GHS Series Volume VI
Information and Communication Technologies (ICT)
In-depth analysis of the General Household Survey data 2002–2013

Statistics South Africa

The South Africa I know, the home I understand

GHS Series Volume VI

Information and Communication Technologies (ICT)

In-depth analysis of the General Household Survey data

2002-2013

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Abbreviations

WC	Western Cape
EC	Eastern Cape
NC	Northern Cape
FS	Free State
KZN	KwaZulu-Natal
NW	North West
GP	Gauteng
MP	Mpumalanga
LP	Limpopo
SA	South Africa
ANC	African National Congress
BRICS	Brazil, India, Russia, China, South Africa
DSL	Digital Subscriber Line
DST	Department of Science and Technology
DTPS	Department of Telecommunications and Postal Services
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GHS	General Household Survey
HSRC	Human Sciences Research Council
IAI	ICT Access Index
ICASA	Independent Communications Authority of South Africa
ICT	Information Communication Technologies
IDI	ITU ICT Development Index
IES	Income and Expenditure Survey
ITU	International Telecommunications Union
LCS	Living Conditions Survey
LSM	Living Standard Measure
MDG	Millennium Development Goals
NDP	National Development Plan
OECD	Organisation for Economic Cooperation and Development
PC	Personal Computer
RDP	Reconstruction and Development Programme
RIA	Research ICT Africa
SA	South Africa
SASQAF	South African Statistical Quality Assessment Framework
SABC	South African Broadcasting Corporation
SAPO	South African Post Office
Stats SA	Statistics South Africa
TUS	Time Use Survey
UAS	Universal Access and Service
UN	United Nations
UNDP	United National Development Programme
UPU	Universal Postal Union
USAASA	Universal Service and Access Agency of South Africa

USD	United States Dollar
WEF	World Economic Forum
WSIS	World Summit on the Information Society
ZAR	South African Rands

Glossary of concepts

Formal dwelling: Structure built according o approved plans, i.e. house on a separate stand, flat or apartment, townhouse, room in backyard, rooms or flatlet elsewhere.

Settlement type: refers to the characteristic of an area according to settlement characteristics. The settlement types include Urban, Rural and Metro.

Household: a group of persons who live together and provide themselves jointly with food and/or other essentials for living, or a *single* person who lives alone.

Informal dwelling: Makeshift structure not erected according to approved architectural plans, for example shacks of shanties in informal settlements or backyards.

Living Standard Measure: LSMs groups people and households into ten distinct groups based on criteria such as their level of urbanisation, ownership of vehicles and major electrical appliances. The measurement is classified from LSM 1 to LSM 10. For the purposes of this report, these categories are combined as follows:

Low LSM: comprising LSM 1 to LSM 4
Intermediate LSM: comprising LSM 5 to LSM 7
High LSM: comprising LSM 8 to LSM 10.

Monthly household income: Total amount of income accrued by a household on average.

Per capita monthly household income: The amount of income accrued by a household per month divided by the household size.

Quintile: A quintile is one-fifth of 20% of a given number. The poorest per capita quintile (quintile 1) represents households that fall into the lowest fifth or 20% of the data. Quintile 2 represents households that fall into the second fifth (21% – 40%). Quintile 3 represents households that fall into the third fifth (41% – 60%). Quintile 4 represents households that fall into the fourth fifth (61% – 80%). The final and wealthiest quintile, quintile 5, represents households that fall into the highest fifth of the data (81% – 100%) of the data. The monetary cut values for income quintiles are as follows:

Quintile 1: R0 – R434
Quintile 2: R435 – R895
Quintile 3: R986 – R1834
Quintile 4: R1835 – R4741
Quintile 5: Larger than R4741

Rural: farms and *traditional area*s characterised by low *population* densities, low levels of *economic activity* and low levels of *infrastructure.*

Rural formal settlements consist of farms and traditional areas and are characterised by low population densities, low levels of economic activity and low levels of infrastructure.

Traditional dwelling: Dwelling /hut/structure made of locally available materials.

Tribal area is an area that is legally proclaimed to be under tribal authorities.

Urban: Cities and towns that are usually characterised by higher *population* densities, high levels of economic activities and high levels of *infrastructure*. Includes formal and informal areas for the purposes of the report.

