Leung (2014) and Goggin (2014) who argue that all-inclusive approach will ensure both universal availability and accessibility to Broadband Networks. Their emphasis is that policy must be shaped by and with the rural populace. Suffice to say this kind of approach that seeks to go beyond the provision of infrastructure; it anticipates adoption barriers such as affordability and usability. The very two components, that is, affordability and usability have for many years precluded the uptake of broadband uptake rural areas. The following section looks at the progress made by

African countries in bridging the digital divide either through universal access programmes, or better still, universal access to broadband services.

SECTION 2

2.4 BROADBAND ROLL-OUT IN AFRICA

Introduction

This section looks at roadmaps taken by some African countries to provide quality broadband services to their respective citizens. It looks at African countries endeavours to bridge the digital divide by tracing the success and failures of these countries. Since broadband is a new phenomenon in the African continent, successful and unsuccessful stories may not be enough to provide substantial literature. The continent seems to be lagging behind in keeping itself abreast with the new broadband communication both in penetration and adoption (uptake). Subsequently, these countries are making special efforts, which include crafting new broadband policies, to overcome their late start and bridge the gap with the global world. Thus, for those countries whose broadband plans are not designed, the study focuses on their successes and failures in bridging the digital divide between their urban and rural population.

2.4.1 Kenya

In Africa, the achievements of broadband roll-out have been largely recorded in metropolitan cities. For instance, Msimang, (2011) conducted a comparative study in which she compared broadband roll-out in Nairobi to 15 other capital cities in Africa. The study found that Kenya had the highest rate of internet browsing, but it is concentrated in big cities. About 74 percent of residents in Nairobi, the capital, have used a computer at least once, followed by Lagos (the capital) in Nigeria and Kampala (the capital) in Uganda at 69 and 68 percent, to mention just a few.

Kenya's high urban computer usage was attributed to high literacy rates and the concerted efforts by the government and other stakeholders to promote use of ICTs through various programmes and projects (Msimang,

2011). This confirms the position held by the researcher that ubiquitous broadband access in urban areas has not been a massive challenge. In contrast, access challenges have been evidenced in the rural areas. Most often than not, broadband penetration and adoption are largely enjoyed by the urban based population, whose socio-economic status are higher than those in rural areas.

The Kenyan National Broadband Strategy finds resonance with this study by highlighting these disparities and challenges between its urban and the rural based population. It notes that it is in the rural areas where much still needs to be done to bridge the digital divide (Kenya, 2013). This is a position noted by the study that urban areas are saturated with broadband services in the introduction. Sparse population, capacity to pay for services and literacy are some of the factors that compound the rural challenges.

The strategy also notes that poorly maintained or outright lack of access roads, commercial power availability, and security for the installations are some of the issues tempering broadband uptake in rural Kenya (Kenya, 2013). Furthermore, the levies charged by traditional authorities in some cases are so high that they deter operators from running fibre in some areas. This is a critical point noted by the Kenyan government which has been shown to cut across the continents. It would seem most of the democratic states in the continent seem to be struggling to find a working model/framework that will appease the three parties, i.e., the traditional leaders, the government and the market (in this instance, telecommunication operators). This relationship conundrum is also evidenced in the South African context (refer to Chapter 6 and 7).

Thus the misunderstandings highlighted above, further perpetuate digital exclusion of rural communities. Subsequently, corroborating the theoretical exposition of the knowledge gap hypothesis by Tichenor, Donohue, and Olien, (1970:159), who argue that, “as the infusion of mass media information into a social system increases, segments of the population with

higher socio-economic status tend to acquire this information at a faster rate than the lower status segments”.

Subsequently, the gap in knowledge between these segments tends to increase rather than decrease. Donohue *et al.* (1970) maintain that both the level of education (digital literacy) and income within the population of less economic status play a major role in digital exclusion. Their argument speaks to the challenge of one of the universal access and service pillars, namely, affordability (low income) which is a major barrier to broadband and ICT services in these communities.

Kenya's broadband strategy notes that access to broadband has the potential to generate enormous social economic benefits to various users and the general economy (Kenya, 2013). Some of these benefits include among others, economic growth and employment. As highlighted in Chapter 1 of this study, it has been proven that there is a notable relationship between access to broadband and economic growth as well as development (Qiang *et al.*, 2009). Ubiquitous broadband services lower the cost of communication and can attract investment particularly in rural areas thereby stimulating local economic environments and increasing economic growth.

Further, it has been shown that broadband networks have a direct impact on employment thus an increase in broadband penetration may create more jobs (Kenya, 2013). This is the position advocated by this study that a well-crafted and properly directed broadband policy may become an appropriate path to development. However, notable drawbacks in some policies meant to bridge the digital divide have been their inability to comprehensively to diagnose the actual problem, a point noted by Leung (2014) and Lisa-Servon (2008).

2.4.1.1 Spectrum Conundrum

In addition, Kenyan strategy recognises the significance of frequency spectrum required for wireless broadband services, which is a scarce

resource. Frequency spectrum, particularly in the outskirts, areas plays a very significant role in providing wireless broadband connections. It is on these grounds that a coherent broadband plan should derive maximum benefits from efficient use of frequency spectrum. However, the challenge has been reservations held by industry and potential investors. They, that is, industry players and investors, believe that Kenya lacks a clear spectrum policy to mitigate rural connection challenges. Subsequently, this delays the roll-out of broadband in these areas. In addition, other challenges emanated from uniform access fee charged, that is, the fees paid for rural operations were the same as those paid in urban areas thus becoming a penalty to rural operations (Kenya, 2013).

To address this challenge, Communication Commission of Kenya reviewed spectrum fees for rural areas in 2012. At the backdrop of this, fee reductions for spectrum used in rural areas were employed by operators; these includes among others, infrastructure-sharing framework meant to help operators share costs of rural networks (Kenya, 2012). Thus the significance of availing frequency spectrum is critical in bridging the digital divide particularly for communities in rural areas. The allocation of spectrum in South Africa has been under immense spotlight and this being one of the major themes of this study is unravelled in Chapter 5 and 6.

To amplify the demand for use and uptake of broadband services, the Kenyan government (2013) in its strategy, guarantees to provide subsidies for access devices. This will be achieved by, inter alia, promoting local production of access devices, avail local content online, including for example, e-government to activate demand. Furthermore, in order to make access to broadband services, the strategy calls for expansion of power (electricity connection, or solar energy), construction of roads and building of security infrastructure across the country.

Within its telecommunication sector, Kenya has attracted some global industry giants within the ICT sector such as Huawei, ZTE and Cisco that have set up locally in collaboration with local operators (Kenya, 2013).

Subsequently, majority of Kenyans have access to alternative and affordable ICT infrastructure connectivity devices that are specifically tailored to meet the needs of the majority of the population (ibid). Having said that, it is important to highlight that there is still notable restraint to broadband ICT expansion and adoption among rural citizens and other low-income communities. The reasons behind this are that the cost of advanced ICT devices, from computers and laptops to smart phones and tablets still remains high. Despite the efforts to drop prices of some devices, prices still remain beyond the reach of a large proportion of the population, mainly in rural areas.

Walubengo (2017) notes that whilst Kenya's National Broadband Strategy (NBS) is to transform the country into a knowledge-based society by leveraging a high-quality national broadband network, Kenyans should not be naïve to believe that physical broadband networks on its own will deliver the intended digital economy. The author argues that what needs to happen in tandem with rolling out broadband networks is to consider critical issues around policy, legislation, regulation, content and capacity building, among others. As highlighted in Chapter 1 of this study, in more definite terms, this is to say that the NBS needs to consider the ecosystem way of rolling out broadband.

Waema and Ndung'u (2012) observe that Kenya has made tremendous efforts to improve access to ICT infrastructure for both voice and data services. Mobile operators are the primary providers of data/internet services in Kenya, and account for 98% of total Internet subscriptions (ibid). At the onset, the government defined distinct roles in the development of ICT in the 1999 national ICT policy. While this worked well in realizing rapid penetration and increasing coverage, it was clear that this investment was concentrated in and around urban areas. This left out a large population in the rural areas without service requiring the government to intervene. The nature of intervention was to support further growth in the sector and

reorient this growth towards the rural areas, broadband connectivity and affordability (ibid).

The study notes that many developing countries sometimes boast about broadband penetration and adoption in their respective countries. However, when one looks at the actual areas of penetration, one recognises that it is more in the densely populated areas that penetration and adoption are accomplished. These are the very areas where broadband market thrives and operators' services are saturated. In other words, with or without the broadband policies in place or government intervention, broadband connections thrive in metropolitan cities because of high market concentration.

Msimang (2011) noted that even though Kenya has succeeded in connecting some parts of the country, the country succeeded by integrating broadband strategies into policies and plans found in a number of sectors, such as education and health.

The Kenyan ICT Strategic Plan tied a number of these strategies together and in so doing, recognized the role of ICT as an enabler of all other policies with broadband or high-speed access recognised as the key component of the ICT sector (ibid).

2.4.1.2 Lessons Learnt

Thus notable lessons from the Kenya's experiences include the government's ability to champion the ICT projects. As Msimang (2011) puts it, it was the leadership support of the national policy objectives which was critical in ensuring that projects move from theory to practice. Secondly, Kenya's successes have been credited to the conscientiousness of the regulator which facilitated infrastructure sharing, by appositely stimulating both facility-based and service-based competition (ibid).

Furthermore, lessons learnt in the Kenyan experience project are that the promotion of broadband requires a high level of coordination across line

Ministries that appears to be unprecedented at times. This is the reason a common concern about the silo effect was raised. Public administration, health, education, agriculture and trade and industry departments were key institutional stakeholders in the development and coordination of broadband in Kenya. Thus it was imperative for these ministries and departments to, inter-alia, be comfortable to use broadband, recognise the value of broadband and coordinate their policy intervention and projects. Better still, they were to apply or introduce the notion of policy coupling across various governmental departments, that is, the coordination of policy across the Ministries in an encompassing way.

In conclusion, despite the government's enthusiasm to ubiquitous broadband, the lacklustre silo approach by various departments, lack of ministerial coordination of policy intervention and projects, and the absence of institutional framework and unwillingness of some departments to see the economic value of broadband, affected the pace of adoption and usage thereof. Notwithstanding all the strengths and weaknesses, it was in the rural areas where Kenya, like many developing countries, did not have a good story to tell in relation to broadband penetration and adoption. The challenges of reaching remote and deep secluded areas have always been colossal for developing countries, and Kenya is not an exception.

In relation to boosting digital skills, the NSB envisioned a digitally literate populace, over and above the school-going population (Walubengo, 2017). This is to say each district (village) was meant to have a digital community centre where ordinary citizens would learn about and use digital services. Whilst the Huduma Centres, one stop service centres and a type of redundant Thusong telecentres in South Africa, come close to meeting this target, they are too few and restricted to merely government-driven services. Subsequently, there is minimal opportunity for ordinary citizens to use the centres for updating their digital skills (ibid).

Thus the country's objectives of universal access and services to broadband took a slump leaving the knowledge divide conundrum torpid. As

highlighted above, it is imperative for those departments which are given mandate of ensuring ubiquitous access to broadband to understand the economic value of broadband. The same will automatically make the same departments to rally all their resources and efforts to make sure that access to broadband becomes reality for the communities in the outskirts.

2.4.2 Nigeria

Southwood (2012) conducted a study to look at the initiatives taken by the Nigerian Government and the communications regulator in encouraging the building of broadband infrastructure and broadband use in Nigeria between 2006 and 2010. The key policy document he investigated was the ICT draft policy that made broadband a central pillar for the delivery of its objectives. The government set out to liberalize the sector and to promote access to facilities and services at reduced cost while increasing penetration. To achieve this second ambition, the Nigerian Telecommunications Act was passed which set up the independent regulator, the Nigerian Communications Commission (NCC); the National Frequency Management Council; and the Universal Service Fund. NITDA was set up in 2001 and set as its ambition “making Nigeria a key player in the information society by the year 2005 through using ICT as an engine for sustainable development and global competitiveness” (ibid).

2.4.2.1 Policy Approach

Whilst Kenya took the “build it and they will come approach”, Nigeria stood between and betwixt in relation to what ought to come first between the supply and demand services. The argument among the stakeholders was that without compelling content and services, people will not use broadband. But others argued that without broadband infrastructure being available, they will not have that opportunity to enjoy the broadband services as per Kenya approach! Southwood (2012) highlights that it was perplexing, unimaginable and inappropriate for policy-makers, even in a country as content-rich as Nigeria to focus their entire vigour on the

technical issues (supply services) rather than the thinking about what and how content and uses might inspire demand.

It is an open secret that content that resonates with the needs of the communities trigger usage and subsequently socio-economic development. The inappropriate predisposition of policy makers to coin one size fits all approach makes the broadband roll-out in rural areas not only a colossal challenge, but an unrealizable dream for developing countries. Rogers (2003) assert that diffusion of a new innovation does not mean adoption of the same. It has been evidenced many times that when the supply factors precede the demand factors, which is the standard acquiesced to by many developing countries, attempts to implement ICT and broadband policies fail dismally.

The study argues that putting supply side services ahead of the demand side is tantamount to putting the cart before the horse. The critical question is how then will the efforts to underpin a connected, vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous be accomplished if policy makers are not informed on these challenges?

To amplify the aforesaid statement, that is, which affirm that policy makers stereotypically delimit their thinking and spend most of their energy on a single portion of the digital divide, namely, the technical divide, this study shows how the Nigerian government gave heed to the infrastructural roll-out project, neglecting the demand side of the digital divide phenomenon. The same is expounded below.

2.4.2.2 The Wire Nigeria Project

Firstly, the government initiated a scheme known as: Wire Nigeria Project (WiN). The scheme was established to roll-out backbone infrastructure with the objective of ensuring that no place in the country was farther than 30 miles. With a budget of over N5 billion, the contract was awarded to MTN and Multilinks to deliver the fibre roll-out. It was planned that a few

hundred kilometres of fibre were to be laid (Southwood, 2012). Note, the budget allocated and how emphasis was placed on infrastructure and fibre.

2.4.2.3 State Accelerated Broadband Initiative (SABI):

The second project was termed State Accelerated Broadband Initiative (SABI). The SABI offered government support and incentives to encourage the private sector to build and run a broadband infrastructure in all state capitals and selected major commercial cities in the country (Southwood, 2012). The SABI enjoyed a whopping N4 billion budget, but the reader ought to take note again, how emphasis is placed on infrastructure (technical aspects) in capital cities and commercial cities. Unlike the rural areas, these areas are densely populated and challenges of rolling out broadband are not as colossal as in the outskirts areas. Thus one wonders why such massive budget is put in areas where the roll-out challenges are minimal.

2.4.2.4 Universal Service Provision and Rural Broadband Internet (RUBI)

Thirdly, the government established the Universal Service Provision Fund (USPF) by the Nigerian Communications Act 2003 which was to provide subsidy for service delivery in high cost areas, namely, the rural and under-served parts of the country (Southwood, 2012). To ensure that telecommunication services were extended to rural and un-served areas, the NCC supported and promoted a number of initiatives through the Fund (ibid). Here the current study notes that there was the provision of unconfirmed subsidy without confirmed specific budget and an agency designated to roll-out infrastructure in these areas. The state in rural areas used unconfirmed subsidies and unconfirmed services providers as opposed to providing a substantial budget and specific broadband players such as those used in the metropolitan and commercial city centres, the N5 billion in MTN and Multilinks contract as well as the N4 billion SABI project.

The study uses the word unconfirmed subsidy because the Universal Service Fund (USF) in different countries relies on the levy from telecom operators to roll-out communication services in remote areas. It must be understood that

implementation and maintenance costs of broadband in the outskirts areas are very high. For many telecom operators, rolling ICT services in remote areas does not make economic sense; hence they would prefer to contribute certain percent of levy to USF as opposed to bearing the roll-out responsibilities themselves.

In a Broadband Conference which was held in Midrand in 2015, Telkom, the South African telecom incumbent, confirmed that it is very costly and strenuous to connect rural areas in the country. The incumbent highlighted that topographical challenges and costs pose significant challenges (MyBroadband Conference, 2015). This provide reasons why these areas continue to slump into digital oblivion. The question is, will developing countries ever formulate policies which will resolve this dilemma and ultimately realize broadband for all in the 21st century? This remains a critical question which needs well informed pragmatic policy formulators who are well versed with the demographics and socio-economic challenges of the rural populace.

2.4.2.5 Community Communications Centre (CCC)

Fourthly, the Nigerian government initiated a Community Communication Centre (CCC) to provide a public calling centre, cybercafé and information and communications technology (ICT) training courses on a shared basis, as well as to serve as a platform to wirelessly extend Internet access to surrounding un-served communities (Southwood, 2012). However, the study does not provide socio-economic successes which this initiative brought to the communities. The spin-doctoring and manipulation of ICT reports and working of telecentres in rural areas have been rife as it was captured in the problem statement of this study.

Erroneous reports which claim successes of ICT roll-out by agencies mandated to provide universal access and services in outskirts areas have been rife. Subsequently, this has perpetuated and widened the divide instead of bridging the same. Thus much cannot be said about the CCC

since their socio-economic impact is unknown. The study argues that policy makers and the state cannot leave the roll-out of broadband in rural areas to Universal Service Fund only which the actual budget may not be confirmed or may be inconsistent. It has also been evidenced that the processes of getting this money is a very tedious and lengthy one which subject the agencies/ entities to a long bureaucratic processes before being finally approved for usage.

2.4.2.6 Lessons Learnt

Observation show that, the policy makers in the Nigerian government, like many other developing countries, erroneously placed emphasis on mainstream route of the digital divide (the supply side) as evidenced by the budget spent on the same. It is thus imperative for policy makers to understand these factors before any attempts of rolling out the broadband are launched. Southwood (2012) put forward a rational and sensible argument that policy plans must be revisited regularly to observe whether shortcomings have developing and whether circumstances have changed since the plan was written (ibid).

Southwood (2012) argues that the challenge has been that developing countries find it easier to make announcements of their plans but to implement them has been a challenge. Monitoring of the effect and efficiency of these policies also leaves much to be desired. The ITU (2014) argues that an enormous amount of determination and political will is critical to ensure effective implementation of broadband. It is essential that emerging problems be spotted and quickly addressed instead of waiting to see what happens (ibid). Whilst Southwood makes a valid argument on implementation, he somehow fails to capture the holistic essence of broadband implementation in the rural areas of developing countries. As Rogers (2003) maintained that implementation or diffusion of an innovation may not necessarily mean its adoption.

2.5 Wholesale Open Access Network Case Studies Africa

Below are brief findings from the Global System for Mobile Communications (2017). The GSM is a body that represents the interests of mobile network operators worldwide. Its report captured how WOAN fared out in Kenya and Rwanda. As highlighted earlier in this chapter, the notion of open access has been an issue of substantial discussions within the telecommunications policy debates. The concept of open access has been a subject of significant discussions within the telecommunication policy debates. The reasons behind these debates has been to find out how incumbent operators could share portion of their facilities to new and small operators who do not have such infrastructure (Diaz-Pines, 2013). Drawing from the GSM report of 2017, the following section succinctly throws a glance at the open access networks case studies in Kenya and Russia.

In its investigative report on how Wholesale Open Access Networks have performed in the above-mentioned countries, the GSMA (2017) noted varying degree of challenges and the same are captured below.

2.5.1 Kenya

In Kenya the idea of installing WOAN/SWN was hindered by complicated negotiation processes among stakeholders. These disagreements and struggles had shown how complicated the implementation of this model is and why it was critical to open a dialogue space to reach consensus. In order to fast track the roll out of Long-Term Evolution (LTE) network services, a network was proposed through a public private partnership in Kenya. It was expected that through this framework, private companies would roll out and operate the wholesale network while the government would provide spectrum and (ibid).

The initial plans suggested that an LTE consortium should cover 98 percent of the population. That never happened. GSMA reports that even though there was no official announcement from the government, it looked like the plan was abandoned. This was evidenced by firstly, lack of mentioning of the network in the recently published Kenya's draft ICT policy document. Furthermore, the 800MHz spectrum was assigned to existing mobile operators who have since commenced with the roll-out of broadband using this spectrum (GSMA, 2017).

2.5.2 Rwanda

In Rwanda, the country's network was launched in Kigali in 2014. The project was a public-private partnership between the government and Korean telecommunication operator KT. As of July 2016, the network was available in 25 (out of 30) districts with population coverage estimated at around 30 percent. Thus on the surface, Rwanda appeared to have made satisfying progress in establishing WOAN/SWN (GSM, 2017). Nevertheless, the uptake of the service in Rwanda appeared to be slow.

By the end of 2017, progress made in terms of coverage suggested the original coverage target of 95 percent would not be achieved by the end of 2017 as it was expected. Failure in uptake was attributed to high costs of services. There was no sign that government intervention made mobile broadband affordable, or better still brought the prices down. GSMA noted that over the lifetime of the network there had been numerous substantial reductions in wholesale prices. However, the problem is that these reductions have not consistently trickled down to lower retail prices (GSMA, 2017).

The retail price level refers to where the last to feel the pinch would be poor communities (GSMA, 2017). This is to say high prices continue to preclude the poor Rwandan communities to participate in the digital economy. Perhaps this answers the question why the uptake has been slow. It

appeared that the problems of high prices in Rwanda were caused by the fact that it was the commercial sector that negotiated the setting of wholesale prices. This is to say, prices were set with the interest of the commercial sector at heart.

2.5.3 Lessons Learnt

Perhaps these case studies could be used as guiding lessons in South Africa to enable the country to avoid pitfalls, risks and difficulties that these countries went through. The Kenyan experience brings forth the significance of collaboration and dialogue in establishing WOAN. This is the very conceptual approach that this study highlights as inevitable in Chapter 3 if South Africa is to achieve inclusive, innovative digital knowledge society. The Kenyan experience showed how failure to reach consensus between regulators, operators and related stakeholders can delay and derail the process. GSMA (2017) maintains that it is critically important to consult and collaborate comprehensively with all stakeholders to ensure that everyone's objectives are aligned before the implementation processes begin.

The Kenyan experience looks similar to Rwanda's experience. While in Kenya consensus was not reached, in Rwanda negotiations were skewed towards favouring the market. Despite the strides that Rwanda made in connections; prices of services still remained exorbitantly high. It appears that the negotiations neglected to consider how the large number of poor rural Rwandans would benefit because they were held with commercial mind-set. This subsequently affected the disadvantaged poor even further.

Findings above continue to confirm the position and argument of this study that bridging the connectivity gap is a huge challenge and it does not start and end with connectivity alone. Connectivity alone does not end the digital divide, but skills, digital illiteracy and steadfastly addressing issues of income inequalities does. Thus, if developing countries including South Africa, really seek to overcome the digital divide challenges, these inseparable synergies need to be clearly captured and understood.

Chapter Summary

Chapter 2 presented the literature review. Section 1 tackled the discourses and perspectives around the digital divide in Asia, Europe, North and South America. It evaluated policy initiatives and regulatory reforms regarding universal access to broadband in developed and developing countries across the globe. It explained how these policies reformed and led to the liberalisation of telecommunication markets in countries such as Korea. The chapter further unravelled how a sound regulatory environment as experienced in Korea facilitated healthy competitions which subsequently expedited the goals of universal access to broadband for all.

Section 2 of this Chapter interrogated broadband roll-out experiences in the African continent. Broadband is a new phenomenon and literature and success stories in Africa about the same is minimal, therefore, the section intertwined broadband with universal access programmes of the selected countries. It interrogated how these programmes impacted on rural communities.

CHAPTER 3

THEORETICAL AND METHODOLOGICAL FRAMEWORK

Chapter 3 discusses the theory and conceptual frameworks as well as the methodological perspectives of the study. It presents the lenses through which the researcher selected to approach issues pertaining to the study. Section 1 is the theoretical and conceptual frameworks of the study. It draws from the cannons of Knowledge Gap Hypothesis theory as espoused by Tichenor, Donohue, Olien (1970). Through the use of Knowledge gap hypothesis, the study sought to find out how SA Connect, the market and the Regulator sought to ensure digital inclusion of the socio-economically challenged rural communities. Drawing from Gusteirn's (2000) Community Informatics framework, ICT Access Rainbow model, principles of universal service and access, it provides possible and salient trajectories that South Africa could adopt to ensure broadband adoption in rural areas. It also encapsulates some key Freirean participatory concepts such as dialogue, conscientisation and praxis (that is action/reflection) as apposite lenses through which the main themes of this study were analysed.

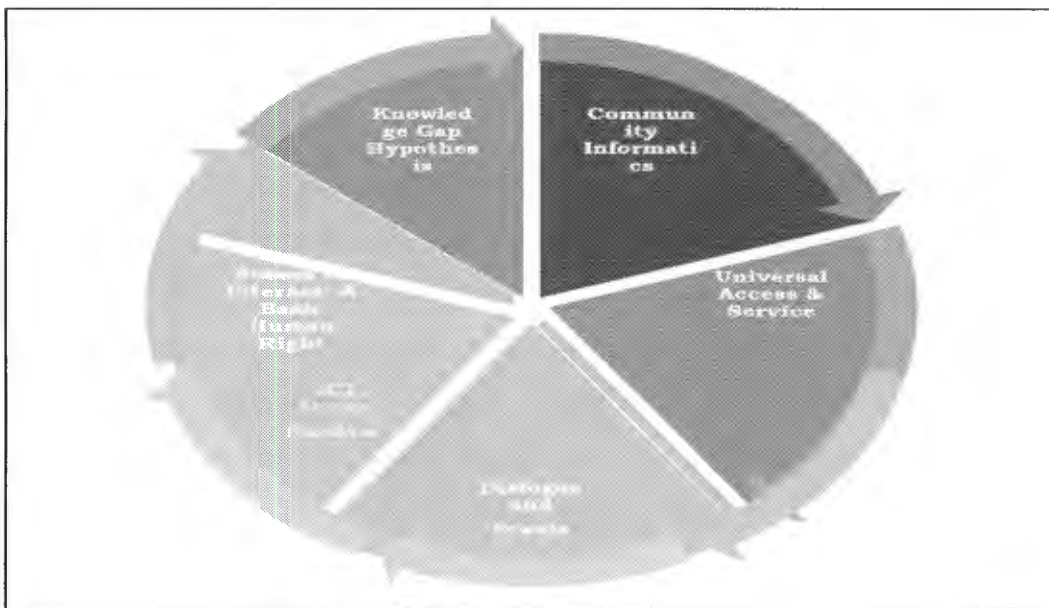


Figure 1: Theoretical and Conceptual Frameworks of the study (Seadira, 2018)

SECTION 1

3.1 Theoretical Perspectives and Conceptual Frameworks

3.1.1 Knowledge Gap Hypothesis Theory

Situated within the writings of Tichenor, Donohue, and Olien, (1970:159), the knowledge gap hypothesis posits that, “as the infusion of mass media information into a social system increases, segments of the population with higher socio-economic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease”. The theory asserts that as new information is circulated through mediated communication conduits, a knowledge gap between certain sectors of society is also amplified (ibid).

The tenets of the knowledge gap hypothesis is augmented by Dargron (2003) in his article captioned “Vertical Minds versus Horizontal Cultures” where he argues that lots of money are being invested in the name of digital divide, however the divide continues to widen instead of decreasing. Dargron disputes that as long as the digital divide is reduced to a technological gap, the widening of the social divide, knowledge divide, economic divide and the political divide gaps will continually be amplified instead of being narrowed.

In addition, the knowledge gap hypothesis suggests that the flow of knowledge varies by social class because of underlying disparities and inequalities in the social structure, primarily in the educational system (Bonfadelli, 2002). Hyman and Sheatsley (1947) argue that merely providing a lot of information does not necessarily lead to increased knowledge. In contrast, the individual motivation to learn plays a central role in the efficacy of information campaigns, the authors argue. The current study employed the knowledge gap hypothesis which squares well with digital divide investigations as it highlights that measuring access and/or exposure to information does not adequately represent the social inequities that may

be found within particular individuals or communities (Bonfadelli, 2002). Knowledge gaps may surface when certain media are used differently, despite the equal availability of information across groups (ibid).

According to Bonfadelli (2002), the Internet makes possible for individuals to seek information with liberty; subsequently, this may lead to diminishing levels of shared knowledge. The same sentiment has been echoed by Wei and Hindman (2011) who found that as Internet use increased, it enlarged an education-based knowledge gap such that the differences in political knowledge was greater between participants with higher and lower levels of education. It is on these grounds that Bonfadelli (2002) posits that in the digital era the knowledge hypothesis (theory) should help equip individuals with the ability to find, critically assess, and store information rather than just gain access to it. At the same time, Gibson (1984) famously advocated for the maximum usage of the cyberspace. Throwing a glance at the socio-economic future benefits of digital communication, Gibson argues that: “the future is already here, it’s just not very evenly distributed yet” (ibid) It is this uneven distribution of ICT and broadband services, perpetuated by number of factors, from policy formulation to bias unregulated market and lack of knowledge on part of the broader society that widens the digital divide even further.

Bonfadelli (2002) and Gibson (1984) perspectives are somehow valid and by and large correspond well with some of the argument embedded in this study. It is on these grounds that the current study believes that the whole debate of digital divide and the exodus from information society to knowledge economy paves way for a robust debate on the trends and role of policy in ensuring that the whole process becomes a success. The current study used Knowledge gap theory to critically analyse if the South African broadband policy will manage to address the deep underlying unequal societal and economic configurations which impedes the aspirations of digital inclusion. The strength of this theory and its relevancy to the current study is drawn from its potency to look at deep underlying socio-economic

disparities. These disparities more often than not, amplify the divide between the communities of high economic status (mostly in urban areas) and the communities of low economic status (mostly in rural areas).

3.1.2 Community Informatics

It is located within the writings of Loader (1998) and further expounded by Gurstein (2010) who advocated for the use of Information Communication Technologies (ICTs). The kind of usage envisaged include, empowering and supporting communities with their socio-economic development initiatives by harnessing the notion of democratic participation, which will later culminate into a new positive social change (Azzopardi *et al* , 2012).

Situated within a variety of academic faculties which include among others, development studies and library sciences, CI draws insights on community development from a range of backgrounds and disciplines. It is an interdisciplinary approach interested in using ICTs (broadband in the context of this study) for different forms of community activities (Gurstein, 2007). CI is a technique used for looking at a myriad of aspects that contribute to socio-economic development within the construct of technology, and these include, information exchanges, online participation, virtual health communities, social networking websites, cultural awareness and enhancement through online connections and networks, electronic commerce, among other (ibid).

The term Community Informatics was invented by Loader (1998), a proponent of digital media communication whose interest is in the new media communication technologies and how they shape the transformation of internet, the socio-political, economic and the cultural landscape in the mid-90s. Loader (1998) critically analysed the euphoria surrounding the advent of Internet in the 1990's. He argued that this euphoria might easily have led people to believe they would soon have access to internet and that the same would soon permeate all sectors of society across the globe. This perception was held without acute paucity and

consideration of connectivity and access challenges in some parts of the world, particularly the under developed and the developing countries.

The term Community Informatics was later brought to prominence by Gurstein (2000) who believes that CI is a discipline that connects the grassroots level (communities), economic and social development with the intention of bridging the digital divide through the application of community access centres and civic networks (ibid). Evidently so, CI's outcomes include the emergence of community networks and community-based ICT-enabled service applications and increasing interest on grassroots organizations, NGOs and civil society, governments, the private sector, and multilateral agencies among others (Garth, 2005). Self-organized community initiatives of all ranges. This is clearly evidenced in the Literature review, Chapter 4, that different countries are concerned with new ways of leveraging and harnessing ICTs and broadband to bridge the digital divide, alleviate poverty, enable local communities to connect and participate in the digital world and the knowledge economy.

Gurstein (2015) decorously recognises that after two decades of rigorous academic research on the digital divide, the understanding of the subject, i.e., digital divide, is now rather more nuanced and multi-layered than earlier. At the backdrop of his intensive investigation, he came to the conclusion that the digital divide now has a strong recognition of the connection between factors such as income, location, age, gender and the ability to "access the Internet and thus presumably "bridging the digital divide". Subsequently, there is an emerging narrative that perceives the digital divide (DD) as a "moving target" in that there will always be something new that technology brings. Therefore, responses to the DD should probably be seen more as a necessarily continuous and evolving process than a discreet and one off set of technology installations.

The CI recognizes that it is communities who are capable of establishing their own broadband and ICTs networks and centres. This shifts the linear top down approach of implementing broadband and ICTs services to a more

people centred approach (Garth, 2005). It is on these grounds that the study was located under CI since it provides a more authentic communal dimension of bridging the digital divide. CI finds apposite resonance with those communities where ICT access is done communally, through telecentres, points of presence or access centres, digital libraries, information kiosks and community multimedia centres, among others. It brought about significant awareness of Information and Communications Technology for Development (ICT4D) approach and has emerged as a critical component to socio- economic development inclusion in less developed countries (Garth, 2005). ICT4D programmes and initiatives have been undertaken by public, NGO and private sector agencies concerned with development have subsequently surfaced as a key component in the poverty alleviation mechanism of the United Nation's Millennium Development Goals. Furthermore, the approach has enabled many entities from the civil society, private companies and the government to find a pathway for delivering goods and services into rural and low income communities (ibid).

3.1.3 The ICT Access Rainbow Model

Another conceptual framework which raises pertinent issues and resonates appositely with Gurstein's views and the current study is the ICT Access Rainbow model as expounded by Clement and Shade (1998). The model discusses several key requirements central to defining access. It suggests alternative approaches that could be used to strengthen public interest perspectives in the 'information highway' policy discussions, or better still digital inclusion debates (Clement and Shade, 1998). Some of these points are briefly explained below and they include: governance and policy, literacy and social facilitation, service providers, content and services and software tools.

3.1.3.1 Governance and Policy

Clement and Shade, (1998) perceive governance as methods and techniques used in making decisions which concern the development and operation of

the information/communication infrastructure (ICI). They maintain that as it stands, in the major developed countries, governance and policymaking is centred on the corporate world with industry stakeholders playing the leading roles. Clement and Shade (1998) argue that the way to foster competition and technological innovation is mainly perceived as privatization and the deregulation of global telecommunications markets. Conversely, citizens are seen as mere consumers of array of digital goods and services and this narrows involvement of actors and other interests. As a result important issues, such as public accountability, cultural identity, social inclusiveness and cohesion, and national sovereignty, are neglected because such priorities have been ceded to the market forces (ibid). It is on these grounds that this model calls for inclusion of wide range of participants in decision-making processes both at the local, national and global levels (Herman, McChesney, 1997).

For Clement and Shade (1998) , inclusivity means creating a platform that should act as arena of ideas, where combination of research and test bed projects, experimental trials, education campaigns, expert testimonies and public hearings are held, presented and debated in the interest of a wide range of citizens and their organizations. Critical to note is that while all of this seems feasible and may be a space where practical knowledge could be derived from, it appears that the main obstacle to greater public involvement has been the unwillingness of the leading actors to broaden the discussion (ibid).

3.1.3.2 Literacy/Social Facilitation, Devices and Software tools

In Chapter 1 and throughout this study, the researcher highlighted two themes, namely, digital literacy programmes and affordability as critical in broadband adoption and use in rural communities. Rightly so, the ICT Access Rainbow model notes that new digital media place significant learning burdens on users (Clement and Shade, 1998). People find mastering the inherent intricacies of the infrastructure and use of ICT devices a continuing challenge. Therefore, achieving widespread effective use

of network technologies must therefore be supported by a variety of formal and informal learning facilities and tools.

Neice (1996), assert one of the key components that inspire users to participate and have access to information techno-structure is the individual's degrees or level of digital literacy. It is critical to note that digital literacy in this context is not confined to the use of keyboard and menu navigation knowledge and skills. Conversely, knowledge is viewed as encompassing a broad range of knowledge which includes, inter alia, an understanding of sources and uses of global networked information; the role of networked information in research and problem solving; and systems whereby information is stored, managed, and transmitted (Clement and Shade, 1998).

In relation to skills, the ICT Rainbow Access model maintains that it is important for individuals to demonstrate the ability to use these ICT devices and this should be evidenced by the individual's ability to:

- retrieve specific sorts of information using a range of tools such as search browsers and online databases;
- manipulate, enhance, or increase the value of information;
- purchase and configure local systems and then troubleshoot them when they don't work as expected; as well as
- analyse and resolve both professional and personal services that increase the quality of one's life (Clement and Shade 1998).