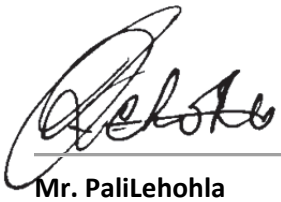
Urban informal settlements, or 'squatter camps', are usually located in urban areas. The dwelling units in informal settlements are usually made of materials such as zinc, mud, wood, plastics, etc. They are typically disorderly and congested and are sometimes referred to as squatter settlements.

Foreword

The National Development Plan (2012) envisions that "ICT will continue to reduce spatial exclusion, enabling seamless participation by the majority in the global ICT system, not simply as users but as content developers and application innovators" (NDP, 2012: 190). In so doing, ICT will increasingly form the bedrock of "a dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous".

While numerous studies and international case studies have indeed underlined the importance of ICT for development, rapid technological advances risks exacerbating existing inequalities, entrenching widening digital divides in society based on socio-economic status and geographic location. This study confirms that even though access to mobile phones has increased significantly across all socio-economic and population groups, there is indeed a tangible divide in South Africa in terms of access to the knowledge economy elements of an information society. This relates very specifically to aspects such as connectivity to the internet and ownership of computers and play themselves out starkly along socio-economic and settlement type lines. Households that are urbanised, living in formal dwellings and in the higher socio-economic classes are generally better equipped and connected than households in living in rural areas, in traditional or informal housing and that form part of the lower Living Standard Measure groups. There has been a significant growth in the number of South African households that have a functioning internet connection. However, living in the two wealthiest provinces of Gauteng and Western Cape is certainly accompanied by a greater likelihood to be connected and living in the Eastern Cape, Limpopo and parts of KwaZulu Natal with the lowest likelihood.

This study also presents the findings of an ICT development index that was developed based on International Telecommunications Union (ITU) guidelines and using data from the General Household Survey (GHS) and Census 2011. The index provides a mechanism whereby multiple indicators across a variety of administrative units can be compared over space and time in order to gauge progress. It covers a range of indicators along three dimensions: ICT active (device ownership and internet access), ICT passive (post, radio, television) and readiness (literacy rates, enrolment rates and highest level of education). Its relevance and sensitivity will be greatly enhanced with the addition of administrative data and perhaps in the medium term, information obtained from 'big data' sources. However, to get to that point more administrative sources have to be quality assured through the South African Quality Assessment framework (SASQAF) and be made more accessible.



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1. Introduction

Human development is closely associated with the ability to communicate and to create and distribute new knowledge. Information and Communication Technologies (ICT) expand opportunities to communicate information and to build knowledge through a range of innovations that have significantly reduced the cost of communication, both over a distance (using inter alia fixed, wireless and satellite communication networks) as well as through activities involved in handling information through a multiplicity of applications and systems. The impact of ICT on society have become very apparent as technological innovations have become part of everyday life. This has transformed economic and social transactions in societies through improved information flows and networks and have the potential, according to the DTPS (2014:24), to improve and reinforce social engagement, social inclusion and cultural enrichment. Continued innovation will create new products, new services and new markets and the ability to harness new technologies will become a vital component of the future development potential of any country. ICT will increasingly become more important for economic development and generating and sustaining access to ICT will be an important development priority to access the 'information economy' and to drive transformation and improvements in the quality of life' (DTPS, 2014: 24) .

A number of studies have pointed to a strong positive relationship between technological uptake and development. As long ago as 2001, the UNDP's Human Development Report (UNDP, 2001: 29) asserted that 'technological change accounts for a large portion of differences in growth rates' (between countries) and that technology, in particular ICT, could enable development. In addition, a World Bank study found that 'technical progress accounted for 40-50% of mortality reductions between 1960 and 1990 – making technology a more important source of gains than higher incomes or higher education levels among women' (UNDP, 2001:4). These observations have been supported by a number of studies since then (see Fong, 2009). According to the World Bank (Department of Telecommunications and Postal Services (2013) a country could increase economic growth by 1,38% for every 10% increase in broadband penetration. The ability to compete internationally is, however, dependent on the state of, and access to the ICT sector.

While ICT harbours great opportunities, many developing countries and poor communities remain unable to fully access ICT, giving rise to a rift that is often described as a 'digital divide' (Avgerou, 2003:373). Asymmetrical access to ICT exacerbates the rift and contributes to widen the gap between different communities. According to the ITU (2010:40) the digital divide reflects differences among and within countries in terms of access to physical infrastructure such as computers, the Internet, mobile or fixed line telephony. Known as a global divide internationally or a national divide within a country, it manifests itself in different demographic characteristics of populations and households, such as age, gender, income, or by different geographic locations, such as urban and rural.

Such a national digital divide is very evident in South Africa as the country is characterised by two very distinct economies, one wealthy and technologically advanced, and the other developing and much less fortunate. While relatively high-income individuals and households from the former economy are often early adopters of leading-edge technologies, their peers from the developing economy reflect slower adoption patterns (Gillwald, Moyo and Stork, 2012: 1).

The World Bank (2015) classified South Africa as an upper middle income economy with an estimated Gross Domestic Product (GDP) of $350,6 billion in 2013. The country's economy is ranked as the second largest economy in Africa, after Nigeria, and the 33rd largest in the world, and its per capita gross domestic product is calculated at USD 6 618 per year. Its economy is relatively sophisticated and comprises strong industrial and services sectors which include an advanced financial system and sophisticated technology. According to Census

2011, the population is largely urbanised as 68,2% of households and 63,4% of individuals lived in urban areas in 2011. In addition, The 2013 GHS found that 86,8% of households in urban areas, including some informal areas, and 82,1% of households in rural areas had access to electricity.

These figures, however, hide extreme income inequality, as well as high unemployment and poverty. Using data from the 2010/11 Income Expenditure Survey, Stats SA (2014) calculated that 45,3% of South Africans lived below the poverty line with a Gini coefficient of 0,69 based on income data, one of the highest figures in the world. The study (Stats SA, 2014: 14) also found that the share of national consumption was highly skewed as the richest 20% of the population accounted for 61% of consumption in 2011, compared to the 4,5% of the bottom 20%.

Improved access and usage of ICTs are vital for developing economies to narrow the digital divide. In this regard, large economic inequalities are limiting the country's ability to match the growth experienced by peer countries with similar sized economies and to achieve the goal of providing affordable access to a range of quality communication services. While the country also enjoys high adult literacy rates and high gross enrolment ratios and secondary schools and at tertiary level, ICT training remains insufficient to harness growth.

For these reasons it is not surprising that the country has steadily dropped places on many global ICT indexes. South Africa's ranking on the World Economic Forum's Networked readiness index ranking dropped steadily between 2001/2 and 2014, falling from 40 to 70. Similarly, the country dropped from 72th place in 2002 on the International Telecommunication Union's (ITU) global ICT Development index to 87th position in 2007 and 90th in 2013 (ITU, 2014: 42). Compared to its peers in the African region, the ITU ranked South Africa 3rd behind Mauritius and Seychelles in 2013. The country's index score of 4.42 was, however, much better that the African average of 2.18. Due to the importance of ICT for development the World Summits on the Information Society (WSIS) has emphasized the measurement of ICT for development.

Despite growing sub-optimally, the ICT sector continues to be an important component of the South African economy. According to Stats SA (2015) the direct contribution of the ICT sector to the gross domestic product (GDP) was R94,7 billion, or 2,9% of the total GDP in 2012. This is larger than the contribution of agriculture (2,5%). Households spent R91,6 billion on ICT products in 2012, contributing 4,6% of total household expenditure. Households spent 2,9% on telecommunications, broadcasting and information supply services (e.g. pay-television subscriptions, cellphones, airtime and internet); 0,8% of communication equipment like televisions; 0,5% on content and media products (e.g. newspapers and books); and 0,4% on computing machinery and other ICT items (Stats SA, 2015).

According to the 2008/9 Living Conditions Survey, South African households on average spent approximately R 2 428 per annum on communications between the period September 2008 and August 2009. This comprised 3,4% of their total expenditure on communications. The average annual household expenditure on communications as a proportion of the total household consumption differed noticeably by settlement type. Households in urban informal areas (4,2%) had a larger average annual expenditure than households in Rural formal areas (3,5%), Urban formal areas (3,4%) and tribal areas (2,%) (Stats SA, 2011).

While ICT continues to increase in importance, the ICT environment have also become much more diffused across both products and services as well as geographic areas and users. Indices can be used to understand the rapidly changing environment and to facilitate the identification of areas where policy intervention could boost its impact on development. Although policy interest has, internationally, moved towards measuring the impact of ICT (WEF, 2013: 4) in a diverse country like South Africa it remains vital to monitor progress toward achieving universal access to ICT and full participation in an information society by continuously taking stock of access and usage.