It is on these grounds that Clement and Shade (1998) maintain that to achieve the above-cited levels of literacy, local community-based support for learning become essential. Furthermore, the public access devices which should meet the highest standards of usability also play a significant role in this regard. As it is the case with devices, the model put emphasis on using the software tools that are already widely used. Given the nature of privacy,

anonymity and protection features, software for public access points should be carefully chosen for wide usability (ibid).

In South African, inculcating the above-mentioned components in rolling out broadband in rural areas is inevitable. The researcher has asserted that it will be difficult to bridge the digital divide without giving heed to public access centres (in low income communities) and digital literacy programmes. Chapter 6 and 7 of this study put emphasis on analysing the role played by these two themes in bridging the digital divide in rural South Africa.

3.1.3.3 Content and Services

With reference to content and services, the model significantly draws the attention to reliability and timeliness of information. It maintains that it is important for source of information to be clearly identified so that its credibility can be assessed (Clement and Shade, 1998). The researcher finds these components well compounded within the digital literacy programmes theme in this study which seeks to find effective ways to expedite broadband adoption in rural South Africa. Assessing the credibility of information therefore gives the user the latitude to deal with the pervasive problem of misinformation, unverified facts, false claims of knowledge and incessant plagiarism in the current digital environment (ibid).

3.1.3.4 Service and Access Providers

Clement and Shade (1998) argue that it is important for organizations that provide network access to users to encompass all the mantras of digital inclusion, or better still, information communication infrastructures . In developing countries, statistics indicate that users access the Internet mostly from their places of employment (ibid). Workplaces not only offer free access to equipment and connection, they also provide a broad range of services that offer a supportive use environment. For instance, Clement and Shade (1998) submits that training staff, purchasing, configuring, upgrading, maintaining, repairing, and documenting systems maybe part of this package.

Critical to note for ICT and broadband policy makers is to recognise that all afore-mentioned skills are not only demanding, arduous to get and expensive, but they are vital to routine use and require massive budget. In the era where network access has been unreasonably commodified and sold to individual subscribers, these support functions become inevitable particularly for communities in rural areas where the high level of poverty has reached insalubrious state. Consequently, to achieve sustainable use of ICTs and broadband, it is critical to encapsulate service providers who will make access reality in the real sense of it.

Rightly so, Clement and Shade (1998) predicted that for years to come, the many people who do not have access through their workplaces nor can afford domestic purchase of networking services will have to depend on public access facilities. As a result, they argue that consideration should be given to implementing public access points in poverty stricken areas through non-profit, volunteer community organizations. These public access centres should provide access to computer terminals, software, applications, and broadband access to the Internet (OECD, 1997).

Clement and Shade (1998) noted that schools and universities (education institutions) were increasingly supplying students with public access workstations thus becoming prime providers of such public network access. However, critical to note is that while universities or the higher education sector is one way or the other getting this right, this success is not replicated in the basic education sector. In several occasions the focus is on getting the wires to the schools, with little support for other aspects of learning and use environment. Shade,(1999) disputes that often when the roll-out was undertaken, teachers were not consulted nor provided with the time to modify curriculum. Subsequently, this placed a serious burden on teachers who were expected to both learn how to use these new platforms and at the same time teach students how to navigate the same.

It is on these grounds that in some countries non-profit, volunteer-run community networking organizations have surfaced in many towns and

cities specifically to provide public access to internet. Despite lacking sustainable funding sources, these organisations have become central cradles of both community-based content and training (Clement and Shade 1998). The downside of proliferation of these organisations is that it is skewed or tilted to the cities and they neglect the outskirts areas.

Perhaps critical question to ask is how could this community base organisations source funding to sustain their own operation, particularly in the rural areas. The researcher concurs with the views of Clement and Shade (1998) that incorporating these local, non-profit and civically responsive organizations into central policy challenge for infrastructure and development must be a path to be taken by those who seek to bridge the digital divide.

One substantial argument held by Tichenor, Donohue, and Olien, (1970:159) is that, “as the infusion of mass media information into a social system increases, segments of the population with higher socio-economic status tend to acquire this information at a faster rate than the lower status segments (rural communities), so that the gap in knowledge between these segments tends to increase rather than decrease”.

Tichenor, Donohue, and Olien (1970) affirm that as new information is circulated through mediated communication conduits, a knowledge gap between certain sectors of society is also amplified. In the context of this study, the amplified knowledge gap is due to lack of proliferation of these conduits and afore-said broadband civic organisations in rural areas. Therefore, the researcher felt it was imperative that SA Connect as a policy meant to bridge the digital divide, should inculcate Community Informatics approach and the ICT Access Rainbow model, which means pre-engaging people in their own development initiatives, from decision making to implementation of the same. The Both CI approach and the ICT Access Rainbow model could be used as benchmark and catalytic factor to inform policy making decisions to consider appropriate strategies of bridging the

digital divide as opposed to leaving the same in the hands of the few urban centric elites and the corporate world.

The aforementioned argument has been augmented by Dargron (2002) where he argues that lots of money is being invested in the name of digital divide; however the divide continues to widen instead of decreasing. Dargron (2002) disputes that as long as the digital divide is reduced only to a technological gap and does not encompass the beneficiaries in policy decisions and implementations, the widening of the social divide, knowledge divide, economic divide and the political divide gaps will continually be amplified instead of being narrowed.

Bonfadelli (2002) also argued that Internet makes it possible for individuals to seek information with liberty; subsequently, this may lead to diminishing levels of shared knowledge. In the same breadth, Lu Wei and Hindman (2011) posit that as Internet use increases, it enlarges an education-based knowledge gap such that the differences in political knowledge is greater between participants with higher and lower levels of education. It is on these grounds that Bonfadelli (2002) argues that in the digital era, individuals should be equipped with the ability to find, critically assess, and store information rather than just gain access to it. At the same time, Gibson (1984) advocated for the maximum usage of the cyberspace. Throwing a glance at the socio-economic future benefits of digital communication, Gibson (1984) argues that, the future is already here; it is just not very evenly distributed yet. It is this uneven distribution of ICT and broadband services, perpetuated by a number of factors, from policy formulation to bias unregulated market, failure to inculcate appropriate approaches in bridging the digital divide and lack of knowledge on part of the broader society, which widens the divide even further.

As highlighted above Bonfadelli(2002) and Gibson (1984) perspectives are somehow valid and by and large correspond well with most of the propositions embedded in this study. The whole debate of digital divide and the exodus from industrial society to the information society (knowledge

economy) paves way for a robust debate on the trends and the role of policy in guaranteeing that the whole process becomes a success. It was therefore, imperative that the deep underlying, unequal economic and societal configurations which impede the aspirations of digital inclusion be investigated from the policy level. This is to say, the study went beyond the normative way of perceiving the digital divide as a mere technology divide, but it also examined deep underlying socio-economic disparities which amplify the same.

3.1.4 Dialogue and Praxis: Critical Reflection on state of broadband in rural South Africa

For Freire (1969), transforming the world requires true and authentic words. He submits that human existence cannot be silent, nor can it be nourished by false words, but only by true words, with which men and women transform the world. To exist, humanly, is to name the world and to change it. Freire further submits that human beings are built in word, in work, in action-reflection (praxis), not in silence. Thus to say the true word, which is work, which is praxis, is to transform the world, and saying that word is not the privilege of some few persons, but the right of everyone.

Dialogue is the encounter between men, mediated by the world, in order to name the world. The study is placed under these three Freirean concepts of critical engagement, namely dialogue, praxis (which is reflection and action) and conscientisation. It was anticipated that through reflective interaction, praxis and dialogue, naming and renaming processes will help in addressing difficult issues emanating from implementation of the policy itself. These include consistently monitoring policy and providing direction that policy ought to take given the changes that need to be effected to achieve the final outcome of the broader policy itself. In the context of this study, this refers to the penetration and adoption of broadband in rural South Africa. Rogers (2003) contend that a name given to an innovation often affects its perceived compatibility within communities and subsequently its rate of adoption thereof.

This study was placed under these abovementioned concepts in order to address the struggles of the use of ICT services in rural South Africa. Broadband penetration and adoption cannot be addressed through prescriptive elitist mode approach, but it can be addressed through dialogue and praxis. This is to say, action-reflection of the environmental challenge realities, subsequently leads to conscientisation of the real problems around the digital divide. The study views dialogue as an existential necessity in bridging the digital divide since it is the encounter in which the united reflection and action of the dialoguers are addressed to the environment in which they live.

The use of these three concepts, that is, dialogue, praxis and conscientisation is based on the premise that development programmes would only be relevant and sustainable, provided people are actively involved in the programmes in question. Subsequently, this will lead to transference of power and social change strategies to people in order to epitomise the real needs of people (Chintis 2005). Therefore, solving the challenges of digital divide requires exceptional mutual understanding between the beneficiaries of policy, policy makers (the state) and the telecommunication operators.

Freire (1969) notes that dialogue should start from addressing the premise that naming the world is the task of the elites and that the presence of the people in history is a sign of deterioration, thus they ought to be avoided. He further notes that dialoguers should have intense faith in their ability to find solution to the problem, faith in their power to make and remake, to create and re-create, faith in their vocation to be more fully human (which is not the privilege of elite, but the birth right of all). For Freire (1969), without this faith in people, dialogue is a farce which inevitably degenerates into paternalistic manipulation. And he warns that dialogue should not be used as a cunning gadget to manipulate others. Freire also argues that “elites” should never merely discourse on the present situation nor provide the people with programs which have little or nothing to do with their own

preoccupations, doubts, hopes, and fears, programs which often time than not, increase the fears of the oppressed consciousness.

It is not that the role of elites (experts/policy) or their view of the world should supersede those of the people, nor to attempt to impose that view on them, but rather to dialogue with the people about their view and theirs'. Freire concludes by affirming that any development, educational or even political action which is not critically aware of this situation runs the risk of preaching in the desert. One cannot expect positive results from a development programme, or educational or political action program which fails to respect the particular view of the world held by the people. Such a program constitutes cultural invasion, good intentions notwithstanding.

For Freire (1969), the starting point for organizing the program content of a development programme or a political action must be the present, existential, concrete situation, reflecting the aspirations of the people. Interlacing Freire's view and that of the Knowledge Gap Hypothesis, the study sought to investigate the factors that preclude rural communities from realising the socio-economic benefits of broadband.

3.1. 5 Universal Service

The two concepts of universal services and universal access proceed from the notion that access to basic services such as the telecommunication services is a fundamental human right. The right to access to quality services is what countries through these policies and regulations are grappling with daily to make sure that all people, including those in rural areas, enjoy access to quality telecommunication and broadband services. In the context of the current study, these policies and their regulations thereof were termed universal access to broadband services (UASB) as highlighted in the introduction.

The rationale behind using these concepts is that access to telecoms and digital communication should be enjoyed by everyone at a certain specified quality level and on non-discriminatory basis (Poort & van Eijk, 2011). Since

first brought into use by the American Theodore Vail in 1907, the concept of universal service has gone through several stages of evolution for the past 90 years (SA, 1998). Universal Service in the telecommunications context refers to a need to have a telephone in every house and this concept is underpinned by policies to make such services available and affordable for all rural subscribers (ibid). Erik Bohlin and Orada Teppayayon (2009) posit that the essence of universal services previously resonated around having access to telecommunications infrastructure in the form of telephony, but since technology is evolving, the concept now encapsulate a plethora of ICT services including broadband communications.

According to ITU (2011), the US definition is normally phrased as a requirement of the telecommunications service provider to meet the criteria of availability, accessibility and affordability. Bohlin and Teppayay's (2009) views concur with the arguments which were initially raised by ITU (2006) on which the union argued that rolling out telecommunications infrastructure twenty five years ago was not as demanding as it is the case today.

Previously, users required less if not no training at all to use a standard telephone. But, the current trend of new technology along with the development of new kinds of information networks, like the internet, has changed the information society landscape dramatically (ITU, 2011). Therefore found the inclusion of these pillars as part of conceptual framework of this study very apposite.

3.1. 6 Universal Access

Whereas Universal Service initially refers to a need to have a telephone in every house, the Universal Access policies and strategies go beyond telephony. The policies advocate for access to a telephone that works within a reasonable distance and at a reasonable cost (SA, 1998). ITU (2011) posits that universal access (UA) refers to when everyone can access the service somewhere at a public place, which may also be called community or shared access.

The study highlighted on the afore-said paragraph posits that technology has been and is evolving at a faster pace, thus access in the 21st century refers to a plethora of ICT services including broadband. Subsequently, these have posed a serious challenge for both policy makers and implementers to make these technologies accessible and available in the most remotest and rural areas. ITU (2011) in harnessing the argument above maintain that universal access and services (UAS) policies and strategies should go beyond telephony to include data and internet broadband communications.

ITU (2006) notes that access in rural areas could be achieved through the establishment of Multipurpose Community Telecentres (MCTs) for shared access. These are centres that provide access to telecommunications services (often including internet connectivity). More often than not, the achievement to sustain these centres has been credited to community involvement or ownership (Servaes, 2008; Dagron, 2009). Nonetheless, the method of universal access to telecommunications services through telecentres has its challenges too which include managerial and sustainable challenges among others. It is therefore imperative for the reader to note that in the context of this study, access and service refers to broadband. Therefore, throughout the study the concepts were used to mean access to broadband services (UABS).

ITU (2011) notes that over the past 20 years, UAS principles, approaches and successes have been firmly rooted in the context of market liberalization and community participation. Despite the changes in the environment, its rationale is fairly consistent. Community participation which seeks to ensure that beneficiaries of services take charge of their own development programmes. The researcher hence found it appropriate to fuse the two approaches, that is, Community Informatics and the principles of Universal Access and Services.

3.1.7 Access to Internet: A Basic Human Right

The right to internet access, also known as the right to broadband or freedom to connect is the stance held by digital humanities proponents that say in order for people to exercise their rights to freedom of expression, opinion and other fundamental rights, they must be able to access internet. This right also opines that states have responsibility to ensure that internet is broadly available and states may not restrict individual access to the internet (Freedom of Expression Institute, 2014).

In Chapter 1 of this study, it was highlighted that access to internet and broadband services has become a basic need and an inevitable right to the human race. The Chapter also provided reference to this right in line with Article 19 of the Universal Declaration of Human Rights which states that: “Everyone has the right to freedom of opinion and expression; this right include freedom to hold opinion without interference and to seek, receive and impart information and ideas through any media regardless of frontiers” (UN, 1948: 74). Further the study made reference to this right and finds expressions in Chapter 2 section 32 sub-section (a) of the Bill of Rights in the South African Constitution which states that: “Everyone has the right of access to any information that is held by state or another person and that is required for the executive protection of rights”. These include freedom to hold an opinion and to impart information among others (SA Constitution, 1996).

It is critical to allay the quandary behind the questions around the human rightness of access to internet or broadband services by looking at different perspectives on this subject. Vinton G. Cerf, an American internet pioneer recognised as one of the “fathers of internet” argues in an editorial piece written to the *New York Times* on 4th June 2012 that access to internet is not a human right. He argued that a given technology can enable a human right, but cannot itself be a human right. For Cerf, it is a mistake to assert rights status for any technology, as technology is a means to an end, not the end or desired outcome itself. He further uses horses as an example; horses

were once necessary to make a living. This does not, however, make access to horses a human right; rather, it is the ability to make a living that is the right. If we assert rights status for the horse specifically, or other enabling technologies more generally, we will end up valuing the wrong things, Cerf argues.

Cerf's position contradicts the views of many digital rights proponents such as Bondafelli (2002), Gibson (1984), propositions of this study as well as the declaration made by the United Nation in 2011 that internet is a basic human right. In justifying internet access as a basic human right, Wicker and Santoso (2013) submit that it is inextricably intertwined with the basic capability to participate effectively, and to practice free speech and association. The authors argue that if internet access is to be constrained, the rest of these rights will be violated. In other words, denying people the right to internet access is tantamount to denying them the right to free speech and freedom of association which contradict the very core values of human right; freedom of expression.

The views of Wicker and Santoso (2013) on the right to public participation, largely find relevancy in Thomas Emerson's (1963) submissions on freedom of expression and Habermas's (1996) theory of public sphere. For Emerson, freedom of expression should be connected to personal well-being. He highlights principles that trigger the protection of the right to freedom of expression required by society. These include maintenance of a system of free expression to assure individual's self-development. Further, these principles include the use of systems as a means to attain the truth, secure participation by the members of society, and finally as a means to maintain balance between stability and change in the society (Emerson, 1963).

Conspicuously these principles are connected to internet access. The Internet offers a wide variety of means for self-development through experimentation, discovery, and the testing of one's opinions and beliefs, whether through social media, blogging, or commenting on articles in the digital editions of one's favourite newspapers (Wicker & Santoso, 2013). The

Internet also enables the search for truth by providing access to an unparalleled amount of information. It is a splendid means for securing participation. In essence, it may be said that the internet has redefined the public sphere (ibid). Habermas (1996) defines the public sphere as a network for communicating information and points of view. It is on this level where access to internet has simplified conversation and engagement. The internet has become an arena of ideas where citizens engage on issues of national importance. It provides real time access to critical social media platforms as Facebook and Twitter as being able to give birth to massive mobilization as evidenced in the FeesMustFall movement in South Africa.

Furthermore, through the advent of cloud computing, the internet has had a tremendous impact on teaching and learning through providing capacity to archive and store material online. It has also provided an added advantage on the use of videos and links for teaching purposes, purchasing of books online and conducting classes through Skype. Access to internet will continue to play a significant role as teaching evolves even in the soon to be implemented blended learning mode of teaching.

Benkler (2006) notes that prior to the Internet, the mass media dictated the public sphere, but with the dawn of the Internet, information no longer flows in only one or two directions. It flows in full circle and in multiple directions, promoting discussion, dialogue, and debate. The balance to which Emerson alludes to above is attained by providing mechanisms for individuals to vent their frustrations and reactions to change in the public space. The Internet certainly provides platform for such expressions (Wicker & Sontoso, 2013).

At the backdrop of the above-cited, it is clear that denying people access to internet is equivalent to botching the fundamental rights mentioned above, that is, the right to freedom of opinion and expression, the right to hold opinion without interference and to seek, receive and impart information and ideas through any media regardless of frontiers. The researcher concurs with Emerson's views that systems that provide platform for free expression (such as the internet) should be continually maintained and preserved to

assure individuals' self-development. If indeed the concept of equality before the law is genuinely espoused, then the maintained systems should profit all citizens, not only the privileged upper and middle class but the rural communities as well.

As highlighted in Chapter 1, it is these rights that among others gave birth to a plethora of policies and laws post 1994 which sought to change the legacy of apartheid on information production and usage. These policies sought to work towards achieving universal access to ICT and digital inclusion of all citizens (Lesame, 2009). It is critical for the reader to note that the rights mentioned above can only be understood and appreciated against the historical background of colonialism and apartheid in the South African context. These regimes violated the full spectrum of human rights as recognised in the 1948 Universal Declaration of Human Rights (Liebenberg, 2000).

SECTION 2

3.2 Methodological Frameworks

This section explains the methodological approach of the study. It provides an overview of the methodological issues of the study, drawing mainly from the qualitative methodology. It explains how the methodology fits within the bounds of the study. Drawing from its flexible strengths and ability to investigate the deep seated underlying challenges, the approach gave the researcher leeway to investigate deep-seated digital divide concerns in rural South Africa. Its potency and aptitude to address issues within spatial and socio-cultural milieu (Neuman; 2011) could not be ignored by the study. It is therefore the explanatory and descriptive nature of this method that gave the study an ideal freedom to critically analyse the role of broadband policy within the context of South African rural communities. The study was conducted on a longitudinal basis and interviewees were selected by virtue of their expertise in the field of telecommunication sector and their proximity to the South African broadband policy.

3.2.1 Qualitative Methodology

Qualitative approaches put emphasis on the qualities of processes, meanings and of entities that are not experimentally examined or measured in terms of quantity, amount, intensity, or frequency (Denzin & Lincoln, 2005). The researcher chose the qualitative methodology because its design perfectly suited the phenomenon under investigation, i.e., the digital divide. For instance, the methodology's way of studying real world situations allowed the researcher to be flexible and open to what emerged throughout the entire research project. The approach was preferred as investigating and understanding the challenges of the two most evolving phenomena, that is, digital divide and broadband could not be captured by static, inflexible predefined set of rules as it is the norm with quantitative approaches.

As the investigation process deepened and the situation changed, the researcher was able to adapt to inquiry and had the leeway to adjust to issues emanating from the investigation processes. Thus the methodology's trait of being adaptive to enquiry afforded the researcher the opportunity to respond appositely to new paths of discovery which impacted negatively on the digital divide. For instance, the emergence of spectrum auctioning litigations and the digital migration policy impasse which surfaced towards the closing Chapters of this study was one of the examples.

Denzin and Lincoln (2005) submit that qualitative research focuses on the socially constructed nature of realism, the close relationship between the researcher and what is studied, and the situational constraints that shape inquiry (*ibid*). Mack *et al.* (2005:1) also note that "qualitative methodology is effective in obtaining specific information about the values, opinions, and social context of the sampled population".

The researcher chose this methodology because of the need to avoid rigid designs that eliminate responding to opportunities emanating from pursuing new paths of discovery as they emerge. Qualitative methodology is flexible and able to adapt to emerging patterns in the process of inquiry. It gives attention to processes and acknowledges that change is an ongoing thing

(Dezin, 2005). It further notes that these processes or changes happen within a specific context or within dynamic and evolving systems which the relevant and topical qualitative researcher ought to be conscious and sensitive to.

Bricki (2007) also draws attention to how qualitative studies significantly embrace context in terms of time, space and socio-cultural milieu. Neuman (2011) also confirms that without including the surrounding context in research, meaning cannot be assigned to an object/project, hence, its relevancy in investigating the digital divide challenges in South Africa.

Neuman (2011) also notes that qualitative methodology takes a nonlinear research path; in other words, it is the type of research that may move forward, backward, sideways before advancing again. In simple terms, qualitative methodology is more flexible, as it allows the researcher to remain open to unanticipated ideas, data, and issues (ibid). Thus the methodology's modifiable traits suited the current study quite well as it was conducted on an ongoing basis until the last date of submission.

It is generally accepted that critical studies cannot be adequately articulated and addressed by positivists approach, which subjects itself to quantifiable data, that is, where data measurement assigns numerals (numbers) to measure variables data (Du Plooy, 2009). In contrast, qualitative methodology granted the researcher the opportunity to search the deep seated underlying broadband adoption challenges in rural South Africa. Through its flexible non probability techniques and tools, the researcher was able to explore non-traditional ways of eliciting rich data from the key stakeholders, such as telecom and mobile operators, the civil society, industry experts and the regulator, among others. It could not have been possible to use the numerically inclined and more rigid quantitative methodology in an explorative study such as this one.

Furthermore, the researcher was able to use the explanatory and descriptive nature of the methodology to critically analyse the feasibility of the broadband policy within the context of South African rural communities. As Neuman (2011) puts it, qualitative methodology's potency revolves around its aptitude to address issues within spatial and socio-cultural milieu. It is on these grounds that this project chose the qualitative methodology approach to assess how the South Africa broadband policy, SA Connect, will address the digital divide challenges within the geographical space and context of South African rural communities.

3.3 Research Design

Research design is an anticipated plan of how the empirical investigation of the study will be carried out. It describes methods, techniques and tools used to collect, analyse and interpret data (Du Plooy, 2009: 51). The study employed a longitudinal approach in collecting data, that is, a period of three (3) years to be precise (Babbie, 2011 & Du Plooy, 2009). It traced the South African government's legislated documents meant to bridge the digital divide from 1996 to 2017. The researcher studied all documents meant to address digital exclusion challenges for a period of three years; that is, from February 2014 to November 2017. Themes emanating from these policy documents were further interrogated with few experts in the telecommunication sector and the Department of Telecommunication and Postal services. Some of these themes were addressed by the submissions of Alliance for Affordable Internet, a Non-Profit Organisation that seeks to bridge the digital divide in developing countries by influencing regulation and policy frameworks (A4IA, 2017). A brief overview of how the study was conducted is given below, and this includes, data collection methods as well as how Data were analysed and interpreted.

3.3.1. Population

The population of this study was selected from the South African legislative documents meant to bridge the digital divide. At the centre of these documents is the South African Broadband Policy (2013) document, SA

Connect. The study focused on themes that are critical for bridging the digital divide. These include, market structure (that is how the structure of the telecommunication market is configured), spectrum allocation, open access regimes, community access centres and digital literacy programmes. While the focus of this study is on SA Connect, the analysis thereof moved in a choreographic and cyclonic manner by juxtaposing the previous endeavours of the state to bridge the digital divide, failures and successes, with how SA Connect intends to ameliorate the same. Subsequently, the Telecommunication Act (1996) and the White Paper of 1995, the Comtask report of 1996-1999, the Digital Migration policy document 2008, the Department of Telecommunications and Postal Services' annual reports and reviews which speak to ICT services in rural South Africa, case studies on the roll out of Broadband and ICTs in rural areas and other related documents were thoroughly read. Themes emanating from these documents were examined with few chosen experts in the telecommunication industry for more interrogation and further clarity.

Furthermore, Data were sourced from the submissions made to the Telecommunications Portfolio Committee in 2016 September on how to reduce the high costs of communication in South Africa. The researcher mainly focused on the submissions made by three mobile operators, Vodacom; MTN and Cell- C, as well as the submissions made by the Alliance for Affordable Internet Access (A4AI). A4AI is a Non-Profit Organisation that seeks to bridge the digital divide in developing countries by influencing regulation and policy frameworks in these countries.

It is also important to note that as the investigation continued, new debates and themes around spectrum allocation emerged. Operators, the private sector and some civil society organisations were requested to submit their perspectives on the newly proposed wholesale open access networks (WOAN) by the government; such submissions were also examined.

Du Plooy (2009: 108) highlights that, "the term population does not only refer to people but can also be defined as any group aggregate of individuals,

groups, organisations, social artefacts/objects, mass media messages or social interactions or events. The same sentiment has been echoed by Hammersley and Atkinson (2007) as well as Marshall and Rossman (2011) who also asserted that while it is popular that population in social research include people, what is to be studied might also include documents, visual images, observed events, processes and settings.

As Ritchie *et al.* (2013) warned, choosing the population of the study requires paying special attention to the parameters of the study. The authors posit that population should be chosen by virtue of its proximity to the research question, and it should be able to provide the most relevant information. This is a point the study gave deserving attention to; hence, it chose a population which seek to address digital exclusion challenges; namely, legislative documents seeking to bridge the digital divide, inputs from the telecommunication industry, operators and NGOs concerned with internet penetration and adoption in the rural areas. It is worth noting that critical analysis of policy processes could not be achieved through numerical centred positivist approaches, but through explanatory and descriptive traits of qualitative methodologies. Thus the researcher believed that this population provided rich and relevant information which resonates well with the broadband and the digital divide conundrum.

3.3.2 Units of analysis

In order to analyse the adoption of broadband in the far flung areas, the study chose themes in South African Broadband Policy, SA Connect, as units of analysis. It focused on themes which speak to affordable broadband internet access in rural areas; these included, among others, market liberalisation, spectrum allocation, open access regimes, community access centres and digital literacy programmes for rural communities.

The themes chosen, focused on the main research and sub questions of the current study. Daly *et al.* (1997) highlight that in research themes are essential to the description of the phenomenon and are mainly connected to

specific research questions. In the same breadth, Bryman (2012) posits that units of analysis are normally chosen because they have particular features or characteristics which will enable detailed interpretation and understanding of central themes and questions which the researcher wishes to address. The study purposively chose specific themes within SA Connect which seeks to address broadband internet access to rural communities. It is also significant for the reader to note that as the analysis heightened, the drawn themes also gave birth to other sub-themes which were equally important to this study.

3.3.3 Data Collection Methods

Primary Data were drawn from existing policy documents meant to bridge the digital through extensive reading and note taking. The rationale was to find themes in SA Connect which seeks to bridge the digital divide in South Africa. Thus key themes which seek to ensure affordable internet access for rural communities were selected, namely, the market structure, spectrum allocation and open access network. Data were also sourced from the interviews conducted with the telecommunication industry experts, namely, Indra de lanerolle (2016), Duncan McLeod (2018) and the spokesperson for the Department of Telecommunication and Postal Services, Siya Qoza (2018).

Secondary data were sourced from the submissions made by the mobile operators and the Alliance for Affordable internet access to the Telecommunication Portfolio Committee. The submissions were broadcast live on the DStv Channel 419 (Parliamentary Television) from 21-30 September 2016. Data were recorded and later transcribed drawing out and categorising themes that seeks to bridge the digital divide.

It was critical to draw data from the operators to understand their role in bridging the digital divide. The reader will recall that it is the very operators who have been criticised for perpetuating high communication costs in South Africa which subsequently amplify the digital divide as opposed to

arresting the same. The Alliance for affordable Internet Access is a Non-Profit Organisations which made a clarion call to South Africa and developing countries to consider bridging the digital divide through expansion of public access programmes.

Sarantakos (1998) highlights that when data is collected from documents and complex issues and themes arise, the same ought to be taken to experts and the body of professionals who possess special expertise of the phenomenon under investigation for clarity. For this reason, in-depth interviews with industry experts were sought by the researcher. Ritchie *et al.* (2014) also highlight that in-depth interviews is employed when the researcher wants to understand complex processes in detail.

One believes that the population selected appositely befitted the phenomena under investigation, namely, broadband and the digital divide. Data collected was carefully sifted and crafted to focus on answering the research questions of this study.

3.3.4 Data analysis

The recorded interviews were transcribed and together with notes taken from documents, records and other media messages were carefully analysed using thematic analysis. The researcher studied notes and transcripts and developed themes, concepts and propositions, which were coded and interpreted (Taylor & Bogdan, 2015). Through thematic analysis, the collected data were analysed and interpreted to formulate findings that correlated with the research questions and objectives of the study. Flick (2009) notes that documents are written for specific purposes and with target audiences in mind; therefore, it was imperative to analyse the same as communicative expedients rather than as mere containers of contents.

Ary, Jacobs and Razavieh (1990) also submit that data collection and data analysis ought to take place simultaneously. From the outset of the data collection, be it interviews or observation, the qualitative researcher ought to reflect on the meaning of what has been heard and seen. The authors

further state that analysing data is a very laborious process which include, organising it, breaking it into manageable units, synthesising it, searching for patterns, discovering what is important and what is to be learned, and deciding what to tell others. Qualitative research is characterised by aims which relate to understanding some aspect (s) of social life, and its methods which generate words, rather than numbers as data for analysis (Brick, 2007).

In conclusion, it is important to note that in explaining, analysing data and confirming findings, the researcher was guided by analytical principles and not necessarily by rules. In order to arrest the digital, broadband and digital divide ought to be understood as complex phenomena with interrelated and mutually dependent components. Thus, the two phenomena need to be studied and analysed holistically to explicitly understand the role of each component in bridging the digital divide. As highlighted in Chapter 1, the study chose broadband ecosystem definition as an ideal approach in dealing with deep seated problems of broadband connections in rural South Africa.

Chapter Summary

Chapter 3 is divided into two sections. The first discussed theories and conceptual frameworks as well as the methodological perspectives of the study. It presented the lenses through which the researcher approached issues pertaining to this study. The Chapter further discussed possible and salient trajectories that South Africa could adopt to ensure broadband adoption in rural areas using the afore-cited frameworks.

The second section explained the methodological approaches which the study undertook. It provided an overview of the methodological issues of the study, drawing mainly from the qualitative methodology. The section further explained how this methodology fits within the bounds of this study. It justified the appositeness of choosing this methodology in investigating the deep-seated digital divide cons in rural South Africa.

CHAPTER 4

UNIVERSAL ACCESS AND UNIVERSAL SERVICE POLICIES IN SOUTH AFRICA: FROM 1995 TO 2005.

Introduction

Chapter 4 introduces the reader to South Africa's universal access attempts to bridge the digital divide. It provides historical background and the overview of South Africa's legislative and policy attempts to bridge the digital divide between the rural and urban areas. It focuses on the impact these policies and legislative attempts made in ensuring digital inclusion of the communities in rural South Africa. It traces these attempts from the epoch of the Reconstruction Development Programme (RDP) of 1994 to the promulgation of Electronic Communication ACT of 2005. The chapter unravels the pros and cons of digital divide policies and other related legislative episodes in the digital divide conundrum. The first part of this Chapter provides South Africa's historical background and the essence of the Reconstruction Development Policy Framework in relation to the state's universal access and universal service targets.

It explains the reasons behind the genesis and the rationale behind the conceptualisation of the Reconstruction and Development Programme. It explains the principles, success and failures and reasons behind the RDP. It further touches base on the neoliberal Growth, Employment and Redistribution (GEAR) policy by bringing to the surface the tendency of neoliberals of undermining the public good. It also looks at the government's communication imperatives to address issues of exclusion by bridging the communication divide between the state and its citizens post 1994. This epoch saw the government adopting a new philosophical way of communicating with its citizens; namely, participatory development communication approach as espoused and popularised Freire in the 1970's. Through this philosophy, the government sought to usher a new way of bringing information to previously disenfranchised communities. Critical to achieving this objective, was the use of Thusong ICT telecentres which the

state perceived as an ideal shared access model of bridging the digital divide. The Chapter looks at the quintessence of this model and how it fared in rural South Africa.

4.1 Historical Background

South Africa's past era has been a ruthless one dominated by colonialism, racial discrimination, apartheid, sexism and repressive policies. This ended in acute poverty and appalling conditions for people in townships and rural areas (ANC, 1994). The country's income distribution was racially distorted with the country's economy built on systematically enforced racial division. Rural areas were divided into underdeveloped Bantustans which existed side by side with well-developed, white-owned commercial farming areas funded by the government to advance apartheid. Towns and cities were divided into townships without basic infrastructure for blacks, while white dominated suburbs were well-resourced with basic infrastructural services (RDP, 1994). The segregation in education, health, welfare, transport and employment left deep scars of inequality and economic inefficiency. The Reconstruction and Development Programme (1994) notes that as a result of these biased distribution of services and resources, South Africa became one of the most unequal in the world with its society characterised by lavish wealth for a few minority and abject poverty for the majority of the population (RDP, 1994).

The disfigurements of disparity and economic inefficiency were immensely felt in the telecommunications sector. Township and rural areas were excluded from telecommunications and new technologies benefits as the apartheid policies and laws ensured that these areas were starved of access to telecommunication services and infrastructure (ANC, 1994). By so doing, the apartheid government disregarded and undermined the international universal services and access standards for all, subsequently, perpetuating their exclusion from the information society and knowledge economy. The outcome was the continual widening of the gap between the rich and poor, and the urban and rural based communities. South Africa was confronted

with a plethora of challenges, the digital divide being one of these challenges and not a single sector in the society was untouched by the ravages of apartheid (ANC, 1994).

The country suffered as a direct result of the apartheid policies. The hardest hit areas were those in the outskirts who for decades were starved and denied of basic human services (ibid). It was evident that the aforementioned anomalies needed to be normalised. For that reason, policy intervention was inevitable. Consequently, the government came up with a plethora of policies and laws to try to address these problems. The section below explains some of these legislative and policy interventions which articulated for affordable access to telecommunications services which would later include broadband, their successes and shortcomings.

4.2 The Reconstruction Development Programme Policy Framework

4.2.1 The Genesis of the RDP

The Reconstruction Development Programme (RDP) was a programme that contained elements of social security and was later adopted by the Government of National Unity as a paradigm upon which all development policies would precede (or were to be built on). The establishment of the RDP was an attempt by the labour federation (Congress of South African Trade Unions -COSATU) to produce a harmony that would fasten a newly elected ANC government to a labour-driven development policies and programmes. According to Terreblanche (2003:89), as a “growth through redistribution” policy, the RDP envisioned as a first priority: “meeting the basic needs of people which are, jobs, land, housing, water, electricity, telecommunications, transport, a clean and healthy environment, nutrition, health care, and social welfare”.

The RDP then formed the basis of the ANC’s election manifesto. It secured an election victory for the ANC, with COSATU’s intervention was reckoned to be very decisive (Baskin, 1994; Buhlungu, 1994; Marais, 2001;

Terreblanche, 2003). Subsequently, the RDP was adopted as policy document by the Government of National Unity post the elections and was perceived as a dogma and ideological point of reference that confirmed the political-historical continuity between the Freedom Charter and the realities of post-apartheid South Africa (Marais, 2001). From 1994 to 1996, the RDP became ostensibly the guiding document of the Government of National Unity, located in an RDP Office within President Mandela's Office, under the tutelage of Minister without Portfolio, Jay Naidoo, and the ex-General Secretary of COSATU (Webster & Adler, 1998; Midgley, 2001).