Although universal access to service is the central policy principle in telecommunications policy and regulation it also poses serious challenges.

2. Overview of the legal and policy environment

2.1 Legislative framework

Following the introduction of a democratic dispensation in 1994, policies were altered to address historical imbalances and to ensure the provision of universal and affordable services to all South Africans in order to advance socio-economic development goals. Although new laws were passed to give body to the new vision, the frameworks guiding the South African Telecommunications and postal services landscape since 1994 were largely divergent and separate with little integration.

The mandate of the Department of Telecommunications & Postal Services (DTPS) is derived from relevant legislation, including the following:

- Broadcasting Act (Act 4 of 1999);
- Electronic Communications and Transactions Act (Act 25 of 2002);
- Electronic Communications Act (Act 36 of 2006);
- Independent Communications Authority of South Africa Act (Act 13 of 2000);
- Sentech Act (Act 63 of 1996);
- Postal Services Act (Act 124 of 1998);

The Department of Telecommunications and Postal Services has the main responsibility to guide and regulate the ICT sector. This department has, however, over the past decade experienced significant leadership instability which have, according to some commentators (Gillwald, Moyo and Stork 2012: 5) contributed, at least partially, to an inability to fully achieve Government's objectives.

In light of the rapid and major technological and market changes, as well as the fact that the different White papers on telecommunication (1996), broadcasting (1998) and postal service (1998) were isolated from each other with very little convergence (SA DTPS, 2014a), the DTPS has recently engaged in a comprehensive policy review process aimed at updating and aligning policies to better fulfil the objectives of social and economic development. Government gazetted a green paper on National Integrated ICT policy in January 2014 (SA DTPS, 2014b), followed by a National Integrated ICT Policy discussion paper in November 2014 (SA DTPS, 2014b). In addition, the DTPS (2013) also published a national broadband policy entitled, "South Africa connect: creating opportunities, ensuring inclusion' during November 2013.

These policies attempt to create the conditions to "improve the quality of life of all citizens and free the potential of each person" and to enable quality in the rights, privileges and benefits of citizenship, including the guarantees of freedom of expression and association in the Bill of Rights. Improved access to existing and new technologies have the potential to further the rights set out in the constitution.

2.2 National Development Plan

The National Planning Commission's National Development Plan (NPC, 2011) states that ICT would build 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". The NDP envisages "a widespread communication system that will be universally accessible across the country at a cost and quality that

meets the communication of citizens, business and the public sector and provide access to the creation and consumption of a wide range of converged applications and services required for effective economic and social participation" (NDP, 2012). The National Development Plan (NDP) continues to say that "ICT will continue to reduce spatial exclusion, enabling seamless participation by the majority in the global ICT system, not simply as users but as content developers and application innovators" (NDP, 2011: 190). The plan identifies the need to stimulate demand-side by improving e-literacy and skills, while also building affordable access to a number of services through effective regulation of competitive markets (NPC, 2011).

The plan endorses the target proposed by the DTPS to achieve 100% broadband penetration by 2020, and envisions that the state would make greater use of ICT to communicate with and provide services to residents.

2.3 Universal access and service (UAS)

Universal Access and Service (UAS) refers to policies adopted by governments to ensure that citizens and residents have equal and fair access to a point of communication. Although the terms are often used interchangeably, universal service and universal access can be clearly distinguished from each other. Universal service refers to the direct provision of telecommunications, broadcasting and postal services, while universal access refers to increasing access to services on a shared basis, though for instance creating communal facilities in towns and villages.

UAS has been at the centre of policies and regulations since the Reconstruction and Development Plan (RDP) first called for 'universal affordable access for all' in 1994 (ANC, 1994). One of the earliest interventions to mobilise telecommunications for development was the creation of the Universal Service and Access Agency of South Africa (USAASA) which operates under the policy framework stipulated in the Telecommunications Act 103 of 1996, as reviewed subsequently. USAASA was set up to provide universal access to ICTs which is defined as 'the ability to use the communication network at a reasonable distance at an affordable price which provides relevant information and has the necessary capacity – in under-serviced areas' (USAASA, 2004). These areas are defined as 'communities that live in rural and peri-urban areas that are characterized by poverty, poor infrastructure i.e. telecommunications services, high rate of unemployment and few employment opportunities' (USAASA, 2004).

Although universal service is the central policy principle in telecommunications policy and regulation (Gillwald, 2015) it is also very challenging to provide. While ICT hold the potential to address economic development, it can, however, also increase inequality if it is not managed properly as individuals and households in with existing handicaps, including the poor and those in rural areas, fall even further behind.

The policies need to be sufficiently broad to cater for convergence, but also flexible enough to address the NDP goals set out above regarding the universal availability and access to affordable and quality converged services.

Although the policies were historically aimed at improving access to fixed telephones, the DTPS (2014b: 69) has shifted the focus to facilitating universal access to mobile phones, the Internet, and broadband, all while recognizing that a large number of South Africans were still reliant on traditional postal and broadcasting services and that broadband remains illusively unaffordable. Despite great improvements in access to mobile phones, broadcasting and the way in which we access information and services, the extent to which South African have been able to access affordable, secure, reliable and quality communication services have varied widely across the country.

In order to maximize the opportunities to exploit ICT it is critical to obtain accurate information on the extent of ICT access and use in South Africa.

3. Objectives of this report

Given the important developmental role of ICTs and the need to prevent digital divides from opening up between the 'haves' and 'have nots' in the country, this report will attempt to:

- Monitor household access to various media, including television, radio, landline telephones, mobile telephones, and the Internet;
- Create indices of access to ICT on household, provincial, district municipal and municipal levels based on available indicators, including some that measures readiness to use ICT;
- Map access to ICT using index scores on provincial, district municipal and local municipal levels where appropriate. Geogrpahical maps will provide a visual representation of how households across local authorities a faring with regards to ICT access.

Nine indicators of ICT access were selected from the available data sources, namely:

- Access to landlines and mobile telephones
- Access to televisions, radios and computers;
- Access to postal services;
- Access to the Internet at home, using mobile devices; or using other services;

Four composite indicators of ICT were constructed for households, provinces, district and local municipalities based on the aforementioned indicators together with additional indicators derived to measure a population's readiness to use ICT. The indices will be outlined in more detail later.

4. Data sources

4.1 Data sources

A number of Statistics South Africa surveys as well as census data were utilized in this report. For household and provincial level analysis the report used data from the annual General Household Surveys (GHS). Data from this survey contributes, amongst other things, towards the monitoring of selected indicators in relation to the performance of various government departments. The GHS has been conducted since 2002 by Statistics South Africa (Stats SA) and was specifically designed to measure the multiple facets of the living conditions of South African households and it covers six broad areas, namely: education, health and social development, housing, household access to services and facilities, food security and agriculture. The survey has, since 2009, also measured household access to the Internet.

Analysis on district and local municipal levels relied on data from Census 2011. Census data was crucial as survey data is not available on sub-provincial level. Although Census 2011 contained similar questions to those asked in the GHS, many of the questions were only partially comparable.

The report also used information from the 2008/9 Living Conditions Survey.

4.2 Limitations of the data

The study is based on secondary data that were collected as part of the GHS between 2002 and 2013, as well as census data collected in 2011. Since data was sourced from multi-purpose instruments, the content areas were not measured in great detail. Although more specific questions on internet access was asked in the GHS since 2011, the number of questions was limited and, at least for 2011, not completely comparable. Throughout the

report, these limitations are highlighted and the process of data interrogation has inevitably identified areas where the GHS questionnaire can be improved for future use.

Although referring to the comparability of data between countries, observations made by the OECD (2007: 156) can equally be applied to the comparison of data sources used in this report. The OECD report mentions that comparison is frequently hamstrung by the timing and content of questions when measuring rapidly changing behaviour.

- *Timing*: Data from census were collected in 2011 while the latest GHS data were collected two years later, in 2013.
- *Content*: Although many of the questions asked by the GHS and the census covered similar themes, and generally used compatible response categories, there were also occasional differences. So for instance the census focused on a household's main mode of internet access while the GHS allowed for multiple answers. In addition, the response categories used in the questions are not always sufficiently aligned with modern policy priorities, which in the case of ITC often refers to access to mobile and fixed broadband internet. While the response category 'mobile internet' could conceivably be limited to accessing the internet using a mobile phone or other access device, the category 'internet at home', which is used by both the GHS and census, is more confusing as it can equally be associated with access to fixed or mobile broadband used at home.