At the backdrop of the current project, it is worth reminding the reader that the current review seeks to determine if the previous policies including the RDP succeeded or failed in meeting the aspirations of the universal service and access programmes in the context ICT (broadband) for all. This study seeks to locate the relevancy of RDP in an environment where information and knowledge are crucial to social and economic development, where access to information and the means to use that information needs to be extended to everyone, everywhere, regardless of their geographical locations, that is, equitable and ubiquitous access. Exactly where are these aspirations located within the RDP? The following section looks at the core canons of the Reconstruction and Development Programme within the context of universal access services.

4.2.2 The canons of the RDP

Firstly, to defeat the legacy of apartheid the, Government of National Unity (GNU) through the RDP policy framework proposed an integrated, sustainable programmes and coordinated policies. In order to achieve the goals of universal access and service, affordability was to be prioritized (RDP, 1994). The document acknowledged that the legacy of apartheid could not be conquered with piecemeal, but with concerted effort. Among others, the RDP policy framework was resolute in harnessing the state resources into a coherent set of strategies which would be implemented at national, provincial and local level by the Government, parastatal and local

authorities. It was a base document outlining a model within which the government, businesses, organisations and civil society were encouraged to work (ibid). The researcher notes with keenness that while the document recognised the atrocities of apartheid, there was an oversight on the sight of those who carved the policy to consider fiscal issues on implementing the RDP.

Secondly, the RDP advanced people-driven processes. In other words, people participation in democratic dispensation. It focused on people's immediate as well as long-term needs and relied on their energies and knowledge to achieve that. Irrespective of whether they were residing in rural or urban areas, rich or poor, the people of South Africa were expected to work together to shape their own future. In taking this approach the Government committed itself to maximum transparency and inclusivity (GNU, 1994).

Dialogue and democratic participatory processes have been hailed by both critical discourse and participatory communication proponents, who argue that government intervention in people problems and challenges should not be paternalistic but interactive, (Foucault, 1980; Freire, 1970; and Servaes, 2003). Du Plooy (2001) defines dialogue as verbal communication between at least two people, which is characterised by authenticity, inclusion, confirmation, presentness, spontaneity and/or spirit of mutual equality. In his speech in 1973, the Tanzanian President of that time, Julius Nyerere harnessed the notion of people participation as very key in democratic process and development, and he had this to say "People cannot be developed; they can only develop themselves" (Nyerere, 1973).

For all intents and purposes, this was a very sublime approach by the Government of National Unity to reckon the force that the masses possess. Foucault (1980) asserted that policy discourses are continually shaped and reshaped through social interactions and are not confined to the world of policy makers or to one spatial scale such as national policy, but encompasses many disciplines, citizen, opinion, the media and political activity at differing and spatial scales. Certainly people participation was

inevitable if the democratic transformation processes were to bear positive fruits. Suffice to echo the views of Freire (1970), who asserted that, “those who commit themselves to people must re-examine themselves constantly. This conversion is so radical as not to allow ambiguous behaviour.” Indeed commitment to people requires indecisiveness and whether this inclusive, spontaneous and dialogic participatory approach was to be feasible or sustainable, particularly in the profit driven space like telecoms/broadband, is a story to be told as this study progresses.

Rightly so, the RDP policy framework recognised that the citizen’s success would require appropriate education and training programmes, a point very significant and relevant to the current study. Thus proper skills and an integrated approach to capacity building through education and training was a critical starting point. Within the context and space of broadband usage/services, digital literacy programmes and affordability are two critical factors towards inclusion of the rural communities in the information society as well as their participation in the knowledge economy as per the vision of country’s National Development Plan vision 2030.

4.2.3 The RDP on Telecommunications services

Since the era of apartheid the construction of electronic communication networks and provision of communication services were geared towards the whites. Thus the RDP policy guidelines emphasised the importance of addressing racial distortions in access under apartheid through the reconstruction of the telecommunication sector (Horwitz, 1994). What is of paramount significance is that the RDP acknowledged that the telecommunications sector is the spine of broadband technologies and indispensable backbone for the development of all socio-economic sectors. From its inception, the document committed the country to provide universal affordable access to services for all as speedily as possible within a sustainable and viable telecommunications system (RDP, 1994). It explored the possibility to integrate various facets such as growth, development, reconstruction and redistribution of wealth and resources into a unified

programme. The key to this link was infrastructural programmes that provide, inter-alia, access to modern and effective services like telecommunications, education and training for all South Africans (ibid). It was believed that this will unlock the potential of ICTs and ubiquitous access and benefits of broadband for all South Africans.

The RDP (1994: 39) postulated that “telecommunications services would be provided to all schools and clinics within two years of the RDP’s inception”, something which the current study view as really an appalling and uncalculated premeditated claim. For all intents and purposes, at the backdrop of a history marred with maximum lop-sidedness distribution of services and resources, this was contrary to the situation on the ground and such claims were fallacious and misleading, the current study argues. Two decades since the statement was made, only 3, 1 percent of rural schools in South Africa have access to computers (Stats SA, 2015: 51). This is as a result of a plethora of factors, which among others include the Agency’s deviation from its mandate of conducting research into the provision of universal access in South Africa as stipulated in the Telecommunication Act of 1996 and Electronic Communication Act of 2005. This would have ensured that the real challenges of universal access were clearly understood and holistically captured.

The researcher also notes that there was no clear disjuncture between rural and underserviced areas. USASSA’s business plan prioritises to connect “underserved areas”, but not necessarily rural areas. It was not clearly defined in the two Acts or by USAASA’s business plan as to whether these underserved areas include the rural areas or not. The Electronic Communication Act in particular, does not mention rural areas at all. To aggravate matters even more, some schools in the countryside, particularly those in the deep rural areas and farm schools still conduct their classes under the trees while some are still built of clay/mud (mud-schools); consequently, making it impossible to connect electricity and internet. The

function and the mandate of USAASA are expounded in the subsequent chapters.

4.2.4 Successes of the RDP

Proponents of the RDP claim that successes of this policy-framework could be recorded in the most severe social problems in areas such as health, electrification, clean water, housing and land reform, among others. However, no progress or spinoffs were recorded in the telecommunication sector (Lodge, 2003). Critics have questioned the scope of change represented by many of the statistics, and have argued that realities on the ground signify a far more diffident improvement than the government claims and assertions (ibid). It would seem the RDP proponents concentrated on the afore-mentioned sectors, but neglected the telecommunication sector meant to facilitate freedom of expression which later became the backbone for socio-economic development. Midgley (2001) opined that by advocating the RDP, the government resurrected the social development approach and elevated it to a position of prominence, while neo-liberal approaches prevailed in other parts of the world.

The successes of the RDP were minimal if not non-existent in terms of the successes of universal access and services to telecommunication and ICTs. Horwitz (1994) argues that one of the unforgivable mistakes that the CODESA negotiations omitted during transitions was to neglect the telecommunication sector in favour of broadcasting and print media. Horwitz (1994) notes that political parties were interested in using these broadcast and print media platforms for more coverage during the elections. In line with the new constitution's provision that all citizens are entitled to social security, the government soon established a very extensive welfare system, catering for the aged, disabled, children in need, foster parents and many others too poor to meet their basic social requirements (Harsch, 2001).

The RDP did indeed achieve some remarkable results provision of some of the basic necessities such as housing, among others, which are now commonly known as the RDP (RDP, 1994). Refer to the RDP Development monitor table below:

RDP achievements, 1994-2000

Water:	4 million more people given access to clean running water
Housing:	900,000 units completed, 1,1 million housing subsidies allocated
Electrification:	1.5 million new connections
Telephones:	4.2 million new connections (Universal access) – Which areas mainly
Poverty relief:	R3 billion allocated
Health:	600 new clinics, free health care for pregnant women a children under 6
Public works:	1,500 kilometres of roads built
Land:	68,000 families resettled on farming land

Source: RDP Development Monitor: 2002

In relation to providing universal services, the RDP managed to connect 4.2 million telephones despite the budgetary constraints the policy had to face (Harsch, 2001). Critical to note is that these connections do; not necessarily refer to universal access. Chapter 3 of this study differentiated between the two concepts, that is, universal service and universal access. It highlighted that whilst universal service initially referred to a need to have a telephone in every house, the universal access policies advocate for access to a telephone that works within a reasonable distance and at a reasonable cost (SA, 1998). Thus despite the connections, it cannot be said the RDP achieved the latter goal, that is, everyone having can access to telephone in public place. Furthermore, it is critical for the reader to note that access in the 21st century refers to a plethora of ICT services and internet broadband

communications. Therefore, the RDP could not holistically capture the cons of the digital divide because it focused only on the narrowband dimension of the two principles; that is, universal service. Further to this, more attention was given to other services such as housing, water, health services and road infrastructure among others, seen in the table below.

4.2.5 Failures of the RDP

Despite the achievements mentioned above, the RDP was soon to encounter a plethora of challenges which subsequently caused the government to drift away from its original plan. Firstly, RDP operations were constrained by budget shortcomings. There was evidently lack of capacity to implement RDP programmes because the staff lacked proper implementation skills. As a result, huge backlogs in providing access to basic services, as defined in the RDP, occurred. Provincial maladministration of some primary programmes took place and this triggered dissatisfaction with service delivery and employment creation as embedded in the RDP.

One of the shortcomings of the RDP was that it did not spell out a detailed programme for attaining its main aims (Heymans, 1995; Meyer, 2000). The RDP policy framework was too broadly formulated and ended up as a wish list for too many people (Terreblanche, 2003). Putting forward his argument, Patrick Bond (2000) challenged Minister Naidoo's implementation strategy of the RDP which the author argued was hell-bent to cater for capitalist interests. Bond highlighted that Naidoo did not command a deserving respect among his parliamentary colleagues. Bond also asserted that the RDP was gravely destabilized by timid politicians, hostile bureaucrats and unreliable private sector partners. It suffices to say these instabilities did not only have negative impact among Alliance members but also on the goals of universal access.

The country's economic stance started to dwindle and fiscal difficulties grew and the government could not solicit sufficient funds to meet the RDP's objectives without redirecting allocations from the other government

departments. Amidst the environment troubled with lack of resources, with fierce contest for resource among ministers, the view of having their budgets taken by the RDP administration was strongly opposed (Visser, 2004). Subsequently, most of the financial aid for RDP projects was sourced from international donors and not the South African government. As a result, the programmes were in the form of projects which by and large were not sustainable (Midgley, 2001). To aggravate matters even worse for the RDP, the government encountered its first major currency crisis, when the value of the rand took a nose dive by more than 25% in February 1996, (Midgley, 2001).

Without a shadow of doubt these economic conditions and fiscal difficulties obstructed the implementation of RDP programmes and projects. Thus, due to asphyxiated economy and financial shortcomings, the RDP was found wanting in holistically addressing the universal access challenges in rural areas leaving the same far from turning into reality. Thus the opportunity for rural communities to have access to ICT services took a severe knock leaving universal access aspirations just but a pie in the sky for these populations and subsequently, failing to arrest the widening digital divide gap.

To save the dwindling South African economy, the new economic policy was on the cards, namely the Growth Employment and Redistribution (GEAR). The government had to seek help from this macro-economic strategy. The following section expounds more on the composition of GEAR and how it was developed.

4.3 Growth Employment and Redistribution Policy (GEAR) and its Reforms

In an attempt to resuscitate the ailing economy and to address the rand deficit, the government moved to a more conservative macro-economic policy strategy, namely, Growth, Employment and Redistribution abbreviated as GEAR (Midgely, 2001). Contrary to the people centred RDP policy framework, the state moved to a more pro-market orientated policy, GEAR.

GEAR focused its attention on the growth of the economy and promised to attend to the provision of other services like the universal access to telecommunication services at a later stage. It promulgated that as the economy grows, more people will be employed and the proceeds of the growth will trickle-down to address universal access challenges and the digital divide. In other words, the poverty problem would be resolved through higher economic growth rates and the so called trickle-down effect will materialise (McKinley, 1997; Terreblanche, 2003). The expectation was that GEAR would attain a growth rate of 6 percent per annum and create about 400 000 jobs per annum by the year 2000, concentrating on building capacity to meet the demands of international competitiveness (*ibid*).

The stiff rejection and criticism of GEAR by COSATU and the SACP could not prevent the ANC National Working Committee to officially endorse the policy without agreeing with the Alliance partners. Both COSATU and SACP representatives were also part of this committee (Kotzé, 2000; Terreblanche, 2003; Bond, 2000; Webster & Adler, 1998). The enforcement of the policy was finally endorsed by Nelson Mandela when he said that GEAR was a fundamental policy of the ANC and the organisation will not change it because of pressure from Alliance partners. He emphasised that if the Alliance Partners felt that they could not get their way, they should go out and shout like other opposition parties and they must prepare to face the full consequences of this line (Business Day, 2 July 1998).

Despite the GEAR strategy promising to rebuild and restructure the economy to keep up with the goals set in the Reconstruction and Development Programme, the afore-said statement was a clear revelation that the government had moved away from the people's contract and taken the vertical top-down approach to policy decision making processes. In contrast to the more people orientated development policy framework, the RDP, GEAR was a macro-economic policy which saw South African economy as being proliferated by capital accumulation and unrestrained capitalistic system (Terreblanche, 1999). It advocated for an economic growth that is led

by the private sector while the state was expected to play a smaller role in the economy. It was couched within the tenets of neoliberalism and called for privatization of state-owned assets with the government expected to cut its spending (Meyer, 2000; Bond, 2000; Van der Walt, 2000; Marais, 2001). This was a direct contradiction of the RDP and a stance that did not auger well with the Alliance partners.

The Alliance partners questioned the relevancy and wisdom behind advancing neoliberal policies in a developing state. According to Saad-Filho and Johnston (2005), neoliberalism is a new 'paradigm' for economic theory and policy-making, an ideology behind the development of capitalist society. The authors describe and perceive neoliberalism as the dominant ideology that is shaping the world today. These views were also harnessed by Harvey (2005) who opines that governments are subtly infusing the ideas of capitalism, borne under neoliberalism into political, social, and cultural institutions.

Conversely, other authors and propagators of neoliberalism argue that the concept of neoliberalism is not a complete political philosophy or ideology. They opined that rather it must be understood as a loose set of ideas which explains how the relationship between the state and its external environment ought to be organised (Thorsen, 2010). Neoliberalism approaches have also been lambasted by authors who opine that the approach has placed mathematical quality on social life (ibid). Subsequently, this has encouraged states to degenerate into penal states that value production, competition, and profit above all else, including social issues, Thorsen argues.

4.3.1 Neoliberals and disregard for public good

According to (Peters, 2001), neoliberal approaches insist that rationality, individuality, and self-interest ought to guide all actions. Since all behaviour is thought to be directed by logical, individualistic, and selfish goals by these approaches, they perceive themselves as capable of explaining all human

behaviour (ibid). Thus neoliberalism's focal point on individuals implies that the notion of the public good and the community are discarded and perceived as unnecessary components of a welfare state (Martinez & García, 1998). Consequently, unemployment, inequality, and poverty become increasingly blamed on individuals rather than on structural constraints (Passas, 2000), thus turning focus away from the community and focusing solely on individuals. Bourdieu (1999) contends that social problems like suicide, alcoholism, depression, and domestic violence will consequently become increasingly prominent.

4.3.2 The shortcomings of the RDP and GEAR

As noted in the RPD (2002) monitor above, it was recorded that about 4 million people in South Africa had access to telecommunication services. Two shortcomings which emanated from the statistics given earlier on were captured by the researcher. Firstly, the breakdown of these statistics was not clearly elucidated in terms of their geographical areas. Secondly, the time factor clarifies that the concentration of connections were more on telephony services than on access to broadband internet access points.

The RDP's failures to meet the goals of universal access can be attributed to a number of factors. These include among others, the plummeting of the rand, lack of proper skills to implement the programmes of the RDP, drained funds from the donors as the RDP programmes depended on and donor funding for survival. Critical to note is that implementing telecommunication services in rural areas requires massive capital. Subsequently, because of the dropping of the rand the implementation of universal access to telecommunication was compromised in favour of other basic services such as housing, health services water and other services which the government deemed required. Thus, despite being perceived and envisioned as the roadmap through which the provision of the basic needs such as jobs, land, housing, water, electricity, telecommunications, and transport would be provided, the RDP soon ran into troubles. The policy framework did not enjoy political support from the governing party anymore. The government

maintained that the RDP was not economically viable; therefore, the state could not be trapped in pursuing its goals.

Contrary to the government's views of the RDP's lack of economic viability, authors such as Heymans, (1995) argued that from the beginning the government lacked the capacity to implement it. Huge backlogs in providing access to basic services, as those defined in the RDP, occurred because staff lacked proper implementation skills, including those related to universal service and access. Many authors argued that the RDP failed because it was broadly formulated and it did not spell out detailed programmes for attaining its objectives (Heymans, 1995; Meyer, 2000; Terreblanche, 2003) Subsequently, it ended up as a wish list to many people (ibid).

It is important for the reader not to lose sight of the genesis of the RDP and how it was adopted. The RDP was an initiative of the labour federation (COSATU) which the ANC government promised to adopt and implement in exchange of votes. Thus, despite all other reasons submitted which include lack of economic viability of the RDP, the researcher notes that post the 1994 election, the relationship between the labour federation and the ANC deteriorated. Probably, this was because the mandate to put the ANC in power was achieved and the governing party's priorities changed. As the government tussled with stabilising the economy, political will to implement the RDP programmes also diminished gradually. Bond (2000) submitted that the RDP failed because it was despised by coward politicians, hostile bureaucrats and unreliable private sector partners. It is on these grounds that because the RDP was perceived to be a Policy framework that was not economically viable, it was later abandoned in favour of GEAR policy. As if it was not enough, between April and August 1998, the rand depreciated by 28 percent against the US dollar (Bhundia & Ricci, 2005). To worsen the matters even more, the plummeting of the rand coincided with the 1998 global economic recession. This subsequently impeded the realisation of the RDP's goals and had adverse consequences on the provision of

telecommunication services to marginalized communities, specifically those in rural areas.

Despite the new government hoping for economic growth rates of 4-6% per annum, the actual growth rate ended up being 2.5% (Midgely, 2000). The dropping of the rand posed serious challenges to the goals of universal access to telecommunication services as the government could not mobilise sufficient funds to meet the RDP's objectives without redirecting allocations from other government departments. Midgely (2000) notes that the move to appropriate funds from certain departments was strongly resisted by various ministers heading affected departments. Thus the RDP was strongly resisted as ministers refused to allow their budget to be sanctioned to run the RDP programmes (ibid). This did not only affect the RDP's poverty alleviation programmes and meeting of the citizens' basic needs, but it immensely affected the goals of universal access to telecommunication services, which in essence required massive capital to be implemented .

For all intents and purposes, whilst the RDP was appositely crafted to address the post-apartheid challenges, its limitations were lack of proper financial plan. The policy framework did not have a financial plan as to how its programmes would be funded. Thus despite the dipping of the rand, lack of apposite skills and capacity, lack of political will to implement the RDP programmes, the policy itself did not have consistent and reliable funding sources. It mainly relied on donors for survival, hence its failure to deliver on the objectives of universal access and services.

As highlighted above, it was expected that GEAR would grow the economy by 6% per annum (McKinley, 1997; Terblanche, 2003). Subsequently, the economic proceeds would trickle down to address basic services as enshrined in the RDP policy document, and these included addressing the aspirations of universal access to telecommunication services. However, these expectations were not realized due to a number of factors.

Firstly, GEAR provided very little fiscal stimulus to reach the required growth rate of 6% and as its success entirely relied upon the response of the private sector (Adelzadeh, 1996). Adelzadeh anticipated that the GEAR's projected growth framework and policy scenarios were "analytically flawed, empirically unsupportable, historically unsuitable for South Africa, and would lead to disappointment and failures in achieving the RDP objectives of transforming the inherited patterns of inequality in the country. The author's projections proved to be valid when it turned out that the GDP growth turned out to be much lower than the Gear projections, and by 2001 it had still not reached the 6 per cent growth predicted for 2000 (Streak, 2004). Job opportunities had been non-existent and declining substantially over all the years (ibid).

The government through Treasury also agreed that job creation during the Gear period and immediate post-Gear period was unsuccessful (Manuel, 2002). Manuel (2002) and some leading economists, such as Abedian and Roux acknowledged that Gear failed to deliver what it promised in terms of poverty and inequality reduction (Streak, 2004). Instead of growing at an annual average of just under 12 per cent, private sector investment grew by only 2, 7 per cent (ibid). It is this 2, 7 percent growth that Manuel used as evidence that the economy showed "impressive "resilience despite the global economic recession. This is a position which was further supported by Sanlam Investment Management economist Jac Laubscher and Standard Bank chief economist Iraj Abedian (Stark, 2004).

The miserable development legacy of the GEAR period was further documented by stationary studies on the extent and depth of poverty in South Africa (Streak, 2004). A United Nations Development Programme's (UNDP) study of poverty in South Africa found that over 10, 4 million lived in ultra-poor households earning less than R193 per month per adult equivalent. Using an absolute income poverty line of R400 per person per month and the OHS 1999, it was estimated that about 22 million people, or 49,6 per cent of the population, were still income poor (ibid). The lack of

economic growth as per government targets simply made the trickle-down effect not feasible.

The reader will recall that the expectation was that as the economy grew, its proceeds would be dispersed to address basic services enshrined in the RDP policy document, unemployment and the aspirations of universal access being some of those services. Subsequently, the lack of economic growth thereof affected the roll-out of universal access to telecommunications services. GEAR was a macroeconomic policy and in-depth analysis of its successes and failures are documented in the discipline of economics. The researcher's focus on GEAR was to find out how the strategy helped to expedite the aspirations of universal access and services with reference to the telecommunication sector. What is clear from the literature is that economic growth of 2.6 percent during GEAR era, could not push the country to achieve the goals of universal access in the aforementioned sector.

Critics of GEAR, such as the labour federation (Cosatu, 2006) and authors such Adelzadeh (1996) among others, highlighted that GEAR was bound to fail. Their argument was that GEAR did not find resonance with the real challenges that ordinary South Africans were facing. This is a position this study supports, particularly in a country where there is a high number of unskilled and poor people. It would have been apposite for the state to avoid giving the market and other international bodies, organisations and stakeholders a more say in determining the exodus of South Africa from the shackles of poverty and inequality to riches. They also argued that pre-1994, the governing party sold the soul of the country by subscribing to the dogma of neoliberalism when it agreed to work with capitalists' organization such as the International Monetary Fund (IMF) and the World Bank.

Hence, many believed the adoption of the neoliberal macroeconomic strategy GEAR by the government meant to resuscitate the ailing economy was not a coincidence; it was a premeditated move by the governing party. Thus the ANC found it difficult to digress from policy promises it made to

IMF and World Bank pre-1994 (ibid). The party had to bite the bullet and continue with GEAR even though it was not yielding expected economic growth proceeds.

The proponents of GEAR defended themselves by arguing that, it cannot be a cut and dry conclusion that lack of economic growth can solely be attributed to the GEAR strategy. They submitted that it was erroneous to presuppose that the poor growth and development performance during the GEAR period was largely due to the implementation of the programme (Stark, 2004). In contrary, they attributed the economy's poor performance to negative external conditions, such as the Asian Crisis, the slow-down in the world economy in the late 1990s and the political developments in Zimbabwe and the United States. Thus in support of the Gear strategy, Manuel and the aforementioned economists, presented the economy's performance during the Gear period as being "very impressive" in the face of the global economic meltdown (ibid).

In the light of the issues raised by pro- GEAR camps, it is crystal clear that both the RDP and Gear failed to arrest the challenges of digital divide. Whilst the RDP was rebuffed along the way by the South African government citing that it was not economically feasible; similarly, the adoption of the market orientated neoliberal macro-economic policy (GEAR) could neither be the solution through its programmes to arrest the digital divide. The promises of Growth through redistribution remained but a pie in the sky, since the economy only reached a 2.5 % growth as opposed to the initially expected 6% growth (Streak, 2004). Communities in the outskirts were left in perpetual exclusion from the benefits of the information society and knowledge economy. This is a prototype of an outcome that defines what truly neoliberal policies stand for; i.e., harming the poorest of the poor. It was far-fetched to think that the neo-liberal policy (GEAR) will genuinely address the rural backlogs and bottlenecks of access to ICT services.

It is critical for the reader to note that it was not doom and gloom during the GEAR era. A number of transformative development spin offs could be

recorded. These include the introduction of the Basic Conditions of Employment Act (1997), the Employment Equity Act (1998) and the Skills Development Act (1998). The first Act laid down minimum conditions of work and was directed mainly at workers who fell outside collective bargaining. The second sought to give companies and firms incentives to redress past imbalances in the labour market. It wanted to abolish discrimination in the workplace and provided for affirmative action by firms, and for the monitoring and reduction of wage differentials.

The third, the Skills Development Act, provided for the setting up of mechanisms to finance and promote skills development in the workplace. Note that it was in the work place. It was accompanied by the development of the Skills Development Fund which required employers to deduct 1 per cent of their payroll for spending on training of the workforce as a means to help overcome structural unemployment in South Africa (Bhorat *et al.*, 2007). Despite the government's promulgation of series of these Acts, none did find resonance with the aspirations of universal access.

One may conclude that neither of the two policies, that is , the RDP and GEAR policy frameworks could arrest the perpetually widening of the digital divide. Despite the good intentions and idyllic vision the RDP espoused, the policy document ended up as a wish list for many people because it did not spell out a detailed programme for attaining its main aims (Meyer, 2000). As if was not enough, the RDP lacked financial muscles. Thus augmenting the assertion made by the book of Ecclesiastes 10: 19, which declare that: "money answers all things". It was therefore difficult to see how the RDP could have been a living document without having strong financial backup. Thus its human capacity building aspiration which would have inculcated the end user computing skills and training programme did not see light. As the researcher has highlighted above, much cannot be said on GEAR, which for all intents and purposes was never meant to address the universal access challenges.

4.4 COMTASK: TOWARDS DEVELOPMENT COMMUNICATION, MODEL OF SHARED ACCESS

Parallel to the argument and debates of GEAR adoption and the abandonment of the RDP framework, the government formulated a communication vision which caters for all South African citizens. As mentioned in the chapters that preceded this one, the dismantling of apartheid provided both development opportunities and challenges. It was clear that in relation to government communication and information circulation, there was no clear policy to guide the country moving forward. Despite the previous RDP office's attempts to research on national information policy, not much progress was made in establishing valid and authentic government communication policy (GCIS, 2000).

It was at the backdrop of these developments that the government was left with no option but to complete the process that was previously started by the RDP office. To address these backlogs, the then Deputy President Thabo Mbeki, established a communication task group abbreviated as the Comtask. The group was to look into the government's vision of communication and report its findings and recommendations to Mbeki. This vision was to be a people driven vision which was never known before

4.4.1 Comtask's constitutional and policy imperatives

This was to be done in line with the country's constitutional imperatives which provide for freedom of expression, freedom of the media, access to information, inculcation of culture of accountability and the right to know, as well as the creation of highly professional and well trained corps of communicators (Comtask, 1996:13). Thus the brief mandate of the task group was to review government communications at the local, provincial, national and international level. It had to make recommendations on how government communication should be structured in line with constitutional principles of freedom of expression, transparency and openness of government. Recommendations had to address new policies, structures and budgets. Comtask also had to examine training and affirmative action

policies, as well as the way in which ownership of the media affects government communication and South Africa's international information dissemination. Upon completing the task, the group presented 83 recommendations to Mbeki (GCIS, 1999).

It was hoped that the task group would assist in the establishing of policies that encourage inclusivity and participation in both knowledge and information society by ensuring ubiquitous access to information and communication tools to all South Africans. It was imperative for the new government to provide universal access services to the previously neglected areas. Thus, in order to serve communities in these areas with government information on time, the resilient government communication and information system that would coexist with a culture of freedom of expression and information was inevitable (Comtask, 1996).

4.4.2 Development Communication Imperatives

The Comtask group noted that the free flow of information and communication in South Africa were hindered by a number of factors. These included, among others, the failures of previous apartheid policies to diagnose and answer a simple question as to how for so many decades, did communication and public infrastructure ignored millions of the urban poor and rural masses (Comtask, 1996). It was during this time that the government noted that communication unit, commonly known as South African Communication Services (SACS) was for many years a grossly inefficient defender of the old apartheid bureaucracy in communication unit. Fundamental debate over the role of the press and the proper relation between the mass media and government in the post-apartheid era were sparked when the South African Communication Service (SACS), an apartheid government's public relations and information arm was disbanded. SACS was to be replaced with a more people orientated, bottom up, interactive and participatory government communication unit which espouses the notion of participatory communication and dialogue. This was

a direct contrast of the top-down “government-knows best model” of communication as was espoused by SACS.

Thus, the Comtask group had to find strategies and make recommendations in relation to the development communication imperatives faced by the country. These included among others: the implementation of the quickest and cost-efficient means of disseminating development information in appropriate languages and participation in innovative strategies of information-sharing for human development, among others. Further, these imperatives also included expediting the use of electronic devices to enable people to communicate effectively through these devices; and developing partnerships with designated Presidential Lead Projects to establish multipurpose community centres (MPCCs). These MPCCs were to disseminate useful information on government and other matters in a user-friendly manner to members of the community (GCIS, 1999). The latter imperatives are critical and necessary to this study as they, *inter alia*, sought to make internet services accessible through the multipurpose community centres (shared access) which were later renamed Thusong telecentres. It is through the shared access mode (MPCCs) that critical services, including the internet, would be consolidated and accessed in one place by communities in the outskirts.

To achieve the afore-said imperatives, Comtask recommended the establishment of Government Communication and Information System unit (GCIS). GCIS was formally established in terms of Section 7 (subsection 2 and 3) of the Public Service Act, 1994 as a strategic unit located in the Presidency (Horwitz, 2001). The mandate of GCIS was to improve public access to government communication and information needs that ought to be tied to improved telecommunication and broadcasting capacity (Comtask, 1996).

The GCIS as the coordinator had to guide and advice government on salient communication strategies (including media liaison, development communication and marketing) (Comtask, 1996). The core vision was to

achieve integrated, co-ordinated and clear communication between government and the South African citizens to enable them to be involved in the country's transformation.

At the backdrop of these imperatives, Thusong Service Centres were established through the help of the GCIS. The rationale behind that was to achieve the objectives of bringing government information and services closer to the people. Thusong Service Centres are defined as one stop service centres that provide integrated services and information from government to communities close to where they live, as part of a comprehensive strategy to better their lives. The centres were established as hubs of development communication based on Batho Pele values and principles, which put people first. They were to provide a hub of activities and a variety of services, organised according to the Six-Block Service Model. Since community needs are the driving factor in service provision, this model was modified to suit the context and environment of each Thusong Service Centre (GCIS, 1999).

Reaching out to majority of the population, particularly the disadvantaged was and had been a major challenge for the South African government. Critical bottlenecks which the government had to give attention to include among others, inadequate telecommunication and broadcasting infrastructure. These, with the exception of radio were the main barriers which caused lack of access to these infrastructures (GCIS, 2000). New technology was then perceived as the solution to bridge the divide and overcome these impediments, which inter alia, included overcoming digital illiteracy and the high cost of information distribution. Subsequently, multi-purpose community centres were perceived as being appropriate to facilitate access and achieve the aspirations of universal access.

Part of the six services rendered at Thusong centres were computer and internet services. It was through these telecentres that internet services were usually used to bridge the distance divide, whether used at a country or at a global level. Despite having mixed bag of successes and failures, the telecentre model has been used in various developing countries as a method

of bridging the digital divide. Subsequently, in order to bridge the digital divide, South Africa too had to adopt the telecentre model. It is this model that has been the paragon of universal access in as far as the right to use broadband internet and telephony services are concerned. Through the Thusong telecentres, computers and other related tech gadgets were rolled with the aim of including the previously disenfranchised areas (that is, rural areas and townships) in the information society.

4.4.3 The quintessence of telecentre model

Due to their ability to provide desperately needed access to information and communication technologies (ICTs), telecentres have been hailed as the solution to development problems around the world (Gómez & Hunt, 1999). Various governmental and development agencies across the globe piloted and implemented a significant number of such centres. These centres had considerable potential for narrowing the digital divide in remote, rural and otherwise disadvantaged communities. If well managed, telecentres could help developing countries and rural areas take advantage of the information economy, access education, government information, healthcare and other services, and develop socially and economically (ibid). Latchem and Walker (2001) note that it is the proliferation and use of ICTs through telecentres that provides opportunities and challenges both to the mature service-oriented economies of Europe, Australasia and North America and to the developing countries.

Thus, through the establishment of the Thusong telecentres, GCIS expected to bridge the digital divide by delivering public and private services to rural and most remote locations, subsequently impacting positively on the socio-economic development of the communities they serve and helping to develop rural and remote telecommunication infrastructure. Further, it was expected that telecentres would generate employment by fostering socio-economic development and integrate isolated communities into the national and international information networks, subsequently, accelerating exchange of private goods and services (Latcheman & Walker; 2001).

Challenges and sustainability of telecentres are documented in various studies across the globe and there have been mixed reactions of their successes and failures. For instance, Polly Gaster (2001) notes that in the rural areas of Mozambique, Namaacha and Machia, a number of factors affect operation of these centres. These include lack quality power supply and high cost of phone calls and internet use which impede communities from benefiting from these centres. The author critiqued the implementers of the telecentres for not conducting extensive research on the demographic and topographic dynamics of the areas where the centres were established. These include, among others, failures to understand the beneficiaries' experiences, local circumstances and culture which then pose a serious challenge to sustainable use and adoption of these telecentres. Further, it was noted that there has been an oversight on the side of various developing countries to have monitoring and evaluation plans in place, hence their lack of sustainability thereof.

4.4.3.1 Telecentres in the South Africa context

In South Africa, one successful telecentre which could be noted was the Gaseleka telecentre in the poorest Limpopo Province of South Africa. The reader should note that this telecentres was not part of the Thusong telecentres, but it was an initiative of various stakeholders within the community. It fell right within the ambits of Communication for Social Change, where communities drive and lead their own development initiatives. Thus by and large its success and sustainable usage emanated from this notion.

The Gaseleka telecentre was owned by the local branch of the South African National Civic Organisation (SANCO), directed by a special sub-committee of 15 people, and operated by two telecentre managers and a computer trainer (Benjamin, 2001). The centre was used by an average of 50 people a day, 60 % of whom were women. It had become the de facto community centre, that is, a place to hang out and chat. The telecentre supported 34 local

students from South Africa's main distance education provider, the University of South Africa (UNISA).

Local businesses used the centre for producing marketing and advertising materials. Training was provided to 46 people on an Introductory Computer Practice course that was certified by the Technical College. The course introduced participants to the computer, typing, file management, use of the operating system, word processing and spreadsheets. Furthermore, many organisations within the area used the centre. SANCO used it heavily, as did the local schools, Community Policing Forum, Department of Health and Welfare, small businesses and local political groupings such as the African National Congress and the Communist Party (ibid).

The information about the establishment of the centre was well disseminated throughout the area with three local chiefs giving their support to the project whilst close links were maintained with the local government. The telecentre maintained such support by allowing the chiefs and some senior councillors to make free phone calls and photocopies. Many people also used it for sending faxes and photocopying. The local schools were primary users, through bulk-copying of question papers, reports and typing up curricula. This usage was monitored monthly. This obviously made the telecentre very popular among the key local officials. The approach paid off in another way as well because the centre was given free water and electricity from the local authority (Benjamin, 2001).

However, regardless of courageous efforts mentioned above, the Gaseleka telecentre was not really able to serve as an information centre, the centre still lacked formalised information systems. Proper training of the telecentres' managers was lacking in the area of financial management, equipment maintenance, customer service, and business skills. As it was the case with other telecentres, sustainability of the centre remained a challenge. Community conflicts were also highlighted as factors which caused tensions among the communities. Different factions over who should own the telecentre led to the closing down of these centres. Unskilled and

incompetent management was blamed for the collapse and instability of many rural telecentres.

Over half of the 60 projects initiated by the USA were not functioning well for a variety of technical, managerial, competitive and financial reasons. Masilo Mokobane, a community champion at Gaseleka telecentre affirmed that there was a need for proper marketing because not everybody knew about the services that were offered at the centre. He asserted that telecentres had a good and promising future in South Africa. However, there was a strong need for their good management (ibid).

Thus idyllic as they are appeared to be, most of these telecentres in South Africa operated under insalubrious and appalling condition, which included among others, poor management, incompetency, unsustainability, theft and vandalism (Benjamin, 2000). Safety and security around the centres was a grave concern.

The Thusong telecentres were not an exception. The study conducted by Seadira (2012) found that these centres were placed under communities who were not capable of using them, communities of low and poor socio-economic stratum. Challenges also included among others, long distances between the centres and the communities they were supposed to be serving. Furthermore, they were not yielding economic profits as the communities lacked skills to use these centres (ibid). It was evident that the government's roll-out plan neglected some vital components of the comprehensive roll-out plan, such as the capacity of the communities to use both the computer and the internet. The state did not only lack the capacity to train the end-users, but the financial sustainability and operational plan of Thusong telecentres was questionable as these centres were expected to be self-sustaining. This was not feasible as these communities depended on grants to survive and had low level of digital literacy.

Furthermore, some computer literate individual within these communities volunteered to tutor computer lessons. However, this was not enough

because they did not receive stipends for the services they offered; subsequently, they left to search for greener pastures in the city centres. This was evidenced in the Kgetleng District municipality where the Thusong telecentre has not been operational for at least three years at the time of conducting the study. The research team learnt that the local mayor confiscated computers and it was not known where the same were kept.

Furthermore, Thusong telecentres lacked sound financial operation plan. In an interview the researcher held with GCISs' senior Development Communication officers in 2012, it transpired that the telecentres' financial model relied solely on the generation of income by the centres themselves to cover their operational expenses. This model proved to be problematic because as highlighted above, the centres were established within the space of communities of low economic stratum (Moswelwa, 2012). The model could not enhance nor maintain sustainable operation of these centres. To aggravate matters even further, the question of ownership of these centres surfaced. Despite their costly roll-out, it was not clear as to who between the GCIS and the local municipalities was responsible and owned the total operation of these centres. Roles were not appositely and explicitly defined as to who should administer these centres.

This connects well with the observation by Mayanja (2001), who argued that there is a lack of leadership and proper administration of telecentres in Africa. He argues that this has persistently affected the sustainability of these centres. He also highlights the different types of schools of thought in the implementation of telecentres. Mayanja (2001) brings forward two types of school of thoughts as perhaps the reasons behind lack of sustainability of these centres. In his view, one school of thought which finds resonance with the current project highlights that telecentres should be established to serve the aspiration of universal access. Most of these telecentres are either state funded or are unilaterally driven by NGOs and CBOs, such as the Gaseleka telecentre.

The other school of thought puts forward that the telecentres should be established for profit making purposes; that is where internet cafes come into play. As highlighted above, the conundrum with the Thusong telecentres was the question of ownership. Although the roll-out was done by the government, it was not clear as to who was responsible for their daily operations, and whether they were profit driven or were meant to address the aspirations of universal access or not.

Cutlip (1996) notes that any service that is rendered in the community, must convince and conscientise the beneficiaries that it is beneficial to them. Without this awareness it was difficult for most of the Thusong telecentres to fully function and be sustainable. Hence in many instances, most of these centres were used for community meetings and church gatherings such as the one in Tshidilamolomo village in the North West Province. These telecentres lacked a communication strategy that could systematically raise awareness about their importance in the communities they were serving.

It was evident that the promotion of the Thusong telecentres in the eyes of donors and the government in South Africa was not a high priority. Despite all the challenges highlighted above, in the budget vote speech of DTPS (2015) the government pronounced that the same Thusong telecentres model would be used to roll out Points of Presence (access points) as expounded in the current broadband policy. Points of Presence (PoPs) are prototype of Thusong telecentres by function, they are meant to bridge the digital divide. Whilst the researcher notes the relevancy of PoPs in bridging the digital divide, it is his (the researcher's) observation on how Thusong telecentres performed that makes him sceptical and concerned about the anticipated successes and sustainability PoPs.

At the backdrop of the aforementioned challenges, it is evident that bridging the digital divide through the use of telecentres in South Africa cannot be left in the hands of the government/municipalities and private sector alone. The researcher observed at the time of conducting the study in 2012 that

some municipal managers belonged to the old school of thought who regarded access to information and circulation as luxury. They preferred to circulate information through hardcopies and, without doubt, this demeaned the importance of ICTs services harboured in Thusong telecentres.

It is from the reasons cited above that, the government's Thusong telecentre model did not only fail to bridge the digital divide, but also failed to both capacitate the end users with necessary skills and to implement sound financial operation plan which then posed serious sustainable challenges to these centres. Thus these centres could neither bridge the divide nor achieve ubiquitous access to communities in the outskirts as was initially intended. The socio-economic conditions, the long distances communities had to travel to these centres, lack of communication strategy which advocates for the use of these centres, deficiency of economic dividends, as well as poor management has been a critical limitation for Thusong telecentres. Notably, digital illiteracy, affordability and access still remain uppermost critical barriers to internet adoption in rural South Africa to date. This has also been confirmed by Communication For Social Change proponents such as Alfonso Dumucio Dargron (2009,) who noted that digital illiteracy and affordable access of internet services are critical adoption challenges faced by rural communities. Subsequently, this makes it difficult to arrest the digital divide. Some writers have warned of premature celebration and hype of ICT dividends without having proper planning and the roll-out plan. For instance, Evusa (2005:7) notes that: "neither a naive celebration of ICT potential nor a condemnation can adequately capture the potential and future impact of communication technologies in rural communities; instead it calls for the need to address how they can be harnessed to tackle locally relevant problems".

Alfonso Dumucio Dargron (2009) notes that the roll out ICTs gadgets in the rural areas and within populations which cannot read and write has been a major challenge for developing nations and massive drawback for their

respective governments. As a result, many telecentres have either become white elephants, used for their unintended purpose, vandalised or have become dens for criminals due to lack of usage.

To address this challenge, Cutlip (1994) draws us to a salient and effective communication strategy and highlights that to be effective and efficient, service must be placed within the capable audience. Evidence based research show that Thusong telecentres failed to address the aspirations of universal access and services wholly (Braathen & Attwood, 2010; Seadira, 2012). The reasons behind was that these centres were placed under communities of low economic stratum, whilst their operation expenditure was high. What has been catastrophic and calamitous about the whole narrative of digital inclusion is that policy makers in developing countries and donors have neglected and ignored this problem for many years. In the words of Dargron (2009), many developing countries have turned into technology dumping site, particularly in their far-flung areas. Subsequently, this renders their digital inclusion endeavours and strategies void and fruitless.

The critical question that the reader may marinate on is, how exactly SA Connect's through the Points of Presence does seek to avert the challenges experienced during the Thusong telecentres. Does SA Connect (that is the South African Broadband Policy) give a deserving attention to the said Thusong telecentres challenges, looking at how did these centres performed out in the past? How feasible is it that all South Africans will have access to universal broadband services by 2020? These questions and others will be clarified in Chapter 7 of this study.

The following section looks at the history of telecommunication in South Africa, pre and during apartheid and post-apartheid era. It also looks at the two state entities which were promulgated through the Acts passed to mete out the goals of universal access between 1994 and 2005 respectively, namely: Telkom and Universal Access Agency.

Chapter summary

Chapter 4 provided historical background and the overview of South Africa's legislative and policy attempts to bridge the digital divide between the rural and urban areas. It focused on the impact these policies and legislative attempts made in ensuring digital inclusion of the communities in rural South Africa. It traces these attempts from the epoch of the Reconstruction Development Programme (RDP) of 1994 to the promulgation of Electronic Communication ACT of 2005. The chapter unravels the pros and cons of digital divide policies and other related legislative episodes in the digital divide conundrum. The first part of this Chapter provides South Africa's historical background and the essence of the Reconstruction Development Policy Framework in relation to the state's universal access and universal service targets.

It explained the reasons behind the genesis and the rationale behind the conceptualisation of the Reconstruction and Development Programme and the Growth, Employment and Redistribution (GEAR) policies by revealing the neoliberals' tendencies of undermining the public good. It also looked at the South African government's communication imperatives to address issues of exclusion by bridging the communication divide between the state and its citizens post 1994. Critical to achieving this objective, was the use of Thusong ICT telecentres which the state perceived as an ideal shared access model of bridging the digital divide. The Chapter looked at the quintessence of this model and how it fared in rural South Africa.

CHAPTER 5

5.1 THE HISTORY OF THE SOUTH AFRICAN TELECOMMUNICATION SECTOR: THE PRE-AND POST APARTHEID ERA

Chapter 5 looks at the history of the South African Telecommunication sector. Drawing mainly from the writings of Horwitz (2001), it presents how the early telecommunication regime fared. Through the lens of universal access, it traced the transformations of telecommunication processes and how the sector was structured from 1910 to the promulgation of Electronic Communication Act in 2005 and beyond. It further analyse what Horwitz (2007) called negotiated liberalisation and its effects in the South African telecommunication sector. The Chapter concludes by providing a brief analysis of the role of state institutions in the provision of universal access and universal service; namely, Universal Service Agency of South Africa and Telkom.

Chapter 5 lays a strong foundation for Chapter 6, 7 and 8. It is imperative to note that some of the interpretations, analysis and findings in the aforesaid Chapters appositely connect with explanations made in Chapter 5. It is therefore essential to clearly grasp how this Chapter is compounded and how it appositely connect with the last three Chapters of this study.

5.1.1 The Ancient Regime

Pre-democratic era the South African telecommunication sector was known as Post and Telecommunications (SAPT), one of the original parastatals of the time and was commonly referred to as the “Post Office”. Statutes of the Republic of South Africa (1958) notes that traditionally, SAPT was more like a classic post, telephone, and telegraph (PTT) monopoly, legally monopolizing postal and telecommunications services and operating a system characterized by internal cross-subsidies. This is to say, the telecommunication profits were used as a cash cow to support trivial postal

services such as truncated telegraphic services. The clearest cross-subsidy was that from telecommunications to posts where profitable telecommunications services balanced out large operating losses on the postal side, Hence the entire sector was called the Post Office.

Statutorily the sector was forbidden to either make a profit or experience loss. The state had a very tight oversight and monitoring operation over the SAPT (Horwitz, 2001). After the emergence of the South African Republic (mainly called the "Union") in 1910, the finances of the Post Office were controlled by the Treasury. Categorised as "state business enterprise" the SAPT was administered through the office of the Minister of Transport and Communications (ibid).

Operating under this strong Parliamentary oversight and monitoring, Horwitz (2000) notes that the SAPT did not experience landslide corruption or gross overspending, but largely suffered from a shortage of capital. This was because it (SAPT) had to compete for funds with other central government capital projects. The government strongly monitored SAPT operations and the sector was not allowed to set its tariffs or to employ borderline costing principles.

Meeting the principles of universal access and services was therefore the prerogative of members of the South African Parliament as they felt that they had to serve their constituents' interests with low telephone rates. These constituents were the "Afrikaner" community, or better still the Dutch settlers. Thus the tariffs were set well below the level that would have enabled the SAPT to meet demand expediently and were adjusted accordingly to stay within the bounds of inflation (Taylor, 1990).

5.1.2 The Transformation Process

In order to maintain white dominance, the apartheid state set in motion a complex process in the telecommunication sector. The sector became tied to the subtle politics of the government's effort to transform the sector even more than with broadcasting. The South African Posts and

Telecommunications had borrowed heavily to digitalize its network and expand its infrastructure in the 1980s in an effort to meet the needs of the market (Horwitz, 2001).

As a consequence of this effort, the SAPT came open to criticism for its inefficiency and overstuffed workforce, and incurring considerable debt. As expounded in the de Villiers Report (Republic of South Africa, 1989), the South African telecommunication faced competition from potential new entrants installing new technologies by the end of the decade. The SAPT started to seek a way out to become a parastatal to meet the demands of competition (ibid).

In 1990, the SAPT became the subject of a legislative effort to attempt to separate the telecommunications from posts started by removing it from the ministry in an attempt to prepare the “parastatal” for privatization. Across the globe, nations transformed their telecommunications regimes around the 1980s liberalising their sectors. This had effect on traditional post, telegraph, and telephone (PTT) systems, including South Africa’s. Searching across the globe, newly deregulated international telecommunication operators were now probing for opportunities to serve the communication needs of large industries in various countries (Cowhey & Aronson, 1988; Duch, 1991; Foster, 1992; Drake, 1994).

To smash down the superiority of state-run monopoly structures, these operators and their host governments began lobbying mutual and multiparty forums, subsequently forcing circumlocutory demands for liberalization and privatization. These operators were constantly in touch with the South African telecommunications reform processes and were mainly influenced by the United States (Horwitz, 2004). These structural changes in the telecommunications regimes of developing countries which was viewed as part of the large trends in those political economies triggered debt crisis of the 1980s, subsequently, leading to the retreat of governments from state-led development strategies (Haggard & Kaufman, 1992).

It is critical to note that in the transformation of the South African telecommunication sector, local political dynamics played a crucial, if not controlling role (Horwitz, 2001). At the level of the general economic policy, the exogenous forces of change in telecommunication and the external influences were necessary conditions for the transformation of the South African telecommunication sector. However, whilst they managed to set the stage and create pressures, opportunities, and constraints, they were inadequate in themselves to account for change or its particular direction in South Africa. Thus conditioned by external factors, local politics were critical (ibid).

The politics of the transformation of the South African telecommunication were intimately bound up in the politics of the transition to democracy. In the words of Robert Horwitz (2004: 179-180), "the telecommunications services in South Africa were fully ensconced within the apartheid political calculus. Service was not extended to black townships because, among other reasons, the policy of separate development (apartheid) stipulated that blacks were temporary residents of South Africa who would one day be repatriated to their appropriate tribal homelands. In the ideological register of Verwoerdian grand apartheid, the black townships surrounding the white South African cities were understood as transient urban formations and any expenditure on them was deemed inherently wasteful. Subsequently, any attempt to make them better places to live would have the unwanted consequence of encouraging further African influx to the cities".

As the apartheid policy continued to gain traction in South Africa and the white telephone market essentially getting saturated, the SAPT⁷ could not extend telecommunications infrastructure to the homelands. This was a result of the parastatal not having recognized authority outside the "true South Africa". Each homeland was supposed to serve its people; hence the responsibility of providing such services was ceded to each homeland to serve in such jurisdictions. Thus where telecommunications infrastructure existed in the TBVC areas, it was nominally under the control of homeland

parastatals (Horwitz, 2004). This implied that these areas were to be starved of telecommunication services. Perhaps this justifies why communities in Provinces which were former TBVC states are the most neglected and excluded from the information society.

In relation to meeting the goals of universal access, evidence shows that SAPT concentrated on connecting the affluent centres as per state mandate of separate development (apartheid). For instance, it surfaced how SAPT application takers would tear up what they perceived as “frivolous” applications. These applicants were mainly from Africans, who were judged to have no need for a telephone (Horwitz, 2004). This happened despite attempts by former Deputy Postmaster General W. J. Taylor denying that apartheid never played a role in the biased provision of telephone services (ibid).

What is annoying and irritating is that though the provision of these telephone services were virtually unavailable to rural Africans, it was extended to Dutch settlers (so called Afrikaner farmers) on a highly subsidized basis. As a result of a commitment from the state to provide “Afrikaner farmers” with services through public sector provisions, an ordinary farming Afrikaner had access to health, education, electricity, transport networks, and a telephone services. Presis (1991) notes that if tariffs for telephone service to the farming community were charged on a cost-related basis, the basic rental would have been R114 per month, not the R24 that was charged at the time. Thus service was relatively good to those Afrikaans favoured constituencies residing in rural areas. It is on these grounds that it cannot be said that SAPT achieved the goals of universal access. In fact, it was during this era where the policy of separate development was entrenched. These inequalities on telephone penetration by race were remarkably bizarre. In the black townships there was inadequate infrastructure and virtually none in African rural areas as per separate development policy (ibid).

5.1.3 The Telecommunication White Paper 1995

In order to address the aforementioned disparities, the government as an intervention strategy drafted the Telecommunication White Paper. This was a policy statement on the future development of telecommunications in South Africa, crafted in the 1990's. Through the White Paper the state gave its vision on telecommunications which, *inter alia* included, to balance the provision of basic universal service to previously disadvantaged rural and township communities with the delivery of service capable of meeting the needs the growing South African economy (RSA, 1996).

Among the key objects of the White Paper was the acknowledgment of the role the telecommunication sector could play in: (i) offering opportunities for local development in innovative products and services, and (ii) contributing significantly to economic empowerment of previously disadvantaged communities (RSA, 1996). The Paper acknowledged the sector as both the source of economic growth and an enabler of growth in other sectors. Thus because of its significant importance in national economic growth, development and planning, the sector was to be integrated into broad economic, trade and social planning and effectively linked with other information policy initiatives (*ibid*). To achieve this, the government's decision making elites on policy intervention strategies had to be informed on two critical issues; namely, the new development within the telecommunication sector (including broadband) and affordable access to all including the population of lower economic status.

As highlighted above, communities which require universal access and universal service policy interventions then predominantly reside in the rural areas, most of which are the former TBVC states or Bantustans (Msimang, 2003). In a country which was previously marred by unequal distribution of resources among its society, policy transfer, that is, a process in which knowledge about policies, administrative arrangements and institutions in one time or place is used in the development of policies in another place and time (Dolowitz & Marsh, 1996), would not be appropriate. It is on these

grounds that policy formulation in the South African context posed a serious challenge for policymakers. They (that is policy makers) were and are still expected to formulate policies which are equitably balanced, inclusive and which appositely addresses resonance with the challenges of the history of South Africa.

The collapse of apartheid was not only a victory for the previously repressed, compressed and digitally excluded citizens of this country, but it was also a challenge to re-configure and re-adjust apartheid structural formations. Another critical challenge for the state was to articulate a vision that balanced the provision of basic universal service to disadvantaged rural and urban communities which would be capable to meet the needs of a growing South African economy (RSA, 1996). The delirious scars of inequality and economic disorganization challenges were colossal for the government. Thus these challenges remained, notwithstanding the White Paper support for affordable communications for all citizens and business alike, and for integration of the telecommunication sector into broader economic, social planning and other related information policies RSA (1996).

The challenge has even become more colossal since the new paradigm of universal access policies has evolved to include ubiquitous broadband services to previously disadvantaged and rural areas. It is imperative to understand how the notion of universal access to broadband services will be achieved in a balanced and equitable manner when interlacing the same with the new broadband paradigm. It is against the aforesaid background that, considering the challenges faced by rural communities, conceptualisation of policy should recognise and acknowledge that there is still a mountain to climb considering the need for structural re-configuration and re-adjustments, thus a paradigm-shift in policy conceptualisation is inevitable.

The new paradigm of universal access to broadband should see broadband as an ecosystem. In other words, it is an approach that include interrelated parts of the whole, which when one part is not functioning properly the

entire system may be affected. The exposition of the concept: broadband as an ecosystem will be unravelled at a later stage, as key themes crucial to the current study, affordable access for all and digital literacy will also be unpacked. While the current study acknowledges all government endeavours of bridging the digital divide, the critical question still remains, and this is: To what level did government interventions provide a well-balanced services to both rural and urban communities? Perhaps the former continues to suffer lack of quality and deserving service because of failure to expedite policy programmes which address the atrocious imbalances of the past. And exactly how will the current broadband policy; South Africa Connect ; balance these discrepancies by ensuring equitable and ubiquitous access to broadband services by all South Africans by 2020 as per the policy projections? This question will be profoundly analysed in Chapter 7.

5.1.4 The Telecommunication Act 1996

In order to achieve the goals of universal service and access to a wide range of telecommunication services, the White Paper paved way for the Telecommunication Act which was promulgated in 1996, to provide necessary policy and legislative reforms within the sector. The reader should bear in mind that the current study is situated within both the principles of universal access and the framework of knowledge gap theory which posit that : the more messages are spread through mass media conduits, the gap between the communities with high economic status and the low economic status communities widens (Tichenor *et al.*, 1970). Firstly, this occurs because the communities within low economic stratum cannot afford the exorbitant costs that come with the mass communication networks and services. Secondly since there is a certain level of education and skills required to use the new ICTs and broadband gadgets, the low levels of education and lack of skills pose a grave challenge for these communities and policy makers.

The Telecommunication Act of 1996 acknowledges that the adequate attainment of universal access and service goals largely depend on meeting

the requirements of affordability, meaning costs. Affordable communications for all citizens and business alike throughout South Africa is at the centre of country's vision and is the goal of this Act (RSA, 1996). The Act appositely notes that affordability must precede accessibility plans, and these should be reflected in policy formulation programmes and strategies. The critical question one may ask is, in terms of universal access to broadband services in South Africa: What has been preceding the other between the two, affordability or access? Based on the evidence in the literature, the latter has been in the forefront.

5.1.5 The Post-Apartheid: Negotiated Liberalisation

To administer the sector, the South African Telecommunications Regulatory Authority,(SATRA) was created by the Telecommunication Act 1996. SATRA was perceived as “independent regulator”, responsible to the government through the Minister of Communications (Ponelis & Britz, 2007). The legislation that established SATRA also incorporated a phased liberalisation of the sector, with the aim of opening its various service markets to competition gradually over a period of several years. This is a process which was later termed “negotiated or managed liberalization” (Horwitz, 2001). Negotiated or managed liberalisation, a term coined by South African scholars Glenn Adler and Eddie Webster (1995) tried to capture the complexity of the political bargaining among the state and civil society groups in the restructuring and transformation of key institutions in South Africa. It was coined at the backdrop of echoing progress made in manoeuvring and restructuring of institutions of service delivery to meet the exigencies of the global economy. The progress acknowledged that, participatory democratic policy-making can make both liberalisation and the state progressive and more legitimate (Horwitz, 2001).

The Regulator was empowered to set the starting dates and to grant prospective licenses to would-be competitors, so that they can plan and invest and be ready to enter the market as the dates for liberalisation come to pass. The fight for control over the telecommunication sector was a

concern for the state. Thus resisting big-bang privatization and retention of full state monopoly, the new policy legally recognised a foreign telecommunications consortium (which was a partnership of Telekom Malaysia and US-based SBC Communications) to take a 30% minority stake in Telkom (SA's incumbent operator) (Horwitz, 2001).

The rationale behind this was to bring an infusion of capital and expertise. Notwithstanding the aforesaid partnership, the government of South Africa remained the largest shareholder in Telkom with a shareholding of 38.9%² (Telkom, 2006) and thus continued to reap significant financial benefits from this monopoly. This significant ownership in Telkom by the government raised questions of its impartiality in fulfilling its role of enabling that the right to communicate was enjoyed equitably by all South Africans.

5.1.6 Telkom's Universal Service Mandate

The Telecommunication Act of 1996 consigned Telkom a critical role as the primary provider of universal services. Telkom as it was then the only fixed line incumbent operator, was given a mandate to provide the South African citizens with affordable access to the telecommunications infrastructure and acceptable levels of service. To achieve this mandate, Telkom was granted a period of exclusivity to provide basic public switched telecommunications networks PSTN (RSA, 1996).

The operator was licensed to activate the PSTN and the public switched data network (PSDN) for a period of exclusivity with specific contractual obligations and performance criteria, as was determined by the Regulator. Roughly, the aim was to install 20 telephones per 100 populations by the year 2000, recognising that this in part relied on demand and part on affordability (ibid). Once again note, how affordability continues to be of paramount significance and to dominate the wide array of telecommunications services, broadband included.

To make universal access and service goals achievable, Telkom was expected to use the exclusive period, to build the basic network as quickly and as

extensively as possible (Ponelis & Britz, 2007). As mentioned above, a phased approach to liberalisation was preferred in this five year exclusivity period where competition was to be gradually introduced in the sector.

5.1.7 Effects of Negotiated Liberalisation: Ministerial domination and Regulatory Constraints

Horwitz (2007) points out that the alteration of the White Paper as draft legislation to Parliament in 1996 casted South African telecommunications reform along a particular path, which was to have dire future consequences, terming it *original sin*. These changes as enshrined in the Telecommunications Act of 1996, gave the Minister several of the powers that the White Paper had reserved for the Regulator. Subsequently, this meticulously eliminated the White Paper's liberalisation timetable in favour of ministerial discretion regarding when and if various segments of the sector would be opened to competition (ibid).

Horwitz (2007) argues that these changes did not only delay the liberalisation of the sector, but they also created jurisdictional conflicts that were easily exploited by an opportunistic incumbent network operator (Telkom), resulting in the operator doubling of the exclusivity period. Hell-bent to maintain its sectoral dominance, Telkom managed to frustrate other potential competitors to its services and profitability. Subsequently, this suffocated the expedition of the goals of universal services. How this *original sin* as Horwitz (2007) puts it, will affect ubiquitous access to broadband by all South Africans as projected in South Africa Connect and other array of telecommunications services in future remains to be seen. The reader must take note that this interplay between the regulator and the political domain as policed by the Minister was also reflected on the poor operation of Universal Access Agency of South Africa. How this interplay will affect the expedition of universal access to broadband for all South Africans by 2020 remains a critical question. This debate is addressed in detail in chapters 6 and 7.

5.1 Telkom's failures and market monopoly

Telkom managed to roll out many lines to underserved areas; however, many of these were disconnected as people could not afford Telkom's high costs. This confirms the canons of knowledge gap hypothesis theory by Donohue *et al.* (1970) who argue that the more mass media messages are spread through new media conduits; the more the gap between the communities of low economic status and those of high economic status is amplified. Hodge (2004) observed that these disconnections were due to the inability of subscribers to pay for the services they had acquired under the Universal Service Obligation rollout.

Between 1999 and 2002, the costs of local calls, which the poor used more, increased by 35% (Mostert, 2002). In addition, forty percent of the new phone lines that Telkom delivered from 1997 to 2001 were disconnected largely because of the profit-taking of the foreign investors. These foreign investors sold off their shares in the early 2000s after having extracted massive profits (Cosatu, 2002). What was appalling was that during the Telkom's exclusive period, no audits were conducted by the Regulator on Telkom's performance. In some of the rural areas where Telkom installed new lines, the rates of discontinuation escalated to between 50 and 70 percent. Due to economic reasons most lines were disconnected within a few months of activation (Benjamin, 1999). This severely hampered and affected the aspirations of universal access.

Telkom failed to meet its universal access and service obligations. The operator misused its monopoly power within the five -year period of exclusivity, between 1999 and 2004, to frustrate new entrants by, inter-alia, elevating prices so high, refusing access to an essential facility and engaging in price discrimination to the detriment of the economy (Horwitz , 2007 & Cosatu, 2002). The climax of Telkom's failure culminated when the operator discontinued its services in under-serviced and rural areas citing

lack of economic spin-offs in the areas in question (Horwitz, 2007; Gilwald, 2004; Msimang 2003; Ponelis & Britz, 2007).

Recently in a broadband conference held at Gallageher estate in Randburg, which the researcher attended, Telkom acceded that the entity have colossal challenges in meeting the goals of universal services and access in remote areas of South Africa (MyBroadband, 2015). This is an astonishing statement to make after president Jacob Zuma in the 2015 State Of Nation Address, declared Telkom as the custodian of Broadband roll-out including in the very difficult to reach remote areas. This is the same policy that seeks to ensure universal access to broadband services by all South Africans in the year 2020.

The critical question which may follow at the backdrop of the aforesaid paragraph is: based on the legacy, history and credibility of Telkom in relation to achieving the goals of universal service and access, was the president's promulgation justifiable. The answer to this question is obviously rhetoric because literature and pragmatic experience proves otherwise. Notwithstanding this fact, Telkom remains the custodian of broadband roll-out in South Africa. According to the Right2Know (2013), Telkom's failures spiralled from the process of privatisation. For this organisation, privatisation was the source behind the failure to achieve objectives of network expansion in rural South Africa by Telkom.

Similarly, Costau (2002) argues that the company's foreign investors were the reason behind Telkom's failure to achieve the goals of universal service and access, which resulted in massive retrenchment of the workers. The sentiments echoed by Cosatu and Right2Know are akin to what Horwitz (2007) called the "original sin" committed when the Telecommunication Act of 1996 gave the Minister more power on regulation of the sector as opposed to the Regulator.

Furthermore, the Ministry of Communication itself had a structural conflict of interest as both the policy-maker for the sector and the custodian of the

state's considerable shareholding in Telkom. As a result, policy in the sector unfolded in fits and starts, marked by many controversial incidents and unexpected reversals of strategies, the cancellation of ICASA regulations by the Minister, and the delay of competitive entry evidenced in the licensing of a third mobile and a second network operator (SNO) (Gillwald & Esselaar, 2004; Gillwald & Kane, 2003). Consequently, the powerlessness of the regulator to seize total control of the sector affected the goals of universal access and roll-out in the outskirts.

Instead of concentrating on meeting the targets of universal access and service, Telkom was busy engaged in a tug of war with the Regulator. These practices made it difficult for new competitors to contend with Telkom (Right2Know, 2013). Meanwhile, Telkom continued its monopoly in the marketplace to further increase its profit margin substantially and entrenched its domination in the sector. Not only has this led to the operator's failure to provide an effective communication infrastructure in rural South Africa, but due to Telkom's monopolistic tendencies in the marketplace, South Africa ended up being one of the most expensive countries in telecommunications services (Genesis, 2004).

The response of the Regulator was so minimal if not none-existent to Telkom's rampant monopoly of the sector. According to Right2Know (2013), the regulator, (ICASA) had been too weak, underfunded and incapacitated to respond, and this allowed Telkom to get away with murder. Whatever the outcomes of these battles was to be, the hardest hit communities would be those in the rural areas deprived of the basic right of access to communication structures such as internet. This at all, will not be a good story to tell, particularly for the despondently disadvantaged rural communities. This confirmed the old adage, when the two elephants fight; it is the grass that suffers most.

Having said that, the critical inquiry the researcher and the reader may brood over going forward include the need to find out the level at which Telkom's anti-competitive behaviour threatens the provision of universal

access to broadband services and other related wide array of future telecommunication services. Martin Luther Jnr (1963) once warned that: “Injustice anywhere, is a threat to justice everywhere”. If Telkom discontinued its services during the exclusivity period, what will make Telkom not to replicate what the entity did during the period under scrutiny? Did the state consider any policy intervention in structural adjustments, particularly in terms of regulation and healthy competition? This and other spectrum related issues will be discussed in subsequent Chapters.

5.2 The role of USAASA in shared access

This section looks at the South African Universal Access Agency by defining what it is, and presents its legislative mandate and records the successes and failures of this Agency since its establishment in 2006.

In recognition of these pillars, that is universal service and universal access, the government through the Telecommunication Act of 1996, promulgated the provision of affordable access to the telecommunications infrastructure at acceptable levels of service (Britz & Ponelis, 2008). The Universal Service Agency which is the state institution (herein to be referred as Agency thenceforth but later re-named USAASA) was given a mandate to promote the aspirations of universal access and services in the previously disenfranchised rural communities. The following section throws a peek at the mandate, successes and failures of this Agency which was later renamed Universal Access Agency of South Africa.

The Agency was established to work within the RDP goals, the Regulator, Telkom, other operators and development organisations in building the national consensus on the meaning of affordable universal access services (White Paper, 1996/ RSA, 1996). The existence, functions, duties and mandate of the Agency are governed by sections 80 –91 of the Electronic Communications Act 36 of 2005 (the ECA) which came into operation on 19 July 2006. The legislative Mandates of the Agency are to:

- ❖ encourage, facilitate and offer guidance in respect of any scheme to provide universal and access, universal services or telecommunication services in terms of the Reconstruction and Development Programme (RDP);
- ❖ foster the adoption and use of new methods of attaining universal access and universal service;
- ❖ make recommendations to enable the Minister to determine what constitutes universal access, universal service and under serviced areas;
- ❖ conduct research into and keep abreast of developments in the Republic and elsewhere on information communication technology, electronic communications services and electronic communications facilities;
- ❖ continually survey and evaluate the extent to which universal access and service have been achieved;
- ❖ make recommendations to the Minister in relation to policy on any matter relating to universal access and universal service;
- ❖ advise the Authority (ICASA) on any matter relating to universal access and universal service;
- ❖ continually evaluate the effectiveness of this Act and things done in terms thereof towards the achievement of the goal of universal access and universal service;
- ❖ manage the Universal Service and Access Fund (USAF) in accordance with the provisions of the Act;
- ❖ submit annual reports in its operations, budget and expenses to the Minister; and to
- ❖ provide incentives to network licensees to construct operate and maintain networks in areas declared under-serviced by ICASA(ECA,2005: 100-102) .

These functions are further clarified in Chapter 14 of the ECA. The rationale behind the aforementioned objectives was to make available, expand and maintain affordable telecommunication services to the public, particularly in

the underserved and rural communities. Msimang (2003) explains that the object of universal access and universal service policies (which in the context of this study will be expanded to include broadband services) was to validate the provision of such services to rural, remote, and lower-income users. The low economic status communities who in the absence of such policies, would not be served (ibid).

5.2.1 Shared Access Model (Telecentres)

The basis of USAASA's operation finds resonance in the Agency's mission statement which highlights that through the Electronic Communications Act, No 36 of 2005, "every man, woman and child whether living in the remote areas of the Kalahari or in urban areas of Gauteng should be able to connect, speak, explore and study using ICT's (USAASA, 2005)".

As highlighted in the COMTASK section, the rollout of telecentres and multipurpose community centres is globally perceived as ideal public access centres to provide communities in the outskirts areas with shared access to telecommunications and all-encompassing ICT services. USAASA adopted this approach early on even though it was neither the Agency's mandate nor prerogative to roll out telecentres (Msimang, 2003). As per the legislative mandate mentioned above, the Agency was to provide incentives to network licensees to construct operate and maintain networks in areas declared under-served by ICASA; Secondly, and critical to the successes of universal access programmes, the Agency was to conduct research to keep us abreast of with the developments in these ever-evolving information communication technology, electronic communications services and electronic communications facilities. In other words, the Agency's mandate was to foster the adoption and use of new methods of attaining universal access and universal service by facilitating and creating an enabling policy environment through evidence based research as opposed to rolling out telecentres. Nowhere in the Act was it stipulated that USA was to carry out the roll-out task. But the Agency did nonetheless.

In an attempt to address the digital divide bottlenecks, by December 2005, USAASA claimed to have established 133 telecentres nationwide in disadvantaged rural communities (USF, 2005). The telecentres enabled some communities to have access to basic services like computer services, telephones, data (fax, Internet, email), video, ICT training services, typing, printing and photocopying. In areas where formal building structures limited ICT penetration, USAASA deployed tele-containers. These served as telecentres in such areas (ibid).

Furthermore, USAASA rolled out Cyber laboratories (Cyber-labs) in schools of under-served communities as access points to ICT. By December 2005, 235 Cyber-labs had been established in schools in South Africa (USF, 2005). According USAASA report, these labs provided ICT services and computer literacy training programmes to the schools in the communities. The schools were responsible for maintenance costs while Internet connectivity for the initial 12 months was paid for by the USAASA. The Agency provided for the whole setup and security of these labs (ibid).

Lastly, USAASA established Community Digital Hubs (CDHs). These hubs were deployed in demarcated areas for rural development (USF 2005). The CDHs with “advanced ICT facilities” were deployed by USAASA to provide “human capacity” building and technical support to the remote telecentres and cyber laboratories. The hubs were set to provide support for content development and to deliver various applications such as e-government services, e-education, e-health, e-business development and other various services (ibid).

5.2.2 USAASA's Failures

Notwithstanding the abovementioned roll-outs by the agency, Braathen and Attwood (2010) observed that many of these telecentres were dysfunctional owing to a plethora of factors. Crucial to the agency's failures were those relating to defining what constituted universal access and service in the South African context and reality, as well as conducting research in order to

achieve universal service and access goals. Charley Lewis (nd) argues that the Universal Service Agency struggled to make an effective impact. Lewis observed that, among others, part of the failures was due to structural issues created by complex lines of reporting and accountability between the Agency, the Minister, and ICASA dating back to the Telecommunication Act of 1996, in what Horwitz (2005) calls the original sin.

As highlighted above, attempts by the Agency to produce definitions of universal service and access were submersed because the Minister, instead of the Agency, was mandated to gazette them. Legislative rendezvous procedures located the Agency under close control by the Minister, who also tightly directed the agency's expenditure through Universal Service Fund. This has subsequently undermined the independence of the Agency. This compromised the position of the agency as it was also harnessed by White (ND) who asserted that from a regulatory point of view, the Agency was ineptly positioned, hence, it was not startling that its track record of meeting its aims was tremendously disgraceful. Msimang (2003) sums up the debate on the position of the Agency as a bizarre regulatory space.

Many reports from consultants to the agency and the state attributed the failures to poor management and poor accounting practices, lack of human resource capacity, persistent lack of funding and most notable, engaging in activities not consistent with the Agency's mandate, such as undertaking the implementation of telecentres project without a legislative authorisation to do so (USA, 2005). These factors compromised the goals of universal access and services. Even after being renamed under Electronic Communication Act of 2005 as the Universal Service and Access Agency of South Africa (USAASA), still the Agency remained ineffective. USAASA was made more subject to the policy fiat of the Minister (RSA, 2005). As highlighted above, under the direction and tutelage of the Minister, tensions between the agency, according to section 87 and 88, the Minister and the regulator continued through the provisions of ECA (RSA, 2005).

The Right2Know (2013) organisation also observed this tension and reported that USAASA lacks independence from government. It was observed that political interference is rampant in the administration of the organisation, subsequently leading to the agency's poor conceptualization of its actual powers and functions. Critical to these interferences included, dismal political appointments, poor cadre deployment, and lack of leadership. These factors consistently plagued the Department of Communication, ICASA, and the Universal Service and Access Agency of South Africa (Britz & Ponelis 2008; Msimang 2003).

Despite its failure to deliver on its mandate, USAASA has continuously been animatedly reserved, in each new round of legislation over the last two decades (RSA, 2005). Even at the writing of this project, USAASA was given by the state the responsibility to roll out SET-TOP BOX, a project which has been postponed for many years, to date the project is not off-the ground. The chop and changing of ministers at the Department of Communication has not only created instability for the past several years, but it has also affected the smooth functioning of this entity. The reader will recall that as per the legislative mandate mentioned above, the Agency is answerable to the Minister of Communication and in the past 10 years the Department of Communication has had ten (10) ministers since 2009. At the backdrop of the above, it is unequivocally clear that, from 1996 to date, universal access interventions in South Africa have been marred with regular governance interruption from the side of the state. This has had derisory impact on development.

At the same time, Peter Benjamin (2004) provides a pragmatic experience relating to establishing and running a shared access (telecentres/access centres). Benjamin notes that one of the problems experienced at the roll-out of shared-access has been high costs, both in capital and operational expenditures. Many rural communities could neither afford nor use sophisticated devices and software like the computers and internet. As noted earlier in the Comtask section, the same problem was also noted

during the deployment of Thusong telecentres. Despite erroneous assumption by USAASA model that telecentres in rural areas could become financially self-sustainable, several communities in rural South Africa remain so underprivileged that they cannot afford to sustain a telecentre without ongoing subsidy.

Thus from the two arguments presented above, the current study notes that the problems and challenges of universal access remain colossal in South Africa. It is evident from these arguments that regulation and policy play a critical role in either expediting or impeding the realisation of the goals of universal access to ICTs and broadband services. The critical question one may ask as the study progresses is: to what level will the interplay between the Agency, the Regulator and the political domain championed by the Minister, affect the goals of universal access to broadband services in the outskirt areas? These remain to be seen as the current study continues to look into deep seated socio-economic challenges facing the universal access in subsequent goals. The following section briefly looks at the progress made by SA Connect in meeting the set implementation policy targets and timelines.

5.3 SA Connect implementation timeline

As highlighted in the introductory Chapters, SA Connect was officially promulgated in 2013, below is a brief outlined measures gearing towards the policy's implementation as updated by (Mzekandaba, 2019).

- In 2014, the former Minister of Communication Yunus Carrim appointed the National Broadband Advisory Council which consisted of independent technical experts and representatives of business, trade unions and civil society, to advise him on the implementation of SA Connect.
- In the 2015 State of the Nation Address (SONA), former president Jacob Zuma declared 2015 "the year of broadband" with the hope that the government project will take off. In his speech, Zuma also

announced that Telkom will lead broadband deployment, a move described by telecommunication experts as uncompetitive.

- In 2016, during the 2016 SONA, there was still no recorded progress regarding the roll-out. The only update given by Zuma was that the government will "fast-track the implementation the first phase of the national broadband plan. This Zuma said despite the country treading on the edge of failing to meet the 2016 targets as set in the policy document. The lack of progress was confirmed by Siya Qoza, the former DTPS spokesperson in an interview with Redi Tlhabi on Radio 702 (2016).
- In the Medium-Term Budget Policy Statement (MTPS) in October 2016, the DTPS bemoaned the delay caused by SITA in awarding a tender for phase one rollout.
- In November 2016 six companies were in the running for the tender to rollout the country's broadband project. A week later, SITA cancelled the tender with no explanation.
- In January 2017, the DTPS indicated that it was exploring alternative mechanisms of implementing phase one of SA Connect within the provisions of the law, following the cancellation of the tender.
- In the 2017 budget speech, former finance minister Pravin Gordhan cancelled R1.9 billion over the medium-term for broadband implementation.
- In May 2017, Siyabonga Cwele, DTPS minister at that time, announced the launch of the *'Internet for All'* programme. The Minister described the initiative as one that will supplement SA Connect, accelerating government aspirations to connect citizens.
- The 2017 MTPS Telkom changes to the implementation model for phase one of SA Connect resulted in delays in rolling out the broadband project.

- In November 2017, Stella Ndabeni-Abrahams, who was deputy DTPS minister at the time, said the department was also looking into satellite technology as a possible way to bring Internet connectivity to all South Africans.
- Delivering the DTPS budget vote in May 2018, Cwele said government was targeting to connect 570 sites by the end of the year, with plans to connect 327 sites by the end of June 2018.
- In July 2018, the department confirmed it had missed its target to bring 327 sites online and only 187 were connected at that time.
- The DTPS stated in the 2018 mini-budget that broadband rollout was on track.
- In January 2019, the Department of Communication, under the ministerial guardianship of Ndabeni-Abrahams promised to kick-start the process of rolling out broadband services in Limpopo's Vhembe district.

In a nutshell, these are some of the pronouncements made by the government and some state institutions which never came to pass. Strides in meeting the 2016 targets as captured in the policy were non prevalent and it was no clear if the set 2020 policy targets will be met.

Chapter summary

Chapter 5 assessed the history of the South African Telecommunication sector. Drawing mainly from the writings of Horwitz (2001), it evaluated how the early telecommunication regime fared. Through the lens of universal access, it traced the transformations of telecommunication processes and how the sector was structured from 1910 to the promulgation of Electronic Communication Act in 2005 and beyond. It further analysed what Horwitz (2007) called negotiated liberalisation and its effects in the South African telecommunication sector. The Chapter also provided a brief analysis of the role of Universal Service Agency of South Africa and Telkom in the provision of universal access and universal service. It concluded by giving succinct update regarding the progress made by SA Connect in meeting the set implementation targets and timelines.

Chapter 5 lays a strong foundation for Chapter 6, 7 and 8. It is imperative to note that some of the interpretations, analysis and findings in the aforesaid Chapters appositely connect with explanations made in Chapter 5. It is therefore essential to clearly grasp how this Chapter is compounded and how it appositely connect with the last three Chapters of this study.

CHAPTER 6

DATA PRESENTATION AND FINDINGS

Introduction

This Chapter present data and the findings of the study. It is divided into three sections and each section analysed a selected theme in line with the research questions and objectives of this study.

Section 1 provides the policy position and views of the industry experts and operators on the structure and current state of the South African telecommunication market. It further provides the reasons advanced by the operators in relation to high communication (data) costs and investigates whether the same were justifiable.

Section 2 looks at the position of SA Connect on the two themes of spectrum allocation and open access regimes. It further interrogates emerging themes and issues that needed more clarity with industry experts. It investigated the reasons behind the postponement of South Africa's migration from analogue to digital broadcasting and how this has affected the acceleration of broadband roll-out in rural South Africa. The section concludes by looking at the discussions around the hotly contested spectrum allocation debates.

Section 3 explains the last two themes of the study; namely, Points of Presence and their role in facilitating digital literacy programmes in rural South Africa. It looks at the submissions made by the Department of Post and Telecommunication and Postal services about the progress the

government made in connecting rural areas. It analyses the views of the government, industry experts and the NGO's perspectives on the importance of community (public) access centres and digital literacy programmes. The section provides the basis on how the two themes, digital literacy and public access centres relate in bridging the digital divide.

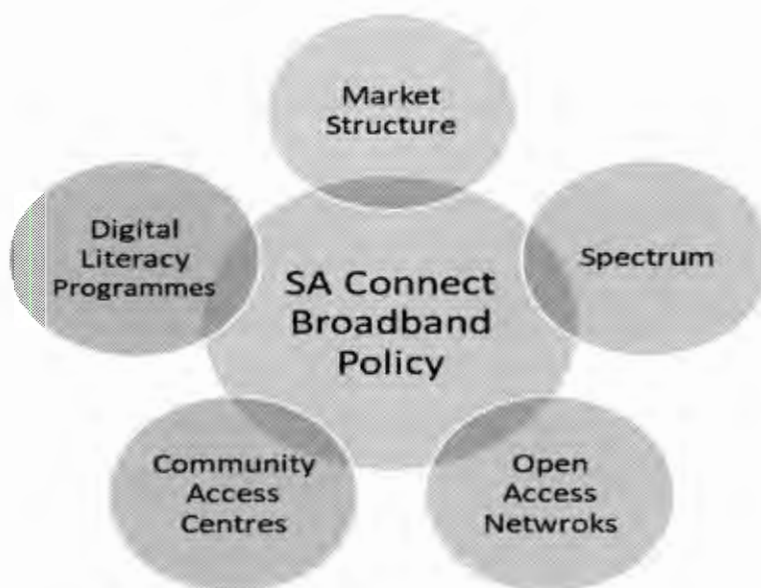


Figure 2 : Themes evaluated in relation to how SA Connect Broadband Policy sought to bridge the digital divide (Seadira, 2018)

6.1 Analysis and Interpretation of the Research Findings

SECTION 1

SETTING THE SCENE

This section sets the scene by explaining key selected themes in South Africa Connect which were meant to address digital exclusion. It looks at the key policy themes that make affordable access a reality which are market structure, spectrum allocation, open access networks, public access centres and digital literacy programmes (DoC, 2013).

The following section provides the SA Connect's stance on how the South African Telecommunication market is configured. The policy stance is followed by interviews with industry experts and the submissions by

operators. It focuses on the first three themes of the market, spectrum and open access network.

6.2 Perspectives: SA Connect, industry experts and operators perspectives

As highlighted in Chapter 1, the first pillar, Digital Readiness seeks to lay the foundations for South Africa's future of broadband success by eliminating policies that limit competitiveness in the telecommunication market, subsequently, the rolling out of broadband (DoC,2013). The programmes under Digital Readiness calls for the restructuring of the telecommunication market and some state institutions. This section provides the SA Connect's stance on the South African Telecommunication market. The policy stance is followed by interviews with industry experts and the submissions by operators. It focuses on the first three themes mentioned above, namely the market, spectrum and open access network

The discussions with the interviewees focused on the current state of the South African Telecommunication market and sought to find out whether the playing field has been levelled in this market. The Digital Readiness strategy recognises that before rolling out broadband in the outskirts areas, the playing must be levelled. The strategy calls for the scrapping of all policies that restrain healthy competition and advocates for laying a strong foundation which paves way for the smooth functioning of SA Connect (DoC, 2013). The rationale behind this is to increase players in the telecommunication market and trigger competition among operators which would then make communication and access to resources affordable.

The section also encapsulate the perspectives of the three renowned mobile operators in South Africa, namely, Vodacom, MTN and Cell-C. Data were solicited from the submissions made by these operators to the Telecommunication Portfolio Committee from the 19-21 September 2016. At the core of the operators' submissions and debates was the high data costs charged by operators which subsequently precluded communities of low

economic stratum from participating in digital economy. Data were recorded from the Parliament DStv Channel 408, in 2016. The submissions and debates focused on how to arrest the digital divide by reducing the high cost of communication in South Africa.

6.3 Market Structure

6.3.1 SA Connect

The policy recognises that broadband pricing remains a barrier to exponential growth in broadband use (DoC, 2013). It also notes that the market is monopolised by vertically integrated incumbent operators such as Telkom from fixed line and Vodacom and MTN from the mobile operators which hinder fair competition. The policy recognises that, to address how the telecommunication market should be structured, the Ministry of Communications as per policy promulgation was to establish an open access national wholesale fibre and wireless broadband networks through multi player entity (DoC, 2013). The rationale behind this was to trigger a healthy competition among the players and subsequently expedite the aspirations of universal access to broadband services. ICASA was to play a critical role in realising this objective.

As highlighted above, realising South Africa's future broadband success depended largely on removing all policies that constrain the competitiveness of markets and the rolling out of broadband. The policy therefore had put critical emphasis on the need to have an autonomous, accountable and well-resourced regulator, with the capacity and competencies to ensure that SA Connect was implemented effectively and urgently (DoC, 2013).

The policy further emphasised that leeway was to be provided to allow the regulator to have adequate regulatory flexibility and to respond to dynamic shifts in the sector. This included among other things, creating a fair and competitive environment, particularly enabling service-based competition through the enforcement of the wholesale access regulation to dominant market players' networks and mandatory open access to infrastructure

(WOAN) (ibid). In other words, the regulator was expected to level the playing field and enforce mandatory open access networks within the sector as a way of increasing competition and lowering high broadband in price. This approach has been vehemently rejected by incumbents and their allies.

6.3.2 Industry experts and Operators' perspectives

An interview was conducted with Duncan McLeod in March 2018. It is critical to note that McLeod was recommended as an ideal expert to provide a comprehensive panoramic view of the current state of broadband in South Africa by his counterparts in the industry, amongst these, was Arthur Goldstuck who was also part of the National Broadband Advisory Council.

McLeod's responses were interchangeably interwoven with the views of mobile operators. These views were recorded from the submissions made by Vodacom, MTN and Cell- C to the Parliament's Telecommunication Portfolio committee and were captured on DStv Parliamentary Channel 408. Thus data presentation moves cyclonically, testing McLeod's responses with the views of the operators on the current state of competition in the market and how they responded to SA Connect's broadband deployment imperatives and high communication costs. Duncan McLeod is the founder and Editor of renowned *Tech-Central Magazine* solely tracking and analysing the South African ICT and broadband policies. Tech-Central is the leading quality news and information resource for people involved in South Africa's fast-growing information and communications technology industry and those interested in the fast-changing world of information technology (Tech-Central Magazine).

The first question the respondent was asked, was to clarify if the South African telecommunication market is liberalised or not and how these affected competition and pricing of services.

McLeod noted that for the last 25 years since 1994 South Africa had one operator in the market back in the 1990's in the form of Telkom which was owned by the government, prices were high, access was limited and services

provided in the formerly white areas. He went on to say telecommunications access was poorly developed. However, things have improved since the licensing of Vodacom and MTN and there has been a huge success in improving access.

He further asserted that the fact that Vodacom and MTN were licensed earlier on, gave them a huge advantage over other operators in many respects. As a result of these, they became the new dominant operators in the market whilst Telkom which owned 50/% of Vodacom for many years, came into the market as the fourth mobile network entrants about ten years later. Telkom was still playing catch-up and had been smart in terms of being a game-changer in the market, McLeod submitted.

For McLeod (2018), Cell- C had been lagging behind because of a combination of few issues. Firstly, he submitted that Cell-C's management made poor decisions. Thus Cell-C never really managed to gain traction in the market share as the fourth player. However, the operator was recovering the time lost by embarking on recapitalization to have some sensible share of the market from the two biggest companies. He summed up his answer by saying, while the mobile market was still dominated by Vodacom and MTN, it was a bit more competitive.

McLeod buttressed the views of MTN that the market was highly competitive and is characterised by aggressive price competition from other operators (Recorded submissions- DStv Parliament Channel 408, 2016). For MTN, the South African telecommunication market was at a point of saturation as consumers (end-users) had access to a wide range of competitive services. This is a view that was disputed by Cell C. Cell C believed that the market was characterised by discrimination and lack of price transparency which persisted mainly in the mobile market (ibid). MTN complained of high data traffic in metropolitan areas which constrained and caused spectrum crunch. The operator therefore claimed that it had embarked on densification programmes which sought to roll out more base stations owing to the unavailable spectrum (ibid).

MTN further admitted that it had historically faced colossal challenges in reaching out to outskirts areas, citing lack of proper infrastructure in these areas (Recorded submissions: DStv Parliament Channel 408, 2016). Thus in order to assuage the high communication costs problem, MTN, Vodacom and Cell-C called for the release of the much needed spectrum so as to reach more of these marginalised areas (ibid).

Contrary to MTN's views about competitive market, Cell-C believed that the market was characterised by the absence of sufficient consumer choice in products and prices. It lamented that it (Cell C) was not devoid of strategies to make communication affordable. However, it lacked the market power to ensure that all the players in the market do likewise. For Cell-C, its failure to perform as it was expected in the market was due to ICASA's inefficiency in regulation (Recorded submissions: DStv Parliament Channel 408, 2016).

Liquid Telecoms also shared the same sentiment expressed by Cell-C and believed that at the root of escalation of prices lies anti-competitive behaviour from incumbent operators which the regulator does not have statutory power nor the capacity to circumscribe their behaviour. This subsequently has had a negative impact on new entrants in the market (Liquid Telecom, 2018).

Telkom submitted that mobile broadband market in South Africa is effectively a "duopoly" between the dominant operators, Vodacom and MTN. Subsequently, Telkom support the notion of enforcement of wholesale open access networks as per SA Connect promulgation (Telkom, 2018). However, it is important to note that Telkom supports the application of open access principles only in the mobile context, not necessarily in the fixed line market. Telkom contends that applying open access principles to fixed services may be counterproductive and increase barriers to entry. In its view, there is already effective competition in this market (ibid). Perhaps the critical question to ponder on is whether Telkom really supports the notion

of open access regimes or it only seeks to thwart and limit the expansion of the two mobile operators, Vodacom and MTN.

Despite SA Connect's call to rearrange both the mobile and fixed market and accommodate new competitors, responses above seem to suggest that incumbent operators and those who supported their position were rebutting to yield market power to new entrants. Both seem to confirm the policy position that the South African telecommunication market was still skewed towards benefiting incumbent operators, such as Telkom, Vodacom and MTN. While Telkom's seemed to be acquiescing and advocating SA Connect's policy position on the rearrangement of the market, its submissions that open access principles should only be applied in the mobile context, questioned its legitimacy in supporting the wholesale open access regimes.

Cell- C and Liquid Telecom annulled assertions made by McLeod and MTN that the market was competitive. This therefore continued to confirm the policy position that the South African telecommunication market is still biased towards furthering the interests of few incumbents. Subsequently, this perpetuates an environment where only few operators enjoy a massive chunk of market dividends. The normative behaviour in these types of markets is that, operators clandestinely engage in price fixing, known as collusion. Collusion refers to a non-competitive and concealed or sometimes illegal agreement between rivals that attempts to disrupt the market's equilibrium (Investopedia, ND). Companies in these markets compete but at the same time would conspire to gain an unfair market advantage (ibid).

6.3.2.1 High costs of communication

In responding to SA Connect concerns and the question as to why broadband pricing remains a barrier to exponential growth in broadband use, Vodacom, MTN and Cell-C highlighted three critical factors which in their view, "preclude" broadband penetration in rural areas. Subsequently

these lead to high costs of communication (Vodacom, MTN and Cell-C Submissions, Parliamentary Channel 408, 2016).

Firstly, the three operators collectively submitted that the traditional leaders (custodians of rural land) were not in agreement with the setting-up of broadband-base stations in rural areas. Thus their relationship with the traditional leaders was a precarious one. Secondly, the costs of setting up base stations in rural areas were too high. Thirdly, broadband devices were priced at international costs and this fuelled the escalation of communication costs (Vodacom, MTN and Cell-C Submissions, Parliamentary Channel 408, 2016).

The three operators advanced the above narratives as the logic behind the escalation of communication costs in South Africa. They submitted that since most of the broadband devices were imported from abroad, they (operators) had to pay exorbitant costs to ship these devices. Subsequently, to recoup the costs, end-users (consumers) had to bear the brunt by paying more for data and these devices. The same narrative goes for the setting-up of base stations in rural areas. Vodacom, MTN and Cell C submitted that inflating the cost to communicate was the only feasible option to recoup their capital expenditure, particularly broadband data communication (ibid).

The operators continued to lambast ICASA for failing to tighten the regulatory screws and to make the playing field competitive in the practical sense of the word. For Cell C, whether the market was measured by revenue or subscription, Vodacom and MTN were still in ascendency. The operator lamented that it (Cell C) was not devoid of strategies to make communication affordable. However, it lacked the market power to ensure that all the players in the market do likewise, which is ICASA's prerogative (Parliament Channel 408, 2016). Cell C submitted that though South Africa had achieved a high mobile penetration rate, the lack of market power by challenger networks and other small operators was a hindrance to sustained efforts in reducing cost to communicate. These challenger networks needed continued pro-competitive regulatory support and the same was lacking

because of ICASA's lacklustre regulation. Cell-C perspective was harnessed by Liquid Telecom South Africa Chief Executive Officer Whitehill who submitted that ICASA was not doing enough to force country's telecoms to bring high data prices down (Recorded at My-Broadband Conference, 2017). The same view was also shared by Internet Service Providers Association (ISPA) which believed that the high data costs were regulatory problem (ibid)

Vodacom also lambasted ICASA's lethargic pace in price-benchmarking as an impediment to the reduction of the high data costs. For Vodacom, MTN and Cell-C, ubiquitous broadband (broadband for all) could only be achieved in South Africa if the 600 MHz and 700 MHz spectra were released. Thus they questioned the slow pace of the ICASA and the state in releasing these bands of spectrum (Parliament DStv Channel 408, 2016). Vodacom further lamented the lack of policy alignment in municipalities, high site rental acquisitions, complicated approval process, objections from the public were some of the challenges the operators encountered as barriers to broadband roll-out in the rural South Africa (ibid).

In responding to how then broadband prices could be brought down and ensure inclusivity, Vodacom outlined to Parliament the access strategy which consisted of four pillars (Parliament DStv Channel 408, 2016). The first being internet everywhere (ubiquitous broadband), which was to ensure coverage and quality across the country. The second pillar was capability, which was to ensure that end-users had the right devices to access the internet. The third pillar was affordability, which was to ensure value based offers for customers (end-users) and the last pillar sought to provide reasonable access to consumers (ibid). Thus, what remained a critical question was the fact that Vodacom could not elucidate on how exactly the operator would tip-toe around all the cons and other mantras of backhaul connectivity against its profit driven goals.

The 1996 White Paper on Telecommunication notes that the challenge of rolling out universal access programmes in rural South Africa has been to have a vision or strategy that articulates a balanced provision of universal access services to both disadvantaged rural and urban communities (White Paper, 1996). The Act recognized that reconciling these two seemingly opposites within an integrated framework has always been a grave challenge, particularly in the country like South Africa that historically has had a history of unequal distribution of resources and land. It was therefore imperative that all service providers and operators and other related stakeholders understand these disparities and digital gaps in the aforesaid context.

Thus idyllic and apposite as the Vodacom's strategy and submissions may seem to be in achieving digital inclusion for all, if the rural and urban divisions are not well understood, such strategies will be but a much ado about nothing exercise. What was not clearly stipulated in Vodacom's strategy was how communities in the low economic stratum were to benefit from this strategy.

Studies conducted (see the Literature Review) have shown that it is difficult for communities of low economic stratum, mainly found in rural areas, to purchase broadband gadgets. The theory of Knowledge Gap Hypothesis confirms the supposition that the more information communication conduits are amplified, the more likely that communities of low economic stratum will be left out (Tichenor *et al.* 1970). It was important for the reader to note that in bridging the digital divide, it is not only the high data and bandwidth costs that rural communities are faced with. Another challenge was purchasing compliant broadband devices such as smart phones and tablets.

The third question posed to respondents sought to find out if there were other mobile operators in the sector beside Vodacom, MTN and Cell -C and the impact they have made in reducing high costs of communication. On this question McLeod (2018) said that there was a plethora of activities in

the mobile market which included among others, the launching of a few operators, like FNB and Virgin Mobile. Nevertheless, he submitted that the introduction of the above-cited operators has not yielded positive results as it was expected. He however hastened to applaud the impact of the fifth player in this sector in the form of Rain Network, previously known as Wireless Business Solutions. His concern was that even though there were small operators who were emerging in the sector, they were small and doubted if they were ready to take on the big and established operators such as Vodacom and MTN.

McLeod's version was also synonymous to Cell-C's (2016) submissions. Cell C felt that these small operators would not make an expected impact because they lacked sustenance and market power. The operator maintained that supporting smaller operators could only be achieved through continued pro-competitive regulatory environment that would ultimately benefit the end users and thus bridge the digital divide (Parliament Channel 408, 2016). Furthermore, Cell-C observed that although South Africa had achieved a high mobile penetration rate, the lack of market power by challenger networks presented a hindrance to sustained efforts in reducing cost to communicate. The operator contended that these challenger networks needed continued pro-competitive regulatory support and the same was lacking from ICASA (*ibid*).

There were mixed reactions from respondents in relation to the state of the fixed line market. Research ICT (2016) Africa posited that in recent years Telkom had found itself in a precarious position as a result of government's indecision about its future. In the same breadth, McLeod noted that Telkom's dominance in the fixed line market was facing a stiff challenge from Vumatel which was founded in 2014. Vumatel specialises with fibre to home markets in the big cities, but it excludes rural areas.

It transpired that Telkom's dominance in the fixed line market was facing a stiff challenge from Vumatel which was founded in 2014 (McLeod, 2018). Vumatel specialises with fibre to home markets in the big cities, but it

excludes rural areas. Thus, while the last mile for fixed line was very problematic for sometimes, it transpired that Telkom was finally finding competition in that market and was being forced to bring the prices down. McLeod further noted that there has been consolidation in the fixed line market and while the space was well contested, it was not clear if these operators were ready to take on big and established ones like Telkom. What was more interesting in the Mobile market according to him was that Telkom continued to compete and invest in the mobile market. However, the operator was struggling to gain foothold in the mobile market since its launch in 2010 (Gillwald, Moyo and Stork, 2013). Telkom Mobile has not been able to raise subscribers to substantially compete with Vodacom, MTN and Cell- C (ibid).

There are three critical things worth mentioning in the data presented above. The first is the lack of readiness on the side of the new entrants to take on the big players in the industry. Secondly, whilst this study's focus was on rural areas, it appeared that the new players in the market focused mainly in the urban areas. For instance, Vumatel, is a telecommunications service provider based in Sandton and its services only covers affluent metros in big cities.

Conversely, Rain network promised its users fibre-to-the-sky, and guaranteed that this will benefit those who do not have access to fibre or who want a quick and painless set-up of a new broadband connection (MyBroadband, 2017). Nonetheless, the study noted that by 2017, Rain LTE-A network consisted of 750 active base stations, which covered only South Africa's metropolitan areas (ibid).

The fourth question which respondents needed to answer was about Neotel, which was supposed to be a competitor to Telkom, and what it had been doing in rolling out programmes and projects meant to bridge the digital divide.

McLeod (2018) said that Neotel had been operating at a limited scale in business. Although it was meant to be a second network operator in South Africa, it never really challenged Telkom's domination. It was subsequently bought by Liquid Telecom, a UK based broadband provider which is subsidiary of Econet Global, the big telecommunication group funded by a Zimbabwean billionaire Strive Masiyiwa. Liquid is a huge and a very successful company which has rolled out fibre infrastructure across Southern Africa and Africa. McLeod further said Neotel lacked direction but hastened to submit that under the new ownership they are potentially a force to be reckoned with. He further clarified that its impact will be felt in the business services market rather than in the retail sector (ibid).

Neotel was officially launched as the second national operator (SNO) for telecommunications in South Africa in 2007. In order to challenge the monopoly of Telkom, the company was expected to offer a variety of fixed-line and wireless services to the public. It was given access to available Eskom and Transnet's fibre infrastructure (Business Report, 2007). This did not happen as Neotel's strategies could not outsmart the well-entrenched and politically connected Telkom. Hence Neotel was sold by its owners, India's Tata Communications, to Liquid Telecom (Van Zyl, 2016). Subsequently, Liquid Telecom together with Royal Bafokeng Holdings acquired the erstwhile Neotel Propriety Limited and was rebranded Liquid Telecom South Africa in June 2017 (Liquid Telecom, 2018).

To further find perspectives of experts on the structure of the South African telecommunication market and its role in rolling out policies meant to bridge the digital divide, the researcher interviewed Indra De Lanerolle in July 2016. De Lanerolle is a director at Digital Hub JamLab located in Tshimologong Digital Innovation Precinct, Johannesburg. De Lanerolle also runs the Network Society research project in the Journalism and Media Department at the University of the Witwatersrand. His research includes a study on the use of mobile phones amongst low income South Africans, a quantitative study of Internet use in South Africa, as well as the study of

technology innovation in civil society organisations in Kenya and South Africa. De Lanerolle has presented papers in South Africa and at the Universities of Oxford, Harvard and Lisbon. He has also published in a number of international journals including IDS Bulletin and info.

Further, De Lanerolle is also a member of the World Internet Project, a global network of researchers on the Internet and Society covering over thirty countries, coordinated by the Annenberg School of Communication at the University of Southern California.

The question posed to De Lanerolle on the 6 July 2016 sought to find out the rationale behind giving Telkom the responsibility to roll out SA Connect in rural areas. This question came at the backdrop of the operator's admission at the Broadband Conference in Gallagher Estate in 2015 that it was struggling to connect these areas. Furthermore, the question was also propelled by Telkom's failures to connect rural areas between 1996 and 2003 (*How Telkom fared during this period was comprehensively discussed in Chapter 4*). The question sought to find out if the implementation of SA Connect will ever see the light.

In responding to the question De Lanerolle said that:

the reality of the history of regulation and policy implementation in South Africa shows that Telkom had often gotten in the way of implementing these kinds of policies. Telkom has a lot of political influence and had frequently resisted competition that would potentially result in damaging its business. Subsequently, results are that something that should have happened had not happened. I think we may be in that kind of situation.

De Lanerolle confirmed the dominant narrative that states that Telkom had not only been entrenching its incumbency at operational level, but it has also been trying to influence policy decisions. He confirmed the analyses of Horwitz (2007) as discussed in Chapter 4 of this study which showed how Telkom's dominance has had undue influence on policy decisions because of its proximity to the political principals.

In conclusion, there were four critical factors which appear to be obstructing the adoption of broadband, particularly in rural areas; namely, lack of cordial relationship between traditional leaders (custodians of the land) and operators, high costs of setting up broadband base stations, high costs of shipping broadband devices, failure to release spectrum on time and ICASA'S incompetency in regulation. This in turn has had devastating impact on rural communities as they continue to suffer perpetual exclusion from the digital communication environments. This confirms the tenets of Knowledge Gap Hypothesis by Donohue *et al.* (1970) that the more new conduits of information circulation are amplified, the more communities of low economic stratum are left out. Subsequently, instead of bridging the divide, the same is amplified. As Les Guepes (1849) once said, the more things change; the more they stay the same.

SECTION 2

6.4 Spectrum and Wholesale Open Access Networks- Perspectives

To address the spectrum debacle, the study integrated the two themes together, namely, spectrum and wholesale open access network. The two themes were integrated because they were used interchangeable throughout the interviews. Furthermore, the two themes have become subject of intense debates within the South African telecommunication sector as well its ICT and broadband sectors. As highlighted earlier, the notion of open access advocates for infrastructure sharing, whilst spectrum is the commodity that ought to be shared among the operators and other players.

Data were sourced from the interviews with both the industry experts and the spokesperson of the Department of Telecommunication Services. These views were congregated under one heading. Below is SA Connect's position on spectrum and views of experts and operators on these two themes; that is, spectrum and open access network. The discussions subsequently led

the study to the newly proposed Electronic Communication Bill of 2017 with specific focus on the debates around to wholesale access network, (WOAN).

6.4.1 SA Connect on Spectrum: Policy Position

SA Connect notes spectrum backlog as being a grave impediment to digital inclusion. It identified delays in the allocation of high demand spectrum as a problem that requires to be given a speedy attention (DoC, 2013). It further notes that policy and regulatory bottlenecks associated with spectrum assignment, together with delays in the migration of land analogue broadcasting to digital, have meant that service innovation, increased competition, potential job opportunities and tax revenues have not been realised. There has been immense pressure on backhaul networks. The high cost associated with leasing facilities from the incumbent operator, have prompted other operators to build their own intercity high-speed networks. While this has resulted in improved broadband capacity in metropolitan areas, large parts of the country remain unconnected. Subsequently this remained significant policy challenge (ibid).

To address this problem, the policy states that the then custodian of broadband policy, the Ministry of Communication was expected to accelerate policy directives to release high demand spectrum (DoC, 2013). The rationale behind this was to ensure efficient use, wholesale access and fair competition. ICASA was given the mandate to address this issue.

What is critical to note is that despite calls by the policy itself, policy experts, industry experts and Non-Governmental Organisations to release spectrum, ICASA has not been able to either meet this objective or the expectations of many underprivileged South Africans.

6.4.2 SA Connect on Open Access Regimes: Policy Position and Debates

SA Connect notes that to address the imbalances in the market, it is critical to introduce the viable and competitive open access wholesale fibre and wireless broadband networks. The policy recognises that the “wholesale open

access regime will help to address the structural constraints in the market arising from the dominance of a number of vertically integrated operators” (DoC; 2013:20). These regimes have the capacity to enhance service-based competition that will better meet the pent-up demand for affordable broadband services in the country. It seeks to increase many players in the market to trigger competition among operators which would then reduce the high costs of broadband communication. The policy further recognised ICASA’s weaknesses and that the regulator is not well “capacitated either in relation to finances, human skills or autonomy to undertake the task of regulating the highly imperfect market that has emerged (ibid). Subsequently, these arising regulatory bottlenecks have hampered the fairness of competition and ultimately the welfare of consumers”. Thus SA Connect notes that in order to succeed in implementing the policy itself, an autonomous, accountable, well resourced, well capacitated and competent Regulator would be required (DoC, 2013).

As highlighted in Chapter two, the notion of open access has been an issue of substantial discussions within the telecommunications policy debates. The quintessence of these debates has been to find out how incumbent operators which own a chunk of broadband infrastructure could provide a portion of such facilities to their competitors who do not have such infrastructure (Diaz-Pines, 2013). These policies can play a massive role in promoting competition in the broadband markets, particularly in countries with little infrastructure. The author notes that in the United Kingdom, for instance, the implementation of these broadband open access policies paved way for new entrants in the market. The new players were offered facilities of the incumbents which then escalated the unbundled broadband lines to more 8 million from 123.000 in 2012 (ibid).

Furthermore, open access regimes have also been perceived as a realistic way of installing next-generation of broadband networks in low population density areas. These are areas where service providers cannot obtain a sufficient return on investment to cover the high costs associated with

trenching, right-of-way encroachment permits, and the requisite network infrastructure, among others (Forzati *et al.*, 2015).

In order to achieve the above-cited objective, the then custodian of broadband, the Department of Communication (now Department of Telecommunication and Postal Services), was expected to outline a roadmap and issue necessary policy directives to the regulator and other stakeholders to expedite the introduction of open access wholesale. What is critical to note however, is that whilst SA Connect recognises open access and spectrum allocations as an important trajectory that South Africa must take to bridge the digital divide, the modalities of how these would be shared were not expounded in the policy. Instead, some of these modalities are found in the ICT White Paper which was not approved at the time of the promulgation of SA Connect in December 2013. In fact, the ICT White Paper was approved by Cabinet on the 28 September 2016, three years after the proclamation of SA Connect in 2013.

This is to say that whilst the Broadband Policy (SA Connect) was pronounced earlier, the processes that outline how infrastructure roll-out and the release of spectrum were to be handled were not incorporated in the policy, rather they were still to be outlined in one policy in future. This flawed policy sequence was a recipe for disaster as it later bred conflict between ICASA and the Department of Telecommunication and Postal Services as to how the spectrum should be allocated. The process was delayed and ultimately culminated into the hotly contested debate around wholesale open access network (commonly known as WOAN).

The following section looks into the views of respondents on the challenges faced by new entrants in the South African telecommunication market within the context of spectrum allocation and open access network.

6.4.2.1 The Wholesale Open Access Network Debates and ECA Bill 2017

This section sought to find the views of industry experts and operators about the challenges faced by new entrants in the market; that is, the long term domination of Vodacom and MTN in the mobile sector. Responses were drawn from an interview with McLeod and written submissions made to DTPS by operators and industry experts.

As highlighted above concerns around the market that is skewed towards benefiting incumbent operators were by noted SA Connect (DoC, 2013). This is to say, anything that is offered or introduced in this market on competitive basis, will favour incumbents such Vodacom and MTN. This includes how spectrum will be allocated. Subsequently, the government proposed the creation of the Wholesale Open Access Network, (hereafter referred to as WOAN) to address structural constraints and promote competition in the sector.

Setting the scene

The establishment of the WOAN and the re-assignment of all high demand spectrums are enshrined in the new Electronic Communication Draft Bill of December 2017. The Bill will be turned into an Act if ratified in Parliament seeks to address the concerns around the domination of the market by the few operators, better known as oligopolistic market (that is, a highly concentrated market where only a few firms dominate).

On the 17th November 2017, the government proposed the Electronic Communication Amendment Bill published in the Government Gazette as 41621. Subsequent to that, the state sought inputs from the industry players, civil society, operators and the Regulator itself, among others.

It was noted that that about forty-three (43) written submissions and thirty (30) presentations were made to the DTPS about this Bill between December and March 2018 (DTPS, 2018). The study pulled some of the answers to the question posed below from these submissions and presentations.

The ECA Bill makes provisions for spectrum allocation, rapid deployment policy and the controversial wireless open access network (WOAN), which have received widespread criticism from some stakeholders in the sector (Gilbert 2018). The Bill submits three critical issues which elicited debates around the government's approach in spectrum allocation versus what the industry players believe is an ideal approach for all stakeholders. These are the:

- (i) Establishment of WOAN; section 19 A, section 31E of the Act;
- (ii) Setting aside high demand spectrum to single WOAN, (what critiques call monopoly WOAN), section 31B, and section 31 E of the Act (DTPS, 2017); and
- (iii) Minimising the role of ICASA in spectrum management and allocation, and make provisions that the same should be reserved for the Minister (ibid).

6.4.2.2 Interviews and Submissions

In responding to whether WOAN will address the dominance of Vodacom and MTN, McLeod (2018) said that though the government was keen on creating monopoly WOAN which will give all access to the so called high demand spectrum 7h00MHz & 8h00MHz, this approach was unprecedented as this had never been done anywhere in the world. McLeod's shared the same view with Face-Book Africa. In its submission made to DTPS, Face-Book Africa (2018) questioned the unprecedentedness of the state's approach of conferring spectrum to a single WOAN.

The scepticism around what proponents of competitive WOAN advocate for is that the government approach of conferring high demand spectrum to single Wholesale Open Access Network (WOAN) as per ECA Bill proposal will have detrimental effects on the current and future competition and investment incentives in the telecommunication industry (Facebook-Africa, 2018). To these proponents, a move to assign spectrum to a single WOAN is

contrary to a competitive regulatory environment trajectory that the country undertook some 20 years ago. They view the government approach as contradicting its own efforts of inclusive and people centred digital society (Facebook Africa, 2018; Liquid Telecom, 2018; Research ICT Africa, 2018; MTN, 2018; Vodacom 2018; ICASA, 2018).

Liquid Telecom (2018) (formerly Neotel) argued that WOAN will create monopoly wholesale access that will have a negative effect on access and pricing. Subsequently, it will not be efficient because generally monopolies are not. The operator submitted that the monopoly WOAN will negatively affect investment in the sector. Vodacom (2018) too did not believe that monopoly WOAN is necessary to meet the government's objectives of dealing with oligopolistic market (domination of few operators). Like Liquid Telecom, Cell-C, Facebook-Africa and Vodacom envisages a competitive WOAN that still preserves the fundamental principles of market-based competition, innovation and investment while operating within the regulatory framework in the current Act (Vodacom, 2018).

It must be noted that SA Connect gives attention to the release of spectrum through WOAN though it does not provide directive regarding modalities of implementation (DoC, 2013). The policy states that such directive was to be given by ICASA. In the contrary, ICASA believes that WOAN would not be an appropriate vehicle to address these concerns" (ICASA, 2018:9). In its submission, the Regulator argued against the proposition of establishing WOAN and re-assigning all the high demand spectrums to a single WOAN with the aim of levelling the playing field. ICASA argued that the creation of a monopolistic WOAN as envisaged by the government is contrary to the principles of fair competition, thus it will thwart stimulation of investment in the market. In the Regulator's view, WOAN is not the appropriate vehicle to address the Minister's oligopolistic market concerns (ibid).

Telkom on the other side held a different view to submissions made by ICASA, GMSA, Research ICT Africa, Liquid Telecom, Vodacom, MTN and Face-book Africa. Telkom supported the state's version of a vibrant, viable

wireless open access network (WOAN) (Telkom; 2018). The operator argues that the proposed WOAN is likely to provide a more favourable economic outcome than a spectrum auction only to mobile operators. Telkom argues that spectrum auction would result in the incumbents who have deeper pockets than smaller players obtaining the most valuable spectrum bands. This will further increase their market power and entrench the status quo of the market structure. The operator further argues that: “a move towards service based competition; away from network competition will favour the smaller players and create a more equal playing field in the longer term, subsequently lowering prices and increasing economic growth” (Telkom-Econex; 2018:4).

Telkom further argues against the ITA (invitation to apply) for spectrum auctioning which was highly espoused by Liquid Telecom and ICASA. In its submission in 2016, Telkom pointed out that the objectives of the ITA would not be achieved if most of the high demand spectrum is assigned to the incumbents (Vodacom and MTN) via the proposed auction process (ibid). As highlighted earlier on, Telkom opined that the arrival of MTN and Vodacom early in the mobile market has put the two operators at an advantageous position. The two control more than 80% of the market by revenue while latter entrants have not gained traction in the market.

Evidence at the disposal of the industry players, the public and consumers is that South Africa’s broadband penetration in rural areas remains poor and access to broadband remains exorbitantly expensive and unaffordable for a large portion of poor South Africans. As if it was not enough, Vodacom and MTN recently increased their data costs despite the public outcry to decrease the same, thanks to unreformed mobile broadband market (Telkom, 2018). The operator further submitted that monopoly WOAN is necessary to level the playing field in mobile communications and increase competition by allowing new players to enter the market (ibid).

Telkom sentiments were also supported by the Alliance for Affordable Internet (2018) which provided a more sensible and salient contribution as

to how the digital divide could be arrested, thus decreasing data costs in South Africa. In its submissions to the DTSP, the Organisation concurs that in principle, WOAN is a more idyllic approach to the reduction of costs. However, the organisation argued that the ECA Amendment Bill should also inculcate the establishment of a national affordability target such as having price of a 1GB mobile prepaid data plan costs less than 2% of average monthly income (A4AI, 2018:1). The Organisation's latest research on data costs showed that South Africa does not meet these affordability targets. Instead the data cost plan is priced at 2.35% of monthly income. Given the high level of income inequality in South Africa, the government should go further and include affordability targets for low-income groups in the country (ibid).

A4AI (2018) further submitted that to drive down costs, the government should use WOAN approach to invest in and support the development of public access facilities (including public Wi-Fi solutions), while maintaining adequate consumer protections on such networks. Public access facilities are community networks owned and managed by the communities provide internet access to the public. These facilities could be crucial part of the WOAN to improve access and affordability among the isolated rural communities (A4AI, 2018).

As the study above noted, the idea was not to delve much on the White Paper and the ECA Bill as well as the broader focus on the provisions of WOAN. Nonetheless, it was important to draw attention to topical and hotly debated issues within the South African telecommunication sector and how these debates if prolonged, continue to hamper the implementation of SA Connect, thus perpetuating the digital divide.

As mentioned above, Section 19 A, (iii) of the Bill proposes that ICASA's role in spectrum management and allocation must be minimised and these functions should be ceded to the Minister. This proposition has been met with resilient opposition from operators such as Liquid Telecom (2018), Research ICT Africa (2018) and ICASA (2018) among others (see the 43

written submissions presented to DTPS). These new developments could be perceived as the government's response to ICASA's futile attempts to auction spectrum to Vodacom and MTN.

How then does this spectrum logjam affect broadband roll-out in rural South Africa?

Telkom's viewpoint on the question of logjam was that indeed the spectrum impasse has affected and delayed connection in rural areas where the hardest hit is often the poor communities. It is on these grounds that Telkom, like many within the industry, called for the speedy allocation of high demand spectrum to arrest the digital divide. The operator equally so, perceived the creation of a viable WOAN as an ideal option to bridge the divide and level the playing field within the mobile communication sector. For Telkom, through the WOAN, smaller players will be able to expand their network coverage particularly in rural areas without incurring the associated capital expenditure (Telkom, 2018).

McLeod said the logjam has already affected the roll-out of broadband in the outskirts areas. He further submitted that deploying broadband in the rural areas requires lower frequency bandwidth. However, the biggest challenge was that the frequencies that were supposed to roll broadband in the rural areas were still occupied by SABC and E-tv. South Africa should have migrated from analogue to digital broadcasting about four years ago, but the country missed the deadline and postponed the switch off several times. There has been one disaster after another, bad decisions, incompetence and this has been dragging on for a long time. Critical to be noted is that with access to 700MHz -800MHz spectrum, operators do not have to build many broadband base stations which require higher frequencies like in the cities. They use wireless connection to achieve digital inclusion.

Generally the respondents believed that the logjam was caused by the under-resourced and weak and timid Regulator, among others. They therefore advised that ICASA ought to learn how a strong Regulator should

function by looking at the Competition Commission as an example. They further believe that the proposals made in the Bill seek to further disempower the Regulator by giving more power to the Minister. This is contrary to what the SA Connect calls for in the introductory parts of this study, that is, an empowered, competent, resourced and capable Regulator.

The responses given by the interviewee and submissions given above do not only confirm but compelled us to revisit the supposition made by Horwitz (2007) in his article captioned: *Another instance where privatization trumped liberalization*, that the alteration of the White Paper as a draft legislation to Parliament in 1996 casted South African telecommunications reform along a particular path, which was to have dire future consequences, terming it the *original sin*.

It was the changes as enshrined in the Telecommunications Act of 1996 that gave the Minister several of the powers that the White Paper had reserved for the Regulator. We have noted the effects of this *original sin* and how it has been playing out in the battle between the Minister and ICASA in 2016 through spectrum auction debacle. The submissions made above show that the battle for power over the telecommunication sector continued to surface through WOAN debates even in the Electronic Communication Bill of 2017.

Research ICT Africa (2018) believes that the Bill grants extensive powers to the Minister, not only in overseeing the sector, developing policies and representing the country at international fora, but also in the management of scarce resources such as spectrum. In their view, the Bill undermines the independence of ICASA. This subsequently erodes the powers of ICASA that have the necessary technical expertise and grasp of the dynamics and trends within the broad ICT sector to implement national policy independently of government and industry (ibid)

In conclusion, it appears that the ECA Amendment Bill is government's response to ICASA's precipitated attempts to auction spectrum without consulting the Minister in September 2016. It is through monopoly WOAN

that the government seeks to address the structural constraints in the market which arise from the dominance of Vodacom and MTN. While monopoly WOAN will increase participation of new entrants in the market, it also prevents participation of big operators in the process.

The following section provides a brief synopsis of the interrelation between broadband and digital migration policies. It explains how the implementation of the former (broadband) in rural areas depends entirely on the implementation of the latter (digital migration). It further looks at the bottlenecks and logjams surrounding the policy digital migration.

6.4.3 The digital migration impasse

The Digital Migration Policy recognises that the South African Society is confronted with a wide range of developmental challenges. These include reducing the digital divide and the information gaps, building social cohesion and a common national identity, reduction of poverty and employment creation (DoC, 2008). Digital broadcasting has the potential to contribute significantly in addressing these challenges. This is the reason the South African Government identified migration from analogue broadcasting to digital broadcasting as a national priority (ibid).

The key benefit of digital broadcast technologies is that they use scarce national radio frequency spectrum far more efficiently than analogue technologies (DoC, 2008). This means that existing broadcasting services can be provided using less of the radio frequency spectrum they currently occupy, subsequently releasing un-occupied spectrum to be used by operators for broadband services. When frequency spectrum is freed-up through the digital migration process, it has the potential to provide improved broadcasting services and enable connection of additional ICT services such as wireless broadband internet. In this way, broadcasting digital migration directly contribute to acceleration of universal access to broadband services thus bridging digital divide (ibid).

It transpired during the perusal of documents and investigations that digital migration is crucial not only for opening up South Africa's terrestrial broadcasting sector to greater competition, but also for making available the "digital dividend" bands of 700MHz and 800MHz for mobile broadband (Paton, 2016).

Critical to note in the findings was that there is palpable interdependence between the Digital Migration and Broadband policies. Prominent to these findings is that ubiquitous broadband should be preceded by implementing of the Digital Migration policy. This study observed that this interdependence provides substantial evidence on how migrating digitally, may either accelerate or thwart the digital divide programmes.

6.4.3.1 Reasons behind the delay

In the context of South Africa, fundamental to the digital migration processes are the government's subsidised TV set-top boxes. Thus despite other challenges affecting the implementation of broadband, one that stands above the rest has been South Africa's failure to meet the 17th June 2017 deadline switch over from analogue to digital as set by International Telecommunication Union (ITU). South Africa as a member of ITU should have migrated by the said date. This then prompted the study to further look at the Digital Migration document itself to find out the reasons behind the delays. Paragraph 2 of the Executive summary of the Digital Migration policy states that: "achieved in a phased manner, national broadcasting digital signal coverage shall be covering 50% of population by 2008, 80% of the population by 2010 and close to 100% by 2011 thus enabling analogue switch-off" (DoC 2008: 8). It is an open secret that this did not happen.

When the former Minister of Communication Faith Muthambi was put in charge of the Digital migration project in 2015, the Minister amended the Digital Migration policy's over a control mechanism for encrypted signals on set-top boxes. The Minister gave herself more power to decide on the actual dates for analogue switch off. As amended, paragraph "5.1.2(b) states that

the STB control system for the free-to-air DTT STBs shall not have capabilities to encrypt broadcast signals for the subsidised STBs (DoC, 2015). Paragraph 2 of the Executive Summary of the Policy, mentioned above was also substituted with the following: "the switch-on and switch-off date of the digital and analogue broadcasting digital terrestrial television signals will respectively be determined by the Minister of Communications in consultation with Cabinet" (DoC, 2015:1). On the 4 March 2015, cabinet approved these amendments and they were approved by Cabinet on the 4 March 2015 with the inclusion of the control system in Set Top Box (STB) as per Faith Muthambi's submissions (Peyper, 2016).

The developments mentioned above did not auger well with some broadcasters. The disagreements among the broadcasters revolved around whether STBs should be encrypted or not. Consequently, court battles between E-tv and minister Muthambi followed. The Minister's resolution not to encrypt STBs was subsequently smacked down in the Supreme Court of Appeal in Bloemfontein with E.tv winning its court challenge against her. The verdict was that the Minister failed to properly consult relevant stakeholders before deciding not to encrypt the boxes (Peyper; 2016).

USAASA as the state owned company was mandated by government to procure the STBs, which would be provided free to 5 million indigent households in South Africa so that they can continue receiving terrestrial television once analogue broadcasts are terminated (McLeod, 2016). The reader should not forget that USAASA is the very Agency together with ICASA which has been lambasted and identified as being responsible for failing the country in appropriately dealing with the challenges of universal access to ICT services.

There has been substantial evidence over the years of maladministration, corruption and allegations of misappropriation of funds at USAASA. These funds were supposed to address universal access programmes. These included among others, allegations of dubious appointment of service providers as captured in the internal audit report (Malefane & Ncana, 2011).

These dealings include paying ghost service providers for doing nothing, untraceable service providers, agreements which did not specify the start and end dates of the contract and the absence of evidence that competitive bidding had taken place (ibid).

Thus subsequent to years of delays and political interference and relentless corruption at state institutions such as USAASA, the digital migration roll-out programme was held up because of these legal challenges owing to Amended Digital Migration policy. Conversely, the country has been hoping to expedite the release of spectrum so as to avail more frequency for wireless broadband connection in the rural areas. The Department of Communication has been indecisive in clarifying whether the STBs should be encrypted, or not. This subsequently brought about confusion over which route to take, coupled with ongoing court battles. This is one of the reasons behind the endless delays in rolling out STBs. Further findings show that these court battles and the delays thereof have had adverse ramifications on universal access to broadband services, better still, the implementation of SA Connect.

All these problems are one way or another linked to South Africa's failure to migrate digitally as per ITU's 2015 deadline or better still, irrational policy sequence. Critiques such as the South African Communications Forum (2015) also lambasted the Minister for "unilaterally" changing the policy which now has entangled the ministry in court battles for almost two years with the possibility of even going beyond. At the time when Muthambi was the Minister of Communication, the Minister remained steadfast that the power to make and amend policy rests with government, stakeholders consulted or not. This is the position the Minister took despite being chastised by the civil society, industry players and related stakeholders (Peyper, 2016). To aggravate matters even further, at the time of finalising this dissertation, the Department of Communication through the now reshuffled minister Mammoloko Kubayi postponed the analogue switch off date to June 2019.

Furthermore, separating the Ministry of Communication and the Ministry of Telecommunication and Postal Services in 2014 by Jacob Zuma administration created more confusion and aggravated the delay even further. The reader will note that initially, the Ministry of Communication was the custodian of both Digital Migration and Broadband policies (SA Connect). The Zuma administration established the Department of Telecommunication and Postal Services which subsequently became the new custodian of the South African Broadband Policy. The Digital Migration policy remained under the stewardship of the Ministry of Communication. This unnecessarily created two different departments which in essence, should have been one department.

Research ICT Africa (RIA) (2018) notes with disapproval the continual separation of these two departments and argues that this flies in the face of convergence and the evolution of a complex, highly integrated, globalised ICT ecosystem. RIA, rightly so, believes that there was no rationale for the creation of these two departments, each with their responsible ministers. The organisation submits that the decision was occasioned by short-term political exigencies and it was contrary to the convergence policy that had been developed over the previous decade. For RIA, that decision has set the telecommunication sector back and has created enormous difficulties for DTPS and DoC in developing coherent, consistent policy and ensuring effective governance (ibid).

As the quest to address the digital divide and affordable access challenges intensified, afore-mentioned court-battles also emerged. The key themes highlighted in South Africa Connect, market structure, spectrum and wholesale open access led the researcher to regulation and governance quagmire. It was critical for the researcher to unravel this policy inter-play, to highlight the type of bottlenecks facing the implementation of SA Connect and how these demystify the reasons behind perpetual digital exclusion. The factors mentioned above, court battles, continual chopping and changing of ministers and continued separation of the DTPS and DoC has

had adverse ramifications on the implementation of the two policies, Digital Migration policy and SA Connect. Thus findings confirm that auctioning the spectrum either in the form of monopoly or competitive WOAN will only be feasible after South Africa has migrated digitally.

It was important for the researcher to delve into the aforementioned quagmires and highlight these factors so as the reader could get the essence behind the delays. Caio (2005) and Vander Walt (2015) highlight that the nature of qualitative research is that of a cyclonic and choreographic motion. It was important to bring these inter-plays to the surface to show how governance, administrative, regulation bottlenecks and litigations quagmires affect the roll-out of broadband in the rural South Africa. These battles have subsequently, continued to amplify the exclusion of rural communities from the digital economy, the information society and the digital economy. As the old adage goes, when two elephants fight, it is the grass that suffers most.

SECTION 3

6.5 COMMUNITY ACCESS CENTRES AND DIGITAL LITERACY: PERSPECTIVES

This section explains the last two themes of the study; namely, points of presence, thenceforth termed community access centres and their role in facilitating digital literacy programmes in rural South Africa. It starts by providing the position of SA Connect on these two themes. It further presents the views of the government, industry experts and the NGOs on the importance of community access centres and digital literacy programmes in bridging the digital divide. Critical to note is that the questioning and investigation process deliberately ignored the policy position on connecting

universities as these institutions were long connected before its promulgation.

Data were gathered through in-depth-interviews conducted with the spokesperson of the Department of Post and Telecommunication and Postal (DTPS) Services and from the department's progress report submitted to the Parliamentary Monitoring Group in June 2017. The report was about the progress made by the DTPS in implementing SA Connect. Further questioning sought to find out if these connections had been rolled out together with the digital literacy programmes. The section provides the explanations on how the two themes, community access centres and digital literacy programmes relate to the notion of bridging the digital divide.

Most importantly, Data were drawn from the two submissions made to the government by Alliance for Affordable Internet Access (A4AI). The first submission was made to the Parliamentary Monitoring Group in September 2016 and it focused on the best policy practices that South Africa may adopt to reduce high costs of communication. The second submission was made to the DTPS in January 2018 and it focused on the adoption of wholesale open access network in line with the proposed ECA Bill, and how community access centres (*termed Points of Presence in SA Connect context*) may play a critical role in harnessing ubiquitous broadband for low income communities. The section concludes by drawing from the views of two renowned industry experts on the two themes, namely De Laneroll (2016) and McLeod (2018). Their views were synchronised to the first objective of this study; that is, problems that prevent the implementation and adoption of broadband in rural areas.

6.5.1 SA Connect: Policy stance on Community Access Centres and Digital Literacy Programmes

SA Connect recognises that rural networks exist in large parts of South Africa, but as a result of the spatial legacy of Apartheid, limited infrastructure exists in the former homelands and other historically disadvantaged areas. The policy recognises that to succeed in bridging the digital divide there has to be a multifaceted series of interventions which will stimulate demand through the e-readiness programmes in schools and clinics, formal skills development in curricula and general awareness and e-literacy campaigns. There is a high level of skills required by the sector, and for that reason, it was imperative to target user skills necessary for social and economic inclusion through community access centres, schools and universities. The policy maintains that realising this objective requires that demand be stimulated and use and uptake be increased through the promotion of local and relevant content and applications. Critical to note, SA Connect recognises that there is considerable evidence that demonstrates in-equality of access and use of ICT services in South Africa. It further notes that:

the optimal use of these ICT services correlates strongly with education and income. Subsequently, those marginalised from education and therefore employment and income are most likely to be marginalised from the type of communication services required to participate meaningfully in the modern economy and society (DoC, 2013: 45, 46).

Thus the greatest gap is to address this human development gap and having skills necessary to operate in the knowledge economy (ibid). It is critical for the reader to note that in developing countries, it is through public access centres and digital literacy programmes that this human development skills gap may be addressed, particularly in rural areas. Nevertheless, in the entire SA Connect policy document, digital literacy is only mentioned only twice, that is, on page 17 and page 46, and public access centres are mentioned only twice as community access centres on page 6 and as points of presence on page 11 (DoC, 2013). These two

components are inseparable in the digital inclusion mantras, perhaps demeaning their importance in bridging the digital divide may be a recipe for disaster.

6.5.2 Department of Telecommunication and Postal Services (DTPS): Perspective

The following interview was conducted with Siya Qoza, the spokesperson of the Department of Post and Telecommunication on 8th March 2018. It sought to find the progress made by the department in connecting rural areas, among other things.

6.5.2.1. Wired Schools

The first question directed to Siya Qoza sought to find out the progress that the DPTS has made in connecting rural areas.

In responding to this question Siya said, the Department has made some notable strides, particularly in connecting schools. The basis of these connections emanated from SA Connect's targets of connecting 8 District Municipalities, he said. The process of connection was done working hand in glove with various School Governing Bodies (SGBs) in various Provinces. The rationale behind "involving" the SGBs was to ensure that. The idea is to make sure that the communities "own" these infrastructures so as to avoid vandalism and theft of these infrastructures, Siya said.

Uphoff (1985) highlights that the kind of approach that involve communities in real sense of the word is the one that calls for their participation at the decision making level. This is where communities initiate, discuss, conceptualise and plan activities together. It is from the participatory development communication perspective that the importance of socio-cultural and epistemological access in development is acknowledged (Servaes, 1991). Siya's answer seems to insinuate that the approach that government took was less of initiating, conceptualising, discussing and planning together. It looks like communities became part of the project at the implementation stage.

Subsequent to this, the researcher probed for more clarity from Qoza with specific focus on how these infrastructures were looked after post the implementation phase. This sought to address sustainable use of these infrastructures and to determine who takes care of their operational expenditures and other managerial functions.

It transpired that it was the prerogative of USSASA to connect these places either through existing fibre infrastructure or Wi-Fi. It was also the responsibility of USAASA to maintain the network side for two years and afterwards cedes the infrastructure and managerial responsibilities to the Provincial Broadband Steering Committee whose mandate is aligned with SA Connect. The Provincial Broadband Steering Committees' main function is to coordinate and facilitate broadband implementation across all role players in provinces to ensure that the benefits of broadband are achieved by all (DTPS, 2018).

Siya further submitted that in line with SA Connect goals, infrastructure was rolled out around February 2016 in Dr Kaunda District Municipality in the Tlokwe local Municipality of the North West Province of South Africa. Evidence at the researcher's disposal confirmed that indeed the Department launched free Wi-Fi hotspots in preparation for broadband deployment and implementation in Tlokwe. The same was launched in February 2016 (ITWeb, 2016). These WIFI hotspots were mostly deployed in underserved areas such as townships and settlements. It was expected that the free WIFI zones would provide internet access to about 225 schools in Dr Kenneth Kaunda District Municipality, some government buildings as well as taxi ranks. Siya further said it was critical to note that the Dr Kenneth Kaunda connections were a national government led initiative but was not necessarily initiated by the North West Provincial Government as it has been the case in other Provinces (ibid).

The drawback in connecting some of these schools has been what the researcher identified when he conducted research around Thusong telecentres in 2012. For instance, in SA Connect progress report submitted

to the Parliament on the 13 June 2017, it was noted that theft and vandalism of equipment as well as line copper in various schools was rife, the quality and bandwidth connectivity provided to schools was poor, there was lack of sustainable connection, some schools did not have electricity, broken equipment took too long to be repaired and services did not adhere to SA Connect standards (DTPS, 2017: 1).

Siya further confirmed that the connections have been focusing on schools that fall under the Basic Education. These include schools in townships and rural areas falling under what is known as underserved areas by the state Agency USAASA. They focused on the eight (8) identified District Municipalities through the help of the Provincial Broadband Steering Committees and managed to connect a National health centre in the OR Tambo Municipality in the Eastern Cape USAASA. The Agency used Universal Service Funds to connect schools, health facilities and about two community centres at King Sabata Dalindyebo and Mhlontlo local Municipalities respectively. This connection did not only benefit health centres, but it also benefited local Agriculture firm in the Eastern Cape. It is the prerogative of USAASA to connect under-served areas- either using existing fibre or Wi-Fi, Siya said.

Evidence shows that through Provincial led broadband roll out initiatives, it is only Gauteng and Western Cape that had made progress in connecting their respective cities. For instance, in line with the goals of SA Connect's Digital development pillar, by March 2017 Gauteng had connected 1000 of the 3000 sites earmarked for connection and the Western Cape had connected about 1900 sites (SA Connect Progress Report Slides, 2017: 22, 26, 27). Conversely, less progress has been recorded in rural Provinces such North West, Eastern Cape and Limpopo. For instance, at the time of concluding this project, except for the deployment of Wi-Fi connections in Dr Kaunda district municipality, everything was still in the planning phase in the North West. Evidence showed that even the tender that was published for Broadband implementation was cancelled. Limpopo Province was still in

the planning phase as by April 2017 no implementation programmes were recorded (ibid).

6.5.2.2 Wired Communities- Community access centres

The section sought to look deeper into the role of SA Connect's Points of Presence (community access centres) in facilitating access to ICT services and digital literacy programmes in rural South Africa.

The first question asked to Qoza was to find out how the government intended to roll-out Points of Presence in the outskirts areas. Bearing in mind operational plan deficiencies of Thusong telecentres, Siya was asked if the Department had an operational plan in place to ensure that these centres were used sustainably by rural communities

In responding to this question, Qoza believed that since the advent of Thusong telecentres a number of things have evolved. People including those in the rural areas are using Smartphones and Tablets not necessarily public access centres. The Department was to paying Wi-Fi so that people in the rural areas could use Smartphones and tablets to access internet.

Despite their poor economic conditions it is believed that rural communities can afford Smartphones and Tablets. As a result, the question of community access centres (*Points of Presence*) was of less significance. In Qoza's view, the Department has observed that people in rural areas have relatives in urban centres who wished to communicate with them using other means. These include the use of Messenger and WhatsApp. Subsequent to that, they buy them phones which are compatible to these services and they use these to connect to Wi-Fi provided by the Department. He made reference to Tshwane Wi-Fi even though the Wi-Fi in Tshwane was long in operation before the promulgation of SA Connect. Secondly, the Tshwane Wi-Fi benefits the urban based population which is mainly within the lucrative metropolitan markets, a terrain highly contested by Vodacom, MTN, Cell-C and other operators.

Qoza's responses contradicted both the Minister and the SA Connect position on the importance of community access centres in rural areas. The position he advocated flies in the face of all efforts intended to bridge the digital divide. What was oversight on Qoza's side was failure to comprehend that when the study investigates access to broadband internet services, it is not necessarily referring to sending and receiving of messages be it via emails, messenger or even WhatsApp. Conversely it refers to how communities in the outskirts may explore and partake in the enormous portion of information in community access centres using laptops or PCs.

These inter alia include these access centres as empowerment tools to help students do assignments and assist young entrepreneurs to do business with the global world. Through the use of points of presence communities who were previously excluded in the information society and digital economy are brought nearer to the digital communication platforms. What astonished the researcher was the perception of some interviewees who advocate for the idea of using Smartphones and tablets by rural communities despite the poor standard of living in rural areas.

For instance, De Laneroll (2016) and McLeod (2018) also augmented the use of Smart-phones and Tablets. For these two, the use of these devices is inevitable because that is what is driving the direction of the market at the moment. They also believed that the prices of Smart-phones have "dropped" immensely in recent years and will continue to come down as technology evolves. These include the price of broadband which will be cheaper particularly when that 700 MHz and 800 MHz spectra get allocated, thus bridging the digital divide will be cheaper, they submitted. They both believed that schools and libraries should be connected and think there is need to roll-out specific computer centres across the country. McLeod submitted that it will make a lot of sense to roll-out these centres in areas where people are using them for business purposes; i.e, for example demands internet café's in the city centres.

The follow-up question sought to determine why the Thusong telecentres model failed to achieve its expected objectives in SA.

In responding to this, De Laneroll augmented the position of the study and said: “the problem is what you have been talking about”. It is one thing to bring the technology but before you think of who is going to use it, you need to look at who will be looking after it and then who is going to teach people how to use it. Thusong telecentres had proper resources, but they were not properly aligned with the needs of the communities. In essence, these centres were ceded to the local authorities who in turn did not have a team dedicated to manage and teach communities how to use the infrastructures harboured in these centres. This mistake was made in many countries. De Laneroll hastened to say that the other point that ought to be noted was that when telecentres started, they did not have enabled mobile Smartphones and Tablets – but now as they are available, he was more excited about public Wi-Fi.

Responding to the question of high costs of these devices, De Laneroll agreed with the researcher on access and affordability problem. He continued to say that the access problem was created by the unavailability of infrastructure and devices that ought to be afforded. There was a big gap between access to infrastructure and affordability of devices. Therefore, the backbone network of rural areas has not been quite extensive enough to ensure sufficient coverage. Coverage in these areas means establishing towers. It has to be noted that in rural areas where there is no customers for towers it is a great challenge. The theory was to open those towers for sharing open access networks- so that every other internet service provider could use. This is referred to as open access networks. That was the policy broadly when it comes to ensuring affordable broadband internet access for rural communities.

In the end De Laneroll, confirms that the high costs of setting up infrastructure in the rural areas and the absence of “customers” in these areas have made life difficult for operators to thrive. This is something

acknowledged by the three mobile operators earlier on. He echoes the position of the operators and other experts in the industry that to bridge the digital divide and achieve affordable broadband, spectrum ought to be competitively made available.

De Laneroll correctly noted that the telecentre approach lacked managerial skills, did not have proper resources and lacked internet service providers (ISPs). He highlighted that because telecentres were operating within the traditional authorities and local government (municipalities) turfs, there was a disconnection between the two as well as the Provincial government. This is a point the researcher noted and unequivocally concurs with. There has been a massive lack of coordination and harmony between the local municipalities and the traditional leaders regarding jurisdictional authorities in the rural areas. This has subsequently created a challenge in the delivery of critical services in these areas including the roll-out of tech services. In the current dispensation, Qoza said it was the responsibility of the Provincial Broadband Steering Committees to manage these in infrastructures and their mandate was to be aligned with SA Connect goals.

The following section sought to determine how the Department would empower beneficiaries of broadband services in rural South Africa, particularly through digital literacy programmes.

6.5.3 Digital literacy Programmes

In responding to the question of whether the process of connecting rural areas encapsulated capacity building programmes that help communities to leverage these centres, Qoza said during the roll-out, USAASA identifies people within the local communities and teaches them how to use manage these centres. Whether he was aware or not, his answer contradicted what he said above where he indicated that USAASA cedes the managerial responsibilities of the infrastructure to Provincial Broadband Committees.

Nevertheless, he continued to say that the DTSP was working with the National Electronic Media Institute of South Africa (NEMISA) which was responsible for teaching communities how to use the devices appropriately.

NEMISA is intended to address e-skills challenges in South Africa through teaching and learning, research, innovation, monitoring and evaluation. NEMISA's vision is for South Africa to be an e-skilled society by 2030. He went on to say in addition, the Department had entered into partnership with Walter Sisulu University through a programme called "train the trainer". This is in line with SA Connect goals and objectives. These teachers are taught and they subsequently train the students on how to use ICTs tools.

It is important for the reader to note that the study's interest has been in how these literacy programmes trickle down to rural communities as well and not necessarily confining these programmes to schools. In his response Qoza said, communities were at liberty to use infrastructure in schools and source some expertise if possible. That is how "train-the-trainer" programmes trickle down to the communities. There is absolutely no need to focus on community access centres (Points of Presence) for now, but rather the focus should be in schools. If communities choose to use these infrastructures it should be at their own discretion, Siya concluded.

Siya's views appeared to be similar to the views shared by the other industry expert, De Laneroll. In responding to digital literacy question, De Laneroll said it was not necessary to include digital literacy programmes in SA Connect roll-out plan. He said one has to be careful on the question of digital literacy because there has never been any government, anywhere that has managed to run a programme that delivers digital literacy. For De Laneroll, digital literacy is an outcome of the entire broadband roll-out process and he was not sure how that can be inculcated in the roll-out programme. He continued to question how people get to be digitally literate and said the government does not have to organise classroom for them to be digitally literate, as they can learn from others.

De Laneroll maintained that access should precede usage. He believed that digital literacy programmes should not be included in the broadband roll-out plans. For him, that history “proved” that it is access before usage that can bridge the divide. For him skills should only be considered only after infrastructure has been rolled out, not the other way round. He supported the same approach which the information society proponents and neoliberal top down approaches to digital divide have been advocating for many decades, although they did not succeed. He maintained that skills are acquired as a result of interaction with other people. For him, knowing how to operate a computer should come secondary to infrastructure roll-out and should neither be the prerogative of the government nor the private sector to capacitate communities with digital literacy programmes. His emphasis, like that of many paternalistic technocrats, is on access (infrastructure availability) and less on the human capabilities and training (digital literacy programmes). The Rwandan case study used in this study is the perfect example of how failure to comprehend a holistic broadband roll-out program could have a negative impact on the notion of bridging the digital and inclusive society.

He believed that digital literacy was not the only problem or even the main problem. For him the telecentre approach has not “worked” and he thought that it was sort of redundant. He, however, hastened to emphasise that there was a strong demand for ICT services in rural areas. However, this can only succeed if they were to run as a business centres, thus affirming McLeod’s position. He justified his submissions by making reference to one Khayalitsha man in the Eastern Cape who ran a telecentre as a business and has been providing digital skills programmes. The centre was sustainable and successful because people were paying for his services. In his view there was no short of demand of ICT services in rural areas, but proper leadership and management was a challenge.

In Chapter 4, it was highlighted that whilst the market lacks interest in connecting rural areas, some telecommunication experts and policy makers

lack insight into the challenges faced by rural communities in developing countries. Perhaps this could be the reason behind failures of many digital divide bridging policies which quite often than not, have failed to capture the quintessence of the development challenges in rural communities. The reality is that historically technology roll-outs in the outskirts areas of developing countries areas have either been market, government or expert driven initiatives. More often than not, these initiatives have proved to be futile. De Laneroll seemed to affirming this narrative. Pospisil (2013) noted that in contrast to the market driven approach of broadband roll-out, it is rather the rural community/civic broadband led approaches that proved to be doing well in rural areas.

This finds apposite resonance with Everett Rogers' approach to the diffusion of innovation where he notes that a new idea can easily be adopted if it is perceived consistent with the existing values, past experiences and needs of potential adopters (Rogers, 2003:240). Rogers (2003) submitted that for innovation to be adopted quickly it must be compatible with cultural values of the adoptees or else its adoption may be blocked. To understand all these, it is critical for policy conceptualizers and implementers to undertake extensive research to get to the actual challenges of what people are grappling with on the ground. In order to avoid the recurrence of previous technology dumping mistakes, it is critical for both the government and the telecommunication industry players to clearly comprehend this conundrum. The one size fits all approach has always been a drawback when it comes to information communication technology for development.

6.5.3.1 Non-Profit Organisations' Perspective on Community Access Centres and Digital literacy Programmes

Post the industry experts' versions, the study sought to find the views of a Non-Profit Organisation, the Alliance for Affordable Internet (A4AI). The A4AI is an organisation that has been working to drive down the prices of broadband by transforming policy and regulatory frameworks in various countries. It has gained enormous traction in broadband and digital divide

spaces. Members of the organisation include the public sector, private sector, civil society and academia. In the South African context, the organisation is working with Research ICT in Africa and Internet Solutions.

Data were drawn from a presentation and submission made by the organization to the Parliamentary Telecommunication Portfolio Committee on the 23 September 2016, and to the DTSP on the 31st January 2018. The first presentation was led by Onica Nonhlanhla Makwakwa, the Africa Regional Coordinator for the Alliance for Affordable Internet, in collaboration with Dillon Mann, the Director of World Wide Web Foundation. Their presentation focused on themes that sought to bring down high costs of communication down as well as to how to amplify the significance of public access centres in bridging the digital divide. The 2018 submissions were made in a written format.

In its submission to the Parliamentary Portfolio Committee, the A4AI presented its 2016 annual affordability report which is the organisation's flagship output in conducting evidence based policy research. The report's specific focus was on why affordable internet is critical for South Africa with specific emphasis on digital inclusion. As part of the global players in the digital economy, South Africa has a commitment to meet the standards of delivering affordable internet in line with the set international; regional and domestic standards (Makwakwa, 2016-submissions).

The organisation highlighted the United Nation's Sustainable Development Goals (SDGs) as one of the international standards that South Africa had to meet. These goals specifically speak to affordable access to internet for least developed countries with a target of not more than 5% average monthly income (ibid). At the same time, the African Union's agenda 63 speaks about internet as a basic utility, thus putting it in the same framework as water, electricity and other essential utilities such as sanitation and transportation. This is in line with South Africa's own broadband policy document which speaks to universal connectivity by 2030.

The A4AI notes that broadband internet access is still unaffordable and that income inequality particularly is very high in South Africa. As they stated, mobile broadband in South Africa cost 53% of national Gini coefficient per capita which was about 6000 Us Dollars in 2015; but these averages were not true picture because over 60% of the population live on less than half of South Africa's Gini coefficient (Makwakwa; 2016-submissions). De Laneroll (2016) once highlighted in the conversation with the researcher that these analysis are more economic in context and content and subsequently, they require a thorough excavation of figures. However, this is something which the researcher would not venture into because it is not within the bounds of this study, but important for the reader to know nonetheless.

In response to these appalling unequal societies, the A4AI produced Access Affordability report in 2017 in which it made a clarion call that there is a dire need to employ public access centres (community access centres) as solutions to digital divide challenges. The AI4A's belief is that bridging the digital divide could only be successful if the public access centres and programmes were to be expanded to community-owned networks. This is the most appropriate way of reducing the high costs of communication in rural areas.

The Organisation's views correctly so, acquiesce with the theoretical stance of the current study, of Community Informatics by Gurstein (2005). The stance perceives community networks as the appropriate solution to address high costs of communication rural areas. It argues that the ability to go online via one's mobile device or at home is one currently enjoyed by less than half of the global population, and getting online where and when convenient is not an easy task for impoverished rural communities. Contrary to what Qoza and De Laneroll said above, A4IA believes that governments needed to complement other broadband initiatives with a push to ensure that public access programmes were incorporated in national policies and regulations. It is in these public access centres where digital literacy programmes should be compounded and delivered to deserving

communities. As highlighted earlier on in SA Connect; these public access centres' approach is phrased as Points of Presences (POPs).

“We feel that income inequality is very important and we should not be fooled by top-line averages and targets which tell us that internet is affordable for our people whereas in reality when we look at the public outcry- it tells us something very different” (Mann, 2016-submission).

What is worth considering in the findings is that both the government and the industry experts were neither interested nor willing to commit to the rolling out of Points of Presence. To them, Public Wi-Fi as well as the use of Smartphones and Tablets are appropriate means to achieve the inclusion of rural communities in the digital economy. It looks like there is still an attempt to downplay the significance or to deliberately ignore the socio-economic conditions of the rural communities by the government and other players in the market as well as experts in the telecommunication market.

A number of factors experienced during the investigation of the challenges of Thusong telecentres are still evident. Critical to these findings were the technological determinism approach of the state in rolling out these telecentres. It looks like there is another push from the state and the market and industry players to drum-up a narrative that says rural communities can afford the expensive tablets and smartphones, thus what is needed is to roll out Wi-Fi hotspots and communities will connect. This narrative is pushed despite the high costs of Wi-Fi devices amidst unsavoury socio-economic conditions and high level of illiteracy amongst rural communities.

The position of the researcher and his argument has always been that the availability of ICT infrastructure does not necessarily mean accessibility to the same. Thus, it is critical for the state to broadly consult and make informed decision before rolling out any kind of technology assistance in the rural areas, precisely because it is historically known that the poor socio-economic conditions of rural communities have been a barrier to adoption of ICT services. These conditions should be comprehensively understood before

rolling out these kinds of infrastructure. Literature shows that it is these unwholesome socio-economic conditions that frustrate the communities in using ICT gadgets, including the public access centres.

The Knowledge Gap Hypothesis argues that these deep seated economic inequalities cause and escalate the rural digital exclusion (Tichenor *et al.*, 1970). Factors playing a critical role in these exclusions are lack of digital literacy skills, wide distances between the ICT hub centres and the supposedly beneficiaries as well as the lack of advocacy of these hub centres, among others. What seems to be lacking on the side of experts and implementers of rural broadband programmes and projects is their inability or deliberate ignorance to ascertain the real challenges of rural communities. These include the failure or ignorance to study the cognitive abilities and skills of the supposedly beneficiaries of broadband services in rural areas.

The study found that A4IA presented very realistic and feasible propositions that correctly connect with what rural communities are normally grappling with. For instance, the A4AI noted that income inequality in South Africa is very high and that access to broadband still remained exorbitantly expensive. These propositions augment the theoretical position of this study, the Knowledge Gap Hypothesis, which calls for the consideration of communities of low economic stratum in the digital era. It is in its conclusion that the A4IA appositely captures what the marginalised and low income communities are grappling with. It submits through the mouth of Makwakwa (2016) that: “to arrest the digital divide and ensure affordable access to all, greater emphasis should be put on addressing income inequality. Furthermore, any research or reporting in this area should be able to breakdown population by income to ensure that a true picture of these inequalities is well captured”.

Furthermore, in its final submission the organisation made a call that in order to bridge the digital divide, South Africa should invest and expand public access programmes and as well as investigate innovative solutions

such as community owned networks. “We must remain open to innovative solutions and we must sure that this becomes part of our thinking as we move on with our ICT policy” (Mann, 2016).

In conclusion, it is imperative to note that one of the objectives of this study as expounded in Chapter 1; was to determine the factors that prevent broadband adoption in rural South Africa. The findings reveal that income inequality was one of the factors identified by A4AI as a major barrier that preclude the adoption of broadband in communities of low economic stratum, the population of which is mainly formed by rural communities. This fact was noted by Donohue *et al.* (1970) where he submitted in the Knowledge Gap Hypothesis theory that communities who are in low economic stratum are likely to be left out of the digital evolution because of the lack of adequate income. Subsequently, in addressing this problem, the organisation opined that there was a pressing need for the country to prioritise public access programmes (community access centres or shared access).

The views of A4IA were thus seen to be in sync with the position of the study that public access centres and digital literacy programmes are critical components in broadband uptake in rural areas. These centres are normally used by communities in the outer edge of developing countries for sharpening their computer skills, thus becoming part of the information society and players in the digital economy. The A4AI perspectives both in the submissions and in their annual report on affordability are apposite with this study as their views resonate well with the imperatives of digital literacy and human capacity building programmes, particularly in rural areas.

Chapter summary

Chapter 6 is divided into three sections and it presented data and the findings of this study. The presentations were guided by the aim and objectives of the study, starting with the first objective.

Section 1 provided the policy position and views of the industry experts and operators on the structure and current state of the South African telecommunication market.

Section 2 examined the position of SA Connect regarding the two selected themes, namely, spectrum allocation and open access regimes.

Section 3 assessed the last two selected themes, that is, Points of Presence and their role in facilitating digital literacy programmes in rural South Africa. It analysed the views of the government, industry experts and the NGO's perspectives on the importance of public access centres and digital literacy programmes.

CHAPTER 7

DISCUSSIONS AND ANALYSIS

Introduction

This chapter interprets and analyses the findings of this research as presented in chapter 6. It put the findings presented above and their implications on digital divide in rural South Africa in perspective. The chapter is divided into four sections.

Section 1 explains the first objective of this study by highlighting the difficulties around the conceptualisation of apposite policies that could accurately diagnose the problems of rural and urban digital divide in South Africa. It explains the inferences of inaccurate timing of pronouncing these policies by the government.

Section 2 provides discussions and analysis of the findings in line with the second objective of this study. It discusses how the country's un-reformed telecommunication market structure and the spectrum impasse affect the acceleration of broadband roll-out in rural South Africa. The section

explains how ICASA's inadequacies in regulating the market have had a negative impact on the performance of new and small operators. It further gives brief discussions around the hotly debated wholesale open access network by highlighting contrasting views of mobile operators, industry experts and the DTPS. The section briefly discusses these contrasting poles and further explains the reasons behind high costs of communication in South Africa. It points out factors that prevent the speedy acceleration of broadband penetration and adoption rural South Africa

Section 3 discusses and interprets the findings in line with the two themes discussed; namely, community access centres and digital literacy programmes placed under the third objective of this study. It provides SA Connect's position, the DTPS perspective as well the views of industry experts about the above-mentioned themes.

Section 4 zooms into objective 4 of this study and explains why income inequality continues to be the barrier to broadband adoption. It concludes by discussing apposite digital inclusive strategies that South Africa may employ to bridge the digital divide. Critical to these strategies is the need to recognise the importance of community access centres and access to internet as a basic human right. It affirms this right by making reference to Chapter 2 of the Constitution of South Africa and argues from this constitutional position that internet access is a basic human right and thus rural communities should not be deprived this right in any form whatsoever.

The interpretation and analysis presented here are in line with main themes discussed in Chapter 6. More importantly, the interpretation and analysis of the findings are guided by the aim and objectives of the study, starting with the first objective. It also important to note that under each objective, the study addresses themes presented in Chapter 6.

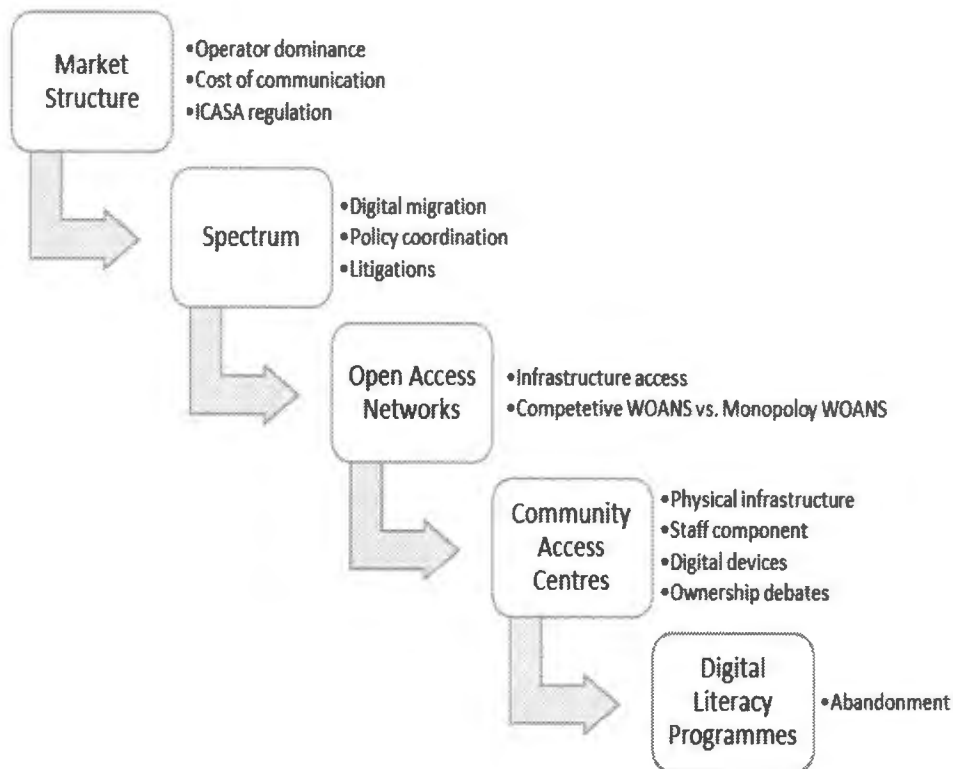


Figure 3: Graphic presentation of factors that hinder the implementation of SA Connect Broadband Policy in rural South Africa (Seadira, 2018)

SECTION 1

7.1 OBJECTIVE 1: How the SA Connect sought to address the problems that prevent the implementation and adoption of broadband in rural areas.

7.1.1 Policy Position: coordination problem and spectrum delays

Firstly, the study established that the implementation of SA Connect has been marred by lack of proper coordination and unending controversies. These controversies have subsequently delayed the implementation of policies meant to ensure digital inclusion. The lack of proper coordination has been influenced by dissensions and differences of opinion regarding the policy direction to be taken by the country. The debate of how spectrum should be allocated was one of the examples which were at the centre of these dissensions. This lack of proper coordination has not only created

delays in the implementation of SA Connect, but to other policies that seek to bridge the digital divide. For instance, the findings have shown that the failure of South Africa to migrate from analogue to digital broadcasting on scheduled time has delayed the implementation of both Digital Migration and the SA Connect policies.

The government had problems in the following order of precedence in promulgating policies meant to arrest the digital divide. This has been evidenced when the state pronounced the Broadband Policy (SA Connect) in 2013, but reserving provisions of allocating spectrum to the ICT White Paper announced in 2016. By February 2018, the White Paper propositions were still under intense scrutiny and discussions. These included the implementation of the controversial wholesale access network (WOAN), among others. The study noted that these caused delays in rolling out broadband in rural South Africa. Later these delays culminated into unending court battles which bred insalubrious relationship between the DTPS Minister and the Regulator (ICASA). The absence of cordial relationship between the DTPS (custodian of broadband policy) and ICASA perpetuated by unrelenting court battles between the two has negatively affected the speedy implementation of broadband in rural South Africa.

At the backdrop of the extended court battles, there have been several postponements of the digital migration policy. These postponements too have had a negative impact on the implementation of SA Connect. As if it was not enough, two years after the promulgation of SA Connect, the DTPS pronounced that the ICT White Paper was meant to address certain necessities within SA Connect. These provisions meant that SA Connect could not be implemented unless such provisions were first met. At the centre of these provisions is a hotly contested and debated issue, that is, spectrum allocation. The debates subsequently culminated into DTPS formulating an Electronic Communication Act Bill, known as the ECA Bill, in November 2017. At the centre of this Bill is the debate around the allocation of spectrum.

As highlighted above, the spectrum allocation debates further became intense after the formulation of the ECA Bill with industry players and the operators questioning the path proposed by government in allocating spectrum. These debates and their impact in arresting the digital divide are comprehensively discussed below in Section 2 assessing objective 2 of this study. The study noted that despite other factors mentioned above, it appeared that the flawed timing and erroneous sequence of pronouncing these three policies; namely, Digital Migration, SA Connect (broadband policy) and the ICT White Paper contributed negatively in the implementation of SA Connect. These factors of flawed sequence, litigations and postponements played a major role in preventing the speedy implementation and adoption of broadband in rural South Africa.

7.1.2 Infrastructural Access: Incessant dilemma

The study has further established that SA Connect as anchored by the views of the government, telecommunication experts and operators was aligned to the dominant narrative which narrowly focuses on intensifying infrastructural access over other components of the broadband ecosystem. They perceive infrastructure roll-out alone as the means to the end the digital divide challenges. This study highlighted in Chapter 1 that it would subscribe to broadband ecosystem definition which perceives broadband roll-out as an ecosystem that comprehensively provides assistance in the entire value chain. These include, access, users, services, applications and equipment.

Nevertheless, the study established that SA Connect largely romanticised access at the expense of other critical broadband ecosystem components such as the end users' skills and their level of affordability. As highlighted above, access was mentioned 186 times, while public access centres were also diminutively mentioned in the policy. Further to that, another critical component of broadband adoption such as user's digital literacy skills was

mentioned only twice on pages 16 and 46 in the entire policy (DoC, 2013). Throughout literature, the study noted how end users skills and affordability has been significant in the uptake of broadband and ICT services.

It has expressed how romanticising infrastructural access has been diabolical to development projects and endeavours. Development scholars (Dargron, 2009; Leung, 2014; Servon, 2008) have strongly critiqued the notion of hierarchizing access over users of ICT services. They view this approach as being top down and paternalistic and blamed it for excluding the views of beneficiaries in the roll-out programmes. For Dargron (2009), these approaches have a tendency of turning the efforts of bridging the digital divide into technology dumping.

Literature further confirmed that developing countries have also hailed broadband ecosystem as the relevant approach and panacea to the problems of digital isolation (FCC, 2011). Kim, Kelly and Raja (2010) have maintained that bridging the gap should not only advocate for infrastructural access variables such as networks, high speed services and applications, but they should also inculcate users as well. To include users means that issues of affordability, relevance and skills should become important for the penetration and adoption of broadband services.

In concluding this section, the study maintains that it is critical for the South African government, industry experts, policy experts and operators to note that access in the broadband ecosystem context has evolved from being a mere supply of access to networks and services. It has significantly shifted away from the models used by old fixed line telephones, into a model that highly consider the holistic approach to broadband implementation. Nevertheless, the findings show that this holistic approach was neglected by the policy and disregarded by the industry experts.

The implication of this negligence is that the roll-out takes a push and linear approach instead of an all-inclusive holistic and multi-layered approach that

consider all components of broadband ecosystem. The result of this becomes technology dumping or lack of adoption of broadband services by the end users and this subsequently widens the digital divide. An example is the wholesale open access network case study in Rwanda where the uptake of broadband services was poor because of high broadband prices. As the findings have shown, at the helm of discussions and debates around setting WOAN prices in Rwanda was the commercial sector.

The profit driven commercial sector over-priced the services of broadband beyond the reach of the poor Rwandan communities. This study maintains that if South Africa is to foster broadband adoption and bridge the digital divide, it would have to move beyond their traditional “push” role of focusing only on infrastructure penetration and access to the broadband ecosystem approach, particularly in the most neglected rural communities.

The following section looks at the second objective of this study which examined the role of the Independent Broadcasting Authority of South Africa (ICASA) in accelerating the penetration of broadband in rural South Africa. The three themes discussed under this objective include market structure, spectrum and wholesale access networks. In order to address this objective, the study had to look at the configurations of the South African telecommunication sector both in the mobile and fixed line markets. It is important to note that from the two themes, market structure and spectrum, other themes also emerged and were also discussed and analysed below.

SECTION 2

7.2 Objective two: The role of ICASA in accelerating broadband penetration in rural South Africa.

7.2.1 Market Structure

7.2.1.1 Mobile market

As highlighted in Chapter 5, SA Connect recognises that the telecommunication sector in South Africa has not been restructured to appositely serve the needs of rural communities (DoC, 2013). There have been relentless contentions within the public domain that the South African telecommunication sector was dominated by few incumbent operators; namely, Vodacom and MTN in the mobile market, and Telkom in the fixed line market.

To question the veracity of these suppositions, the study interrogated the market configurations in line with role of ICASA in accelerating broadband penetration in rural South Africa (objective 2 of this study). It would have been impossible to interrogate the role of ICASA without analysing how the telecommunication markets in South Africa were configured. It was critical for the study to analyse these configurations so as to determine the role ICASA has been playing in regulating the market players towards digital divide inclusivity.

The findings confirm that monopoly of incumbent operators such as Telkom, Vodacom and MTN has hindered fair competition in the sector. Chapter 4 of this study expounded more on the Telkom monopoly and domination of the sector between 1996- 2005. The study established that Telkom's domination slightly changed when the two operators, Vodacom and MTN, were licensed. Since the licensing of the two operators, there has been a noticeable progress and growth in the penetration of mobile broadband in South Africa. It is, however, important to note that this growth and successes of penetration and is highly concentrated in urban areas. The licencing of the

two operators in the early 90s meant that they gained traction and more competitive advantage in the mobile market which has been equated to more than 80% approximately (Telkom, 2018; McLeod 2018). However, there has been a persistent chorus of disapproval from some industry experts such as Cell- C and Telkom to limit the unfathomable hooks of the domination of the mobile market by Vodacom and MTN (Cell- C, 2016; Telkom, 2018).

Despite SA Connect's (2013) call to rearrange the telecommunication market and accommodate new entrants, it transpired that pragmatically nothing has changed. It transpired that the mobile broadband market, which mainly trades in data, is still slanted towards benefiting MTN and Vodacom. This continues to give the two operators an advantage over small and new entrants, thus perpetually depriving poor communities the right to access to information through the internet. Subsequently, instead of arresting the digital divide, it widens even further and those who bear the brunt are communities in the outskirts.

Furthermore, it appeared that the South African telecommunication mobile sector bears traits of oligopolistic market. This is to say that the market is dominated by a few operators selling identical products and services and has significant barriers to entry (Investopedia, 2017). As highlight in Chapter 5, oligopoly refers to a market structure in which a small number of firms have the large majority of market share. It is slightly akin to a monopolistic market, except that rather than one firm, two or more firms dominate the market. In this context, the dominance is by Vodacom and MTN who own more than 80% of the market share (Telkom, 2018). Participants in these types of markets implicitly engage and collude in price fixing known as cartel. This is to say, firms (operators in this instance) combine with the purpose of maintaining prices at a high level, subsequently, restricting competition.

In the context of the South African mobile market, findings showed that lack of price transparency persisted, thus making it difficult for consumers to know what the actual prices of services were. These include the high

costs of data communication. This continues to happen despite concerns that were raised by activists, civil society groups and some entrepreneurs, nothing has changed. The South African Broadband policy states that to bridge the digital divide successfully will require a strong Regulator which is able to tighten regulatory screws and lessen barriers of entry for small and new operators (DoC, 2013). However, it has been shown that ICASA has not been able to e competently discharge its regulatory mandate.

To aggravate matters even more, there has been the deliberate exclusion of the small and new operators in the market. In Chapter one (1), it was highlighted that by 2016 population statistics approximated that 19 million or 42% of the population in South Africa is based in the rural areas and 70% of these are classified as poor (Stats SA, 2016). Most of these communities are unemployed and cannot afford high priced services and products offered by MTN and Vodacom.

The domineering of the market by MTN and Vodacom has been drooled excessively in many debates, in symposiums, conferences and parliamentary submissions, among others. However, up to this day, nothing has changed. Previous policies have also tried to liberalise the South African telecommunication market as noted in Chapter 5, but such efforts have been fruitless. What was disheartening was that despite all this hostile and anti-competitive behaviour portrayed by the Vodacom and MTN, ICASA was doing very little in addressing these market inequalities (Parliament TV, Channel 408, 2016). This hostile and anti-competitive behaviour and high prices imply that consumers have no other choice of services and products, but are instead tied to Vodacom and MTN's ridiculous broadband prices. Subsequently they are perpetually driven into the digital oblivion.

7.2.1.2 Fixed line markets

Within the fix line market, findings have shown that there have been slight improvements. However, these improvements seem only to benefit the urban based population and are not of significant importance for this study. The

domination of Telkom has been extensively elaborated in Chapter 4 of this study. It transpired that Neotel, which was supposed to be the second national operator and competitor of Telkom, was introduced in 2004. It transpired that the operator could not challenge Telkom's market-share power, let alone to minimise it. However, it contributed minimally and was later sold and renamed Liquid Telecom.

Thus far, Liquid Telecom has successfully rolled out fibre infrastructure across Southern Africa and Africa (McLeod, 2018). The expectation was that Liquid would gain traction in the market and put more pressure on Telkom to bring prices down. However, these remained expectations. Data prices continue to remain high and unaffordable with the poor mostly bearing the severe brunt of digital exclusion.

Vumatel was another operator which brought some competition for Telkom in the fixed line market. It provides fibre to-the-home (FTTH) services in Johannesburg and Cape Town suburbs. It brought some level of competition to Telkom, albeit it is only in the urban areas. Since Vumatel's niche area is the affluent urban areas, it does not serve the purpose of this study. Nevertheless, it was important to note that Telkom was finally having some competition in the fixed line market and somehow was being forced to bring prices down.

The evidence drawn from these findings shows that it is conspicuously clear that there is a strong contestation for broadband market and fierce competition for consumers in both the mobile and fixed line markets, albeit in the urban areas. These contestations for consumers in urban areas have subsequently caused spectrum crunch in these areas (MTN, 2016). At the surface, these market contestations seem to be genuine and worth the compliment in terms of providing various options for the end-users (consumers). However, the outcomes of these contestations mainly benefit the remunerated urban based population as they can afford devices and monthly data contracts. Consequently, this continues to entrench the rural-urban divisions and perpetuate the digital divide.

Furthermore, it transpired that the inability of ICASA to regulate competently, the lack of transparent pricing of broadband services and products, in particular data costs, and the exclusion of small operators, were found to be hindering fair competition and perpetuating the digital exclusion. Data prices have been escalated without proper market related benchmarks. At the time of completing this dissertation in March 2018, ICASA had not been able to set these benchmarks. The result is that data remain constantly high, affordability becomes a challenge; consequently, poor communities (mainly found in rural) cannot access internet and are subsequently excluded from the digital economy. This further perpetuates and widens the digital divide further, thus affirming the tenets of Knowledge Gap Hypothesis which submit that the more information is circulated through the new conduits of information technology, the more communities from low economic stratum are left out from the information society and participation in the digital economy (Donohue *et al.*, 1970). This affirms the expression that says the more things change, the more they remain the same (Guepe, 1849).

Drawing from the findings, it is clear that in the regulatory context, the transformation of the South African telecommunication sector has been moving at a very lacklustre pace. Perhaps, the critical question, one may ask is, in the absence of a strong Regulator as it has been evidenced, what other means could be explored to fasten the operators' commitment to programmes of digital inclusivity. This question will be expanded a little in the debates surrounding the two themes discussed below, namely, spectrum impasse and whole open access network debates. These themes still find resonance with the second objective; that is, the role of ICASA in accelerating broadband penetration in rural South Africa.

7. 2.3 Spectrum Impasse and WOAN debates

In 6.1.1 above, it transpired how lack of proper policy coordination, dissensions and differences on how spectrum should be allocated and the failure of the country to migrate from analogue to digital broadcasting have

delayed the implementation of SA Connect. Subsequently, it was found that this continues to subject rural communities to digital oblivion.

SA Connect notes that spectrum log jam is a grave impediment to digital inclusion. It identified delays in the allocation of high demand spectrum as a problem that must be given a speedy attention (DoC, 2013). The evidence drawn from the findings showed that initially the policy assigned these responsibilities to accelerate the policy directives of issuing a high demand spectrum to the Department of Communication in 2013 (DoC, 2013). However, these responsibilities were later transferred to the Department of Telecommunication and Postal Services in 2014. The issuing of high demand spectrum find apposite resonance with the efficient use of wholesale open access network (WOAN) and fair competition, hence these two themes were addressed under one heading.

While the policy directives were to be given by DoC, the Independent Communication Authority of South Africa (ICASA) was to implement these directives. The evidence drawn from the findings showed that SA Connect views spectrum as an important commodity in bridging the digital divide; however, the modalities of how the same (that is, spectrum) would be allocated were not explicitly stated in the policy itself. Instead, such provisions were later to be incorporated in the ICT White Paper which was not approved at the time of the promulgation of the SA Connect in December 2013.

Later when this was announced in the ICT White Paper, it created conflicting views between ICASA and the DPTS. At the centre of these conflicting views was the question of how spectrum should be allocated. ICASA drew from SA Connect's imperatives to rollout broadband in the outskirts areas. The Regulator wanted to speedily auction spectrum using an invitation to apply (ITA) approach to operators which is a normal path by international standards. Conversely, the DPTS felt that the auctioning of spectrum should be held back until the White Paper has been proclaimed as

an Act. This subsequently, ended in the back- and forth court battles and delays in the implementation of SA Connect.

Nevertheless, the findings confirm that ICASA auctioned spectrum and allowed mobile operators to bid for the same between October 2016 and November of 2016. Interested companies applied for spectrum within the 700MHz, 800MHz and 2,600MHz bands (Mochiko, 2016). What was interesting in the findings is that though ICASA swiftly moved to auctioning spectrum within aforesaid bands, such frequencies were still not available for broadband usage and digital inclusion. The bands were still occupied by the South African Broadcasting Corporation and E.tv. In other words, even if the auctioning process could have been successful, this would have been a much ado about nothing exercises as the bands were still occupied by the said broadcasters. This then insinuates that the implementation of SA Connect is delayed and the digital divide continues to expand even more.

The quandary around South Africa's failure to migrate from analogue to digital continues to surface in various facets and has been detrimental to broadband connectivity in rural South Africa. Nevertheless, the study noted some anomalies in ICASA's rush to auction spectrum. It was perplexing to see the Regulator precipitating to auction the spectrum in the name of expediting broadband roll-out, whilst the country has not completed the fissure of digital migration.

The internal divergent views on what the government's policy on the release of spectrum should be, versus what ICASA thought it should be, aggravated matters even worse. At the heart of these heated discussions were two like chalk and cheese approaches to the allocation of spectrum. As highlighted earlier, the policy process run by the DTPs under Minister Cwele, sought to allocate spectrum in line with the provisions found in ICT White Paper. The Paper proposed wholesale open-access network in which high-value spectrum would be sold to private consortiums (rather than individual companies like Vodacom and MTN), and incorporate all interested players (Paton, 2016). This is a total different approach which ICASA undertook.

Within the purview of the government is a market that is open to competition and able to facilitate acceptance of new entrants, while still commanding the financial resources of bigger players to develop the infrastructure. In contrary to the notion of open access and fair competition as espoused by SA Connect, ICASA's model sought to package spectrum into lots of varying desirability and auctioned to the players with the deepest pockets, thus in essence reinforcing a "oligopolistic", high-price industry. It was blatantly explicit that ICASA's swift move to auction spectrum, sought to entrench the domination of MTN and Vodacom as opposed to allowing open market.

These court battles culminated in the government proposing an Electronic Communication Bill in November 2018. The bill sought to address the address the spectrum logjam and expedite the process the allocation of thereof. The findings confirmed that about forty three (43) written submissions and 33 presentations were made to the Department of Post and Telecommunication (DTPS, 2018).

These divergent views were further engrained in these submissions. Telkom agreed with the path proposed by the government in the allocation of spectrum. ICASA on the other side supported the view of Vodacom, MTN, Liquid Telecom, Research ICT Africa and some organisations which held a different perspective. The findings showed these industry experts and other operators such as MTN, Vodacom and Liquid Telecom, among others, believe that instead of creating monopoly WOAN, the government should rather allow for a competitive WOAN (ICT Africa, 2018; Vodacom, 2018; MTN, 2018; McLeod, 2018; ICASA, 2018; Liquid Telecom, 2018).

These has subsequently divided the industry into two poles/factions of those who support monopoly WOAN (government's approach) and those who support the hybrid model which supports the spectrum auctioning path taken by ICASA. Within those advocating for this competitive WOAN were Vodacom and MTN who would benefit immensely if the auction path termed the invitation to apply (ITA) was to be taken.

The study established that this dissonance between the DTPS, ICASA and some operators has had negative ramifications in bridging the digital divide in rural areas South Africa. For MTN, “the creation of monopoly WOAN is basically a terrible idea that flies in the face of what the NDP says and what the government wants to achieve” (Gilbert, 2018). The operator argues that the country should stick to a hybrid model. This is to say create a WOAN, and the spectrum that remains after you have allocated to the WOAN should be auctioned. Substantiating MTN’s position, ICASA opined that though the spectrum in mobile market constitutes a bottleneck as per the ICT White Paper submissions, WOAN would not be the appropriate vehicle to address the Minister’s oligopolistic concerns (ICASA, 2018). For ICASA, the minister’s concerns that WOAN will encourage service based competition in a way that the current oligopoly does not is an erroneous belief and contradicts some objects of ECA which include the promotion of competition (ibid).

The findings further confirmed that industry experts were in one accord with the operators as they maintained that the approach advocated that Vodacom and MTN resonate well with the mantras of bridging the digital divide. Their arguments were that the government should auction spectrum (competitive) WOAN) to big operators who in return should make commitment to reduce data. What was disturbing in these debates has been the notable absence of the voice of the civil society, which mainly should represent the voice of the subaltern publics such as communities in the outskirt areas. Liquid Telecom (2018) noted that organisations that made submissions to the DTPS about the current spectrum allocation debates (WOAN) were carefully selected by the department to comment on the proposed ECA BILL. This is an approach that is contrary to what the canons of public participation and Freirean propositions of dialogue propagate as highlighted in Chapter 3. In its submissions, Liquid Telecom requested the government to consult broadly and allow ordinary members of the society to be part of the discussions around WOAN.

This is not to cast aspersions, but it looks like the selective attention approach by the DTPS could have unintended consequences, subsequently rendering the government's digital inclusion efforts ineffective. This study maintains that in order to solve the spectrum impasse and find a lasting solution to the WOAN debates, proportional representation is inevitable. Development issues like allocation of spectrum, is not a territory of the elites only. The government, industry experts and operators should not take a posture that insinuates that the contribution of the beneficiaries of policy and the civil society at large is not important as it appears to be the case. The consequence of this is that the divide between the rural and urban areas will continue to expand as the beneficiaries' needs are miscomprehended by the markets and the so called industry experts.

The study argues that if the digital divide is to be successfully bridged, the civil society movements who genuinely represent the views of the subaltern publics (rural communities) ought to decisively partake in the digital inclusion debates. Literature has shown that the Dominican Republic government included the local knowledge at the conception stage of its broadband policy. The government consulted with all related stakeholders, raised awareness on the socio-economic benefits of broadband and capacitated rural end users and entrepreneurs with digital literacy skills, among others.

Freire (1969) argues that when transforming the world, human existence cannot be silent, nor can it be nourished by false words. In contrary, he contends that human beings are built in word (dialogue), in work and in action-reflection (praxis), not in silence. Thus to say the true word, which is work and praxis, is to transform the world, and saying that word is not the privilege of some few persons, but the right of everyone (Freire, 1969). The position advocated by Freire (1969) finds apposite resonance with the Latin expression that says "*Nihil dine nobis, sine nobis*" which means "*nothings about us without us*".

Finally, these policy inter-play and debates around WOAN give some perspective on the type of bottlenecks and barriers facing the implementation of SA Connect and confirm how these demystifies the reasons behind perpetual digital exclusion. Subsequently, it has had adverse ramifications on the implementation of SA Connect. Finally, it transpired that the lack of proper policy coordination from the side of government, administrative and litigations quagmires have slowed down the roll-out of broadband in rural South Africa. These battles have subsequently, amplified the exclusion of rural communities from the information society and the digital economy, further perpetuating the digital divide. As the old adage goes, when two elephants fight, it is the grass that suffers most.

The following section discusses the operators' perspectives on factors that escalate costs of broadband devices and the challenges that are faced in the rolling out of broadband in the outskirts areas.

7.2.4 Reasons behind high costs of communication

The discussions below speak to the first two objectives of this study; namely, the factors that prevent the implementation and adoption of broadband in rural areas and the role of ICASA in accelerating broadband penetration in rural South Africa.

The study established that the factors that lead to the precarious relationship between the operators and traditional leaders as well as high costs of setting up broadband stations, preclude broadband penetration in rural areas. Firstly, operators were not in agreement with the traditional leaders (custodians of rural land) in setting-up of broadband base stations in these areas. Secondly, the costs of setting up base stations in rural areas were too high. Thirdly, broadband devices were priced at international costs and this fuelled the escalation of communication costs. Subsequently, operators escalated the costs to recoup these costs. To aggravate matters even more, at the time of concluding this dissertation, ICASA did not have

data pricing regulatory framework. The Regulator was still seeking guidance from the South African Development Community's (SADC) regulations framework (My-Broadband, 2017). Conversely, data prices continued to escalate.

Furthermore, Vodacom, MTN and Cell-C blamed ICASA and government's lethargic pace in auctioning the 700 MHz-800 MHz spectrums. These operators lamented that the explosion of data traffic has caused spectrum crunch which then forces them to significantly invest capital in setting-up broadband base stations. For these operators, the failure to accelerate the allocation of spectrum by the state and other factors mentioned above play a critical role in escalating the costs of communication in South Africa. They subsequently petitioned for the immediate release of spectrum which will then assuage the deepening digital divide.

Cell C further questioned ICASA's regulatory prowess. The findings confirmed that Vodacom and MTN own about 80% share of the market (McLeod, 2018, & Telkom, 2018). Subsequently, as a result of lack of market power, Cell-C claimed that it was difficult to reduce the high costs of communication. To aggravate matters even worse, there has been persistent lack of price transparency in South Africa's mobile market. Subsequently, this made it difficult for the ordinary consumer (end users) to know what actual data prices ought to be. This exactly affirms the assertion made earlier in Chapter 5 that the South African mobile market bears oligopolistic traits (characterized by price collusion practices). It is important to note that this study does not insinuate that there is price collusion in the SA mobile market; however, the lack of price transparency and the submissions made by Cell-C may justify these suspicions.

The oligopolistic traits noted in market, dissonance around spectrum allocation path (WOAN); disharmony between operators and traditional leaders in setting broadband base stations, high cost of broadband devices, poor and incompetent regulator, absence of proper coordination and policy monitoring delay the implementation of SA Connect. These push and pull

factors do not only prevent broadband penetration in rural areas, but they relentlessly continue to amplify the digital divide.

The following section interrogates the third objective of this study; namely, the role of the Department of Telecommunication and Postal Services (DTPS) in accelerating the adoption and use of broadband services in rural South Africa. Community access centres and digital literacy were two themes analysed under this objective.

SECTION 3

7.3 Objective three: The role of DTPS in accelerating the adoption and use of broadband services in rural South Africa.

7.3.1. Community access centres and Digital literacy Programmes

The third objective of this study sought to determine how the government sought to accelerate the adoption and use of broadband services in rural South Africa. To address this objective, the study had to look at what the policy said or how it perceived the role of community access centres. As evidenced in the literature review and in extensive scholarly work of Gurstein (Chapter 3, Literature review), these centres play a critical role in the adoption and use of ICT and broadband services in developing countries, to be precise in rural areas. The alliance for Affordable Internet (2017) defines public access centres or community access centres as localised ICT hubs. They are a wide range of approaches to provide access to the internet in spaces that are open to the public or the community. In essence, these facilities offer educational programmes like digital skills training which in turn may promote local content development and can stimulate great demand for online services (ibid).

The following section provides discussions and analyses about the position of SA Connect, the views of Department of Post and Telecommunication as well the perspective of industry experts about public access centres and their role in bridging the digital divide.

The study established that SA Connect recognises the role played by public access centres in rural digital inclusion and renamed the same Points of Presence, abbreviated as PoPs (DoC, 2013). The policy perceives PoPs as the ideal model to bridge the digital divide.

As highlighted in Chapter 4, this shared access model has the ability to narrow the “digital divide” in remote, rural and otherwise disadvantaged communities if well implemented. Normatively, the beneficiaries of public access centres are mainly rural communities in developing countries. If coordinated appropriately and implemented with proper consultation with the local communities and traditional leaders, these centres can play a critical role in incorporating rural areas into the digital economy by providing access to a plethora of critical online services. These include the provision of critical digital literacy programmes which have the capacity to expedite adoption of broadband services in rural areas.

The study established that despite notable benefits that public/community access centres have, SA Connect, the DTPS through its spokesperson and some industry experts lightly esteem the significance of these centres. For instance, the findings confirmed that SA Connect only mentioned these centres twice in the entire document; that is, as community access centres in page six of the policy document and points of presence in page eleven (DoC 2013). The government spokesperson, Qoza (2018) argued that since the advent of Thusong telecentres, technology has evolved and it is critical to rollout Wi-Fi in rural areas and not necessarily the Points of Presence (community access centres). Rather, the focus of the government has been on connecting schools with the help of SGBs in various schools who seemed to be involved at the roll-out phases. It transpired that the rationale behind involving SGBs was to inculcate sense of ownership of the infrastructure to avoid vandalism of the same by members of the communities. Furthermore, the study established that despite its appalling performance in bridging the digital divide through telecentres, USASSA (as SOE) aimed to incubate these infrastructures and later cede the same into the unavailable Broadband

Provincial steering committees. The truth is that the only vibrant Provincial broadband led initiatives were in Gauteng and the Western Cape.

In the rural areas of North West, Limpopo and Eastern Cape, no progress was made in connecting these areas (SA Connect Progress Report, 2017). The study further established that no progress was made in rural Provinces such as Limpopo, North West and Eastern Cape. These are the very Provinces which have been suffering from digital exclusion.

The government and industry experts argue that Smartphones and Tablets are more ideal means to bridge the digital divide in the 21st century than community access centres. They further substantiated their position by making reference to the failures of Thusong telecentres (Refer to Chapter 4, Literature). While the study does not demur their assertions, it argues that it is unrealistic to hierarchize the use of Smartphones and Tablets in the context of poor rural communities.

It appears that industry experts and the government have been deceived by the Tshwane Wi-Fi successes. Perhaps what is important to note but neglected by the industry experts and the government is that, Wi-Fi requires broadband devices that are compatible to read Wi-Fi signals. These devices include expensive Smartphones and Tablets. It is improbable for poor rural communities who survive by government grants to afford these expensive devices. This is where the question of affordable access riddle lies. The study observed that the industry experts and the government spokesperson chose to disregard the socio-economic realities of rural communities in South Africa. Objective four of this study will explain how dreadful income inequalities in South Africa continue to exclude communities of low economic stratum from the digital environments.

The study noted that operators have been escalating data costs and broadband devices (Smartphones and Tablets) in an attempt to recoup shipping costs of these devices. ICASA, on the other side, does not have data prices regulatory framework to set price-benchmarks for operators. The

study maintain that the submissions made by Qoza (2018), De Laneroll (2016) and McLeod (2018) of disregarding community access centres as the model of rural digital inclusivity, is a direct contradiction of the aspirations of universal access to broadband service.

It is essential to note that when this study talks about access to broadband internet services, it is not referring to a mere sending and receiving of messages via emails Messenger or even WhatsApp. In the contrary, it is looking at how rural communities may access and share enormous portion of information in public access centres using laptops and/or PCs. These include using the centres for teaching and learning, not only during school hours but over the weekends and during school holidays to do assignments and consolidate research projects. It further refers to empowering emerging entrepreneurs, non-governmental organisations and civil society activists how to use these public access centres as empowerment tools to do business with the global world. This will subsequently lead to citizens becoming a digital literate society and full-partakers of the most talked about *Fourth Industrial Revolution*.

The use of Smartphones and Tablets as a viable option for rural inclusivity than community access centres is impractical in the South African rural context. Literature Review (Chapter 4) noted Thusong telecentres lacked sound financial operation plan. They relied solely on the generation of income by the centres themselves to cover their operational expenses. As highlighted in Literature Review, this model proved to be problematic because the centres were established within the communities of low economic stratum. To aggravate matters even further, despite their costly roll-out, it was not clear as to who between the GCIS and the local municipalities was responsible and owned the total operation of these centres. Roles were not appositely and explicitly defined as to who should administer these centres between the GCIS and the local municipalities. It is on these grounds that the researcher maintains that, it was not the

community access centre model that failed, but it was the government that failed to provide a sustainable operational plan for these telecentres.

De Laneroll (2016) accurately clarified that the past telecentres lacked good governance and were starved of both operational resources and internet service providers (ISPs). He further correctly notes that because telecentres were operating within the jurisdiction of traditional authorities and partly on local government (municipalities) turfs, there was a disconnection between the two as well as the Provincial government. This subsequently led to lack of sustainability of these telecentres. A point the researcher noted in his Masters project that although the previous telecentres, now points of presence, are ideal tools to bridge the digital divide, there has been a massive lack of coordination and harmony between the local municipalities and the traditional leaders regarding jurisdictional authorities in the rural areas. Subsequently, this has created a challenge in the delivery of critical ICT and broadband services in these areas. This is to say, if the community access centres are to succeed, the challenges of Thusong telecentres should be used as a case to be studied to address the afore-said shortcomings and thus avoid recurrence of previous challenges.

What is worth highlighting in the findings is that neither the government nor the industry experts were interested or willing to commit to the rolling out of Points of Presence. To them, Public Wi-Fi; the use of Smartphones and Tablets are appropriate means to achieve inclusion of rural communities in the digital economy. It appeared that there was a deliberate push from the state, the market and industry players to drum-up a narrative that says; rural communities can afford the expensive Tablets and Smartphones. This erroneous narrative has been pushed as a solution to rural digital inclusion despite the high costs of Wi-Fi devices and unsavoury socio-economic conditions of rural communities.

The Knowledge Gap Hypothesis argues that these deep seated economic inequalities cause and amplify the rural digital exclusion (Tichenor *et al.*, 1970). Literature further noted that digital exclusions was caused by lack of

digital literacy skills, wide distances between these ICT hubs and the supposedly beneficiaries as well as lack of advocacy of these centres, among others. Thus what seemed to be lacking on the side of experts and implementers of rural broadband programmes and projects, was their failure and "deliberate ignorance" to ascertain the real challenges of rural communities. These include the failure or ignorance to study their cognitive abilities and skills.

It has been the position of this study from the inception that the availability of ICT and broadband infrastructure does not necessarily translate into accessibility, particularly in rural areas. It is historically known that the poor socio-economic conditions of rural communities have been a barrier to the adoption of broadband and ICT services. Literature has shown that it is this unwholesome socio-economic condition that frustrates and excludes communities of low economic status. A case study in Rwanda confirmed that communities in rural areas could not adopt broadband services due to the pricey devices and services despite high penetration percentage (Refer to Literature in Chapter 4). Therefore, the DTPS, industry experts and the markets' approach to push for acceptance of Smartphones and Tablets continues to defeat the aspirations of digital inclusivity. This study maintains that the rural community's socio-economic standard should be understood comprehensively before rolling out these kinds of infrastructure.

Perhaps South Africa may learn one or two lessons from the case studies captured in the Literature review. Notable successes stories of broadband inclusivity initiatives by the communities' access centres and broadband have been captured in rural America and rural Australia. Communities invested on their own initiatives to bridge the digital divide. They did not wait for the intervention from the government nor the operators to connect their respective areas; rather, they took ownership of their development challenges and connected their own spaces. This approach is located within the tenets of Community Informatics and hierarchizes the critical role played by communities in bridging the digital divide.

The study further established that the industry expert and the DTPS felt that it was not the prerogative of the government to roll-out digital literacy programmes policies (De Laneroll, 2016; McLeod, 2018; DTPS, 2018). For them, to bridge the digital divide, rather people should learn from each other under “each -one -teaches one” approach to embarking on a massive broadband roll-out scale.

The findings established that industry experts and the government maintained that digital literacy programmes should not be the prerogative of government. They further held that access to ICT infrastructure should precede usage. This is the same erroneous approach that many information society proponents and neoliberals have been encouraging in bridging the digital divide without success. Like many paternalistic technocrats, the findings confirmed that emphasis has been more on infrastructure availability and less on the human capabilities and training (digital literacy programmes).

The following section assesses the fourth and last objective of this study. It assesses the extent to which rural communities profit from the socio-economic benefits of broadband.

SECTION 4

7.4 Objective 4: To what extent will rural communities in South Africa benefit from the roll-out of broadband infrastructure in their areas?

7.4.1 Income inequality: barrier to broadband adoption in rural South Africa

The fourth objective of this study sought to find out the extent at which rural communities would benefit from the roll-out of broadband infrastructure in their areas. This study established that despite factors mentioned above, the high levels of income inequalities in South Africa have been a barrier to broadband adoption in rural areas. It transpired that over 60% of the population lives on less than half of South Africa’s Gini

coefficient” (Makwakwa, 2016). While these inequalities have not been addressed, operators have relentlessly continued to escalate broadband internet and communication services, subsequently making it difficult for rural communities to benefit broadband services. What was critical to note was that arresting the digital divide does not only require focus on the rolling out of infrastructure dumping as it appeared to be the position held by the government and industry experts. In the contrary, it requires research that would be able to breakdown down population by income levels. As Makwakwa (2016) posited, the breakdown will ensure that a true picture of these inequalities are well clarified. These views find apposite resonance with the Knowledge Gap Hypothesis (1970) theory which maintains that because of failure to understand these inequalities, mainly communities in the lower level of the economic stratum suffer digital exclusion.

This is further aggravated when the policy makers, the government, industry experts and operators, as it is the case in South Africa, fail to comprehend that these income inequalities are barriers to digital inclusion. Furthermore, ICASA’s failure to set price benchmarks means operators have the latitude to clandestinely inflate both data and device prices, further denying rural communities access to broadband services.

A4AI, rightly so, critiqued the views of the operators, the government and industry experts who insinuated that everybody can afford the exorbitantly high broadband devices. It has been the position of this study that rural communities suffer exclusion because of this one sided and top-down approach to digital divide problems. This study concurs with the views of Makwakwa and Mann (2016) that we should not be fooled by the top-line averages targets which tell us that internet is affordable for rural communities. The reality on the ground which is augmented by the public outcry, tells a different story. As highlighted above, the stats that romanticise the high penetration of broadband in South Africa is concentrated in the urban areas, rural areas continue to suffer exclusion.

This confirms Gibson's quote that: "the future is already here; it's just not very evenly distributed yet" (Gibson, 4th December, 2003).

The researcher argues that the views and perspectives of industry experts, operators, ICASA and government about how to arrest the digital divide should not be taken as a cut and dry conclusion. This is not to cast aspersions, but the perspectives of the aforesaid stakeholders should not be taken as the final perspective of the digital divide conundrum. Taking this posture does not only stifle and preclude the participation of the supposedly beneficiaries of broadband services, but it also widens the digital divide because the phenomenon takes a one sided view and explanation. It mainly favours the interests of the commercial sector. If indeed South Africa is to have digital divide policies that speak to the realities of the people on the ground, a fair and balanced reporting about the challenges of the digital divide must be espoused.

As it stands, the posture taken by the government and industry experts indicates that rural communities are not enjoying the socio-economic benefits of broadband. Smartphones and Tablets as well as data prices are too high and to insinuate that digital divide can be bridged by encouraging the purchasing of these costly devices. This approach is delusional approach. As highlighted above, a case study in Rwanda could be used as an example that this push approach has failed (Refer to Literature in Chapter 2).

The researcher maintains that, addressing problems of digital divide should inculcate a bottom-up approach which clearly calls for a genuine analysis of the socio-economic standard of the beneficiaries of services. These include extensive consultation and dialogue around critical issues such as the use of traditional land. Hajer and Wagenaar (2003) as well as Feldman and Khadmanian (2004) public policy analysts, have called for discursive and participatory models of different kinds to be used in complex policy arenas such as broadband. Among the techniques that these policy analysts have suggested, is to bring the contribution of the citizens back in policy

discussion space, which include: focus groups, citizen juries, community advisory boards, consensus conferences, adaptive management, inclusive management, and participatory integrated assessment. For these analysts, these strategies and approaches tend to devise innovative policy designs that experts alone would not have developed (Innes & Booher, 2003; Healey *et al.* 2003). They also bring the citizenship of political participation and civic engagement together by providing institutional arenas where citizenship can flourish.

Perhaps operators should have taken the afore-mentioned discursive model to engage with the traditional leaders about setting broadband stations in rural areas. It is not the prerogative of the traditional leaders to teach giant entities like Vodacom and MTN these basics, thus for operators to raise the dissonance as reasons behind their failure to connect rural areas sounds more lame to say the least. The study further believes that the voice of the civil society is a missing link in digital divide debates. For many years this phenomenon has been left in the hands of few “elites” and the market. These include ICASA, operators and some industry experts. The debates around arresting the digital divide have been going round in circles, subsequently reaching the narcotising effect or better still reaching the level of entropy.

In conclusion, the study maintains that the civil society should monitor ICASA to ensure that it regulates in the interest of the public. As it stands, it appears that ICASA is “sleeping in the same bed” with operators. Further, poor communities should not be punished for the shortcomings of incompetent state institutions like USAASA and ICASA. Better still, rural and poor communities should not bear the brunt of the state’s failures; for example, failure to migrate from analogue to digital on time, and failure to have a sustainable operational plan for Thusong telecentres. These state failures should not be used as an excuse to either escalate data prices or undermine the importance of community access centres. It is further critical to note that it is the position of this study that internet access should not be perceived as a privilege, but it should be seen by the government as a basic

human right like all other exigencies of human life such as water, housing and electricity, among others.

Chapter summary

Chapter 7 interpreted and analysed the findings of this research as presented in chapter 6. It put the findings presented above and their implications on digital divide in rural South Africa in perspective. The chapter is divided into four sections.

Section 1 explained the first objective of this study by highlighting the difficulties around the conceptualisation of apposite policies that could accurately diagnose the problems of rural and urban digital divide in South Africa.

Section 2 discussed and analysed the research findings in line with the second objective of this study. It discussed how the country's un-reformed telecommunication sector, ICASA's inadequacies and the spectrum impasse have affected the acceleration of broadband roll-out in rural South Africa. It further provided brief discussions around the hotly debated wholesale open access network by highlighting contrasting views of mobile operators, industry experts and the DTPS.

Section 3 discussed and interpreted the findings in line with the two selected themes; namely, community access centres and digital literacy programmes. It provides SA Connect's position, the DTPS perspective as well the views of industry experts regarding the above-mentioned themes.

Section 4 zoomed into objective 4 of this study and explained why income inequality continued to be a barrier to broadband adoption in rural South Africa. It concluded by discussing apposite digital inclusive strategies that South Africa may employ to bridge the digital divide.

CHAPTER 8

CONCLCUSION AND RECCOMMEDATIONS

8.1 Revisiting the Aim and Objectives of the Study

It is imperative that before concluding this research, we revisit the study's aim(s) and objectives and examine if the information that has been gathered during the investigations indeed addressed the objectives of the study. The preceding chapter analysed and discussed the implications of the findings of this study in relation to digital divide as follows:

1. Section one (1) addressed the first objective of this study which was to examine how the South African broadband policy sought to address problems that prevent the implementation and adoption of broadband in rural South Africa
2. Section two (2) elucidated the implications of the study's findings in line with the second objective which interrogated the role of the ICASA in accelerating the penetration of broadband in rural South Africa.
3. Section three (3) expounded on the third objective of the study which was to examine the role of the Department of Telecommunication and Postal services in the adoption and use broadband services in rural South Africa.
4. Section four (4) expanded on the fourth objective of this study which assessed the extent to which rural communities benefited from the roll-out of broadband infrastructure in their areas.

8.2 CONCLUSION

The study identified a plethora of factors which prevent broadband penetration and adoption in rural South Africa. These include, among others, uncoordinated and flawed policy sequence, incessant litigations, unending spectrum allocation debates, unreformed mobile market that bears the traits of oligopolistic market, the state and industry experts' patronising the significance of public access centres, the difficulty in setting

broadband station in rural areas, pricey broadband devices and conflating infrastructural accessibility with usability, as well as South Africa's failure to migrate from analogue to digital on time.

It is evident that access to broadband and ICT services and the ability to use it progressively have become critical in being part of the information society. Nevertheless, neoliberal markets and policy approaches applied in developing countries, South Africa not an exception, seem to have failed to holistically capture the digital divide challenges and what communities in the low economic stratum are grappling with on daily basis.

The study established that the notion of patronising the role of community access centres and digital literacy programmes by the government and industry experts contradicted the very aspirations of digital inclusivity as advocated by the government. Perhaps one critical component that seemed to elude the cognitive abilities of the industry experts and the government is that, a digitally literate society does not only consume information, but it also produces knowledge and content that resonate with what it grapples with. As Alliance for Affordable Internet Access (2017) also noted, community access centres are critical to reach groups that cannot pay for regular internet use. In the absence of these access centres, even if the infrastructure gap was to be bridged and data reduced, it will still be difficult for rural communities to have access to the internet, or better still to handle internet content due to lack of digital literacy skills.

As Galen Pospisil '13 (2013) posit, broadband community networks is the most feasible, functional and workable strategy which state policy makers can plan around when deploying broadband services in rural areas. These policies must be rational and sensible and must be monitored regularly to keep abreast with the ever-evolving ICTs environment. Southwood (2012) observes that developing countries find it easier to make announcements of their policies, but to implement them has been a challenge and the monitoring of the effect and efficiency of these policies also leaves much to

be desired. In the same breadth, Gurstein (2015) noted that digital divide is a nuanced and multi-layered phenomenon that needs to be seen as an ever-evolving and moving object. Gurstein (2015) shares this view with the Alliance for Affordable Internet access (2018) that digital divide recognises the connection between factors such as income, location and age as barriers to internet access. They argue that to arrest the digital gap between urban and rural areas, policy makers should consider addressing how the aforementioned factors could be addressed holistically. Therefore, responses to the digital divide should be seen as a continuous and evolving process than a discreet and once off set of technology installations as the study concludes.

8.3 RECOMMENDATIONS

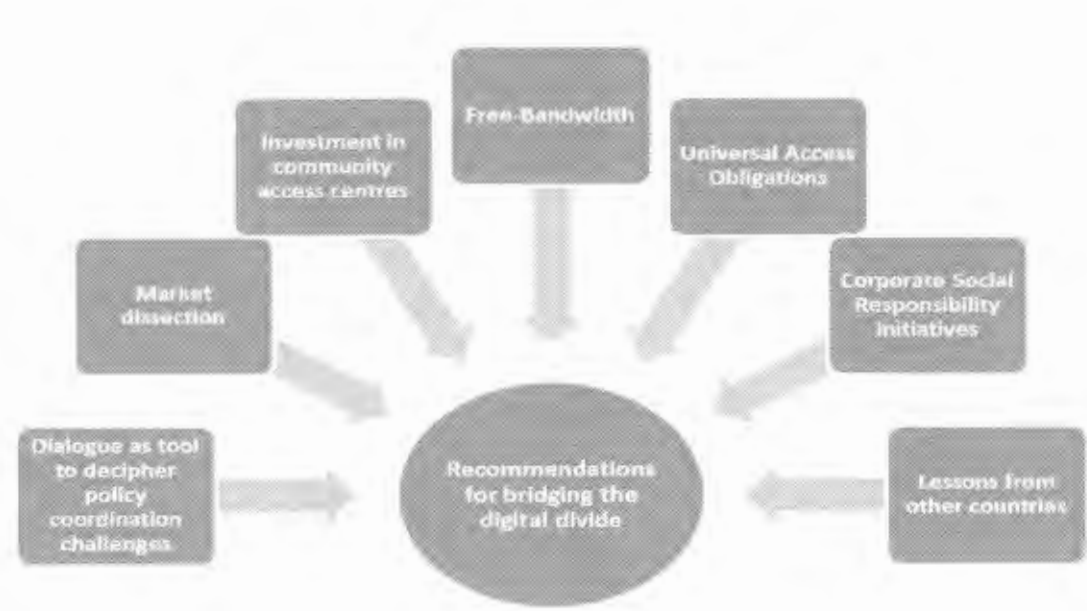


Figure 4. Recommendations for the digital inclusivity of rural communities (Source_ Seadira 2018)

Drawing from the findings of the study, conceptual frameworks and the literature reviewed, the section suggests smart ways which the government may explore to bridge the digital divide. Critical to these is inclusivity in the true sense of the word. The study maintains that if indeed South Africa seeks to achieve a dynamic connected vibrant information society and a

knowledge economy that is more inclusive, dialogue and praxis (continual engagement and reflections) with its citizens is inevitable. It further endorses broadband community initiatives as the ideal model for rural digital inclusion and argues that policy makers and the state should learn some best practices from these initiatives and inculcate the same in their policy conceptualisations. The study therefore recommends that the government and policy makers should consider the following:

1. Communities First: Inclusive Participation in Policy Making

The study recommends that to expedite the implementation of SA Connect in rural South Africa, dialogue should be used as a tool to address and evade problems identified in the first objective; namely, poor policy coordination, prolonged court battles and controversies. The study recommends that policies that seek to bridge the digital divide should not be padlocked in the radar of the elites. The views of the beneficiaries of policy, namely, subaltern publics and previously marginalised should be inculcated throughout the different policy stages using the dialogic mode of communication. Further, as Gillwald (2003/4) noted, to ensure desired outcome, (competition and regulation policies should be encapsulated in one bouquet be seen as complementing each other) policies that promote healthy competition in the telecommunication sector should be combined with strong regulation policies. Dialogue as a problem solving tool resonates well with Gusterin's Community Informatics approach and Freire's (1970) notion of dialogue and praxis. The two further find apposite relevance in the Latin expression: "Nihil dine obis sine nobis", which means nothing about us without us. The approach rejects the paternalistic notion of experts, operators and the state itself, but prefers the inculcation of bottom-up approaches in addressing policy issues and development related problems. This harnesses what Julius Nyerere once said, people cannot be developed but they can only develop themselves.

2. Dissect Market: to regulate the dominance of the incumbent operators

The study recommends that to address the dominance of Vodacom and MTN, the competition grid must be dissected according to the players' resources and their abilities to provide required service. This is to say that small operators and emerging operators should not be put in the same grid/ring to compete with big operators such as MTN and Vodacom who possess more market power than other smaller operators. The study notes that it is irrational to open up a market for competition, when small operators have no market power to compete with big competitors. The study recommends that the grid must be dissected according to the players' resources and their abilities to provide the required service. Policies that protect weak and small operators against the incumbents until they are strong to compete must be crafted. If not, incumbent operators will continue to monopolise the market while the small operators find it difficult to gain traction. Buthelezi (2018:1) once correctly submitted that "commodification of access to internet is an infringement of the poor's constitutional right to access to information".

3. Investing in community access centres

In order to bridge the digital illiteracy, the study recommends that the government should invest resources and budget into community access centres and community broadband networks. Through dialogue and continual praxis, the state and policy makers should consider applying Gurstein's (2005) Community Informatics approach to bridge the digital divide. Further, it is recommended that government should collaborate with the communities and private sector to employ full-time teaching and technical staff at these centres to teach communities skills, to help them organise and transfer information into a productive knowledge.

4. Free-bandwidth through Universal Access Obligations and Corporate Social Responsibility initiatives

Further, the study recommends that to address high costs of communication and exclusion of the rural poor, the government should provide free internet access in community access centres through free Wi-Fi / bandwidth. The same should be maintained by contributions syphoned from Universal Service Funds (USF) or should be negotiated through Corporate Social Responsibility (CSR) with private companies.

The study further recommends that, if operators cannot reduce data costs or ICASA is incapable of setting benchmarks for data prices, Universal service levy charged on operators should be increased. Chapter 3 explains how Malaysia increased the levy on operators and managed to cover the length and breadth of its disenfranchised populations.

South Africa Connect gives weight to the Constitution of South Africa by moulding the ambiances in a modern electronic world “to improve the quality of life of all citizens and free the potential of each person” and, in doing so, enables equality in the rights, privileges and benefits of citizenship, including the guarantees of freedom of expression and association in the Bill of Rights (DoC, 2013). This appositely aligns the policy with the declaration by the Human Rights Council of the United Nations General Assembly that access to the internet is a basic human right which enables individuals to “exercise their right to freedom of opinion and expression” (ibid). This right also opines that states have the responsibility to ensure that internet is broadly available and states may not restrict individual access to the internet. In essence, denying people the right to internet access is synonymous to denying them the right to free speech and freedom of association which contradict the very core values of human rights and freedom of expression.

5. Lessons from other countries

In conclusion, if indeed it is the will of the government to arrest the digital divide, perhaps South Africa may firstly learn some lessons from the aggressive Korean regulatory policy reform approach and apply the same in its context. As noted in the Literature, Korea's sturdy commitment to digital economy prompted vigorous liberalisation policy reforms in its telecommunications market (Simpson, 2013). It looks like the kind of aggression and commitment to policy reform as projected by Korea, has been lacking in South Africa, to say the least.

Secondly, whilst there is no one size fits all in policy formulation and implementation, South Africa may use case studies such as South Korea, Malaysia and Dominican Republic among others, as salient trajectory towards digital inclusion; particularly on forcing operators to contribute six percent of their total net revenue to Universal Service Obligations.

Thirdly, the Rwandan experience that broadband penetration does not necessarily result into broadband adoption; provides a good learning trajectory from which South Africa may draw some lessons. The study noted that despite extensive coverage that Rwanda made in terms of penetration, the uptake of the services appeared to be slow due to high costs of services and lack of end user digital literacy skills. The Rwandan case study highlighted that the negotiations and pricing of wholesale services in that country were decided by the market /commercial sector. Subsequently, services were priced outside the reach of the poor communities in Rwanda. Digital inclusivity should not exclusively be confined to infrastructural access, but should consider other important components of the broadband ecosystem. These include recipients' income levels and capacity to use the devices. The researcher therefore maintains that if indeed the South African government seeks to genuinely bridge the digital divide, the state should consider applying the tenets of Knowledge Gap Hypothesis, Community

Informatics, ICT Rainbow Access conceptual model as well as Freire's notion of dialogue and praxis.

6. Limitations of the study

It is imperative to note that though this study examined the progress made by the SA Connect policy in rolling broadband in rural areas, the nature of the study required specific population to solicit information. Thus taking into consideration its nature thereof, data gathering was restricted and solicited from universal access legislative policy documents, few experts in the telecommunication and broadband spaces, as well as the department of Telecommunications & Postal Services which is the custodian of the policy under investigation. Data were also drawn from the submissions made by the Independent Communication Authority of South Africa (ICASA) and operators to the Parliamentary Monitoring Group in September 2016.

The collected data specifically focused on broadband roll-out in rural areas. Deliberately so, the study did not focus on connections made in the affluent metropolitan areas and townships. The researcher is of the view that these areas are saturated with broadband supply. The greatest challenge has been how this saturation is made to trickle down to the outskirts areas.

Whilst the study solicited data from key stakeholders in the broadband and telecommunications sector in South Africa, it did not include one important institution which could have perhaps added more depth to the findings of this study; namely, the Competition Commission of South Africa. The Competition Commission is a statutory body constituted in terms of the Competition Act, No 89 of 1998 by the Government of South Africa (RSA, 1998). Section 21 of the Act gives the Commission the power to investigate and prosecute restrictive horizontal and vertical practices in businesses in South Africa. It also investigates and prosecutes abuse of dominant positions in various sectors, including the telecommunication sector.

7. Future Research

The study recommends that future research may, among others, to investigate anti-competitive behaviour and cases that the Competition Commission of South Africa has adjudicated on within the telecommunication sector. Further research could also be undertaken to investigate different types of access that may obstruct broadband adoption and efforts to bridge the digital divide. As Gurstein (2015) once projected the digital divide (DD) as a “moving target” and pontificated that responses to this phenomenon should be seen as a continuous and evolving process than a discreet and one off set of technology installations; the study concludes!

Chapter summary

Drawing from the findings of the study, conceptual frameworks and the literature reviewed, Chapter 8 suggested smart ways which the government may explore to bridge the digital divide. It also provided the limitation of the study and possible pathways that future researchers may explore to further investigate this digital divide phenomenon in the South African context. .

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APPENDICES: DATA SOURCES

APPENDIX 1: POLICY DOCUMENTS

South Africa Connect

South Africa Connect is the national broadband policy and the associated strategy and plan. It gives expression to South Africa's vision in the National Development (NDP) of "a seamless information infrastructure by 2030 that will underpin a dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous" (DoC, 2013).

Reconstruction Development Programme (RDP)

The RDP is an integrated, coherent socio-economic policy framework. It sought to mobilise South African citizens and the country's resources toward the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future (RDP, 1994).

Growth, Employment and Redistribution (GEAR)

Growth, Employment and Redistribution abbreviated as GEAR, was a five year conservative macro-economic policy plan adopted by the South African government in June 1996. The policy sought to resuscitate the ailing economy, address the plummeting rand, broaden employment, and redistribute income and socioeconomic opportunities in "favour of the poor".

Communication Task Group (COMTASK) 1996

Comtask was appointed in 1995 by the then Deputy President Thabo Mbeki to review government communications at the local, provincial, national and international level. It had to make recommendations on how government communication should be structured in line with constitutional principles of freedom of expression and transparency and openness of government. Comtask also had to examine training and affirmative action policies, the way in which

ownership of the media affects government communication, and South Africa's international information dissemination (Comtask, 1996)

Broadcasting Digital Migration Policy for South Africa

The Broadcasting Digital Migration (BDM) policy was promulgated on the 8 September 2008 and it sets our parameters of migrating the country's broadcasting from analogue to digital. The parameters were planned around the three-year dual illumination period and was to commence on 1 November 2008. The policy is an outcome of collaboration between government and industry and their firm commitment in building a people-centred and inclusive information society, thus improving the lives of our people (DoC, 2008).

Telecommunication Act of 1996

Telecommunication Act was promulgated in 1996, to provide necessary policy and legislative reforms within the sector The Act acknowledged that the adequate attainment of universal access and service goals largely depended on meeting the requirements of affordability, meaning costs. Affordable communications for all citizens and business alike throughout South Africa was at the centre of country's vision and was the goal of this Act.

Appendix 2: Broadcasts

These Submissions were recorded from DStv Parliament Channel 408 on the 23 and 24th September 2016. Data were sourced from the submissions made to the Telecommunications Portfolio Committee in 2016 September on how to reduce the high costs of communication in South Africa. The researcher mainly focused on the submissions made by three mobile operators, Vodacom; MTN and Cell- C, as well as the submissions made by a Non-Profit Organisation that seeks to bridge the digital divide in developing countries by influencing regulation and policy frameworks in developing countries, namely, Alliance for Affordable Internet Access (A4AI).

1. MTN submissions: Recorded on the Recorded on the 23th and 24th Sep 2016
2. Vodacom submissions: Recorded on the 23th and 24th Sep 2016
3. Cell C submissions: Recorded on the 23th and 24th Sep 2016
4. Makwakawa O, representing A4AI: Recorded on the 23th and 24th Sep 2016

5. Mann,D , representing A4AI: Recorded on the 23th and 24th Sep 2016

Appendix 3 : Interviews

4. Indra de Lanerolle: Date of Interview 16 July 2016

De Lanerolle is a director at Digital Hub JamLab located in Tshimologong Digital Innovation Precinct, Johannesburg and a member of the World Internet Project, a global network of researchers on the Internet and Society covering over thirty countries, coordinated by the Annenberg School of Communication at the University of Southern California. His research includes a study of mobile use amongst low income South Africans, a quantitative study of Internet use in South Africa, a study of technology innovation in civil society organisations in South Africa and Kenya and a study of demand for government open data. De Lanerolle has presented at many conferences and presented papers in South Africa and at the Universities of Oxford, Harvard and Lisbon. He has also published in a number of international journals including IDS Bulletin and info. De Lanerolle is a member of the World Internet Project, a global network of researchers on the Internet and Society covering over thirty countries, coordinated by the Annenberg School of Communication at the University of Southern California.

5. Duncan McLeod : Date of Interview 28 March 2018

Duncan McLeod is the award winning founder and Editor of renowned *Tech-Central Magazine* South Africa's latest technology news site offering breaking news, in-depth and opinion analysis on broadband and ICT related issues. Tech-Central is the leading quality news and information resource for people involved in South Africa's fast-growing information and communications technology industry and those interested in the fast-changing world of information technology.

6. Siya Qoza: Date of Interview 14 March 2018

Siya Qoza is the spokesperson of the Department of Telecommunication and Postal Services

Appendix 4: Electronic Communications Amendment Bill (ECA BILL)

The Electronic Communications Amendment BILL as introduced in the National Assembly seeks to amend the Electronic Communications Act, 2005, so as to provide low costs of communications, reduce infrastructure duplications, encourage service based competition through a wireless open access network and

provide a new framework for rapid deployment of electronic communications facilities. The Bill further seeks to provide for new approaches on spectrum management including the assignment of high demand spectrum on open access principles, to create a new framework for open access, provide for regular market definition and review to ensure effective competition (ECA BILL, 2018).

The researcher used submissions made in January 2018 to the DTSP by the following stakeholders:

1. Liquid Telecom
2. MTN
3. ICASA
4. Facebook-Africa
5. Cell-C
6. Alliance For Affordable Internet
7. Telkom
8. Vodacom