The choice of a household as unit of analysis also poses particular challenges. While person-based data can typically provide information on the number of individuals with access to technology, whether and how they use it, and why they use it by age and sex, statistics for households are restricted by structural differences in the composition of households as well as the use of proxy respondents, which might not be completely as accurate.

Access to ICT does, unfortunately, not guarantee the quality of that service. Due to data constraints this report did not consider any quality issues such as the speed of Internet service, or whether mobile phones could receive signals.

5. Access to telephonic communication

The South African fixed and mobile telephone markets are characterised by what Gillwald et al (2013) calls a "duopoly and a virtual duopoly". In the fixed line market Telkom dominates the market over its much smaller rival, Neotel, who only entered the market in 2006. Although Neotel is providing some business solutions it has been struggling to assert itself in the residential market while customers have been turning away from landlines. The aversion to fixed lines can partially be ascribed to the cost and time required to install these lines, as well as the monthly maintenance fees thereafter. Household are increasingly substituting fixed lines with mobile lines as convenience and portability becomes more important. Research conducted by Research ICT Africa in 2008 found that 60% of users were not interested to get a fixed landline even if prices were to come down (Gillwald and Naidoo, 2009).

The mobile phone industry has been the main driver behind the tremendous growth in the telecommunication market over the past decades. The mobile market has five operators, namely Vodacom and MTN, who were both granted licenses in 1993, Cell-C who started in 2001, and Telkom Mobile and Virgin Mobile who came much later. More than eighty percent of the mobile market is controlled by Vodacom and MTN and the market is generally considered expensive and not optimally competitive.

5.1 Fixed telephones

The fixed line market is characterised by general stagnation and penetration have been dropping consistently since 2002 when more than one quarter (25,7%) of South African households had a landline telephone in their dwellings. By 2013 only 13,1% of households had access to landlines, with the highest percentages found in Western Cape (30%), Gauteng (16,7%) and KwaZulu-Natal (14,3%). Limpopo had the lowest percentage of households with access to landlines at 3,1%, followed by North West at 4,5%.

Table 1: Percentage of households with access to landlines by province, 2002-2013

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
WC	50,8	47,9	47,3	44,1	41,7	38,4	38,2	36,6	35,5	34,1	34,6	30,0
EC	15,5	13,5	12,7	15,1	13,6	13,0	11,6	9,7	10,7	10,2	8,9	7,3
NC	29,9	28,0	24,0	20,4	19,4	18,0	17,8	16,6	14,7	13,0	12,4	11,0
FS	23,9	21,0	20,2	16,7	14,3	15,0	13,7	11,2	9,7	9,3	7,7	8,1
KZN	24,4	20,7	20,0	19,9	19,6	19,0	16,3	17,4	16,3	15,9	14,7	14,3
NW	13,5	12,9	11,8	14,6	14,7	12,4	7,1	7,4	7,0	6,2	4,8	4,5
GP	35,2	33,3	32,3	27,1	23,0	20,9	24,3	21,2	22,7	19,9	17,3	16,7
MP	13,7	12,6	10,5	11,2	10,9	8,9	9,2	7,4	8,1	5,7	6,7	6,2
LP	7,1	5,8	5,8	5,2	6,6	6,1	5,7	5,2	4,0	3,6	4,4	3,1
SA	**25,7**	**23,6**	**22,7**	**21,2**	**19,6**	**18,2**	**18,0**	**16,6**	**16,7**	**15,3**	**14,2**	**13,1**

Source: GHS 2002-2013

These percentages translate to 1,96 million households with access to landline telephones in South Africa in 2013 (Table 2). Although a larger percentage of households in Western Cape had access to fixed telephones, the Western Cape total (494 336) is dwarfed by the number in households in Gauteng (715 671). The smallest number of connected households was found in Northern Cape (33 281). The total number of households with access to fixed telephone lines declined by 29,4% between 2002 and 2013. The largest decreases were observed in Free State (-57,7%) and North West (-54,6%) while decreases were relatively smaller in KwaZulu-Natal (-21,2%) and Western Cape (-18,7%).

Table 2: Number of households with access to landlines by province, 2002 and 2013

Province	2002	2013	Change
Western Cape	608 318	494 336	-18,7%
Eastern Cape	217 163	120 441	-44,5%
Northern Cape	69 050	33 281	-51,8%
Free State	163 396	69 174	-57,7%
KwaZulu-Natal	462 856	364 701	-21,2%
North West	113 311	51 463	-54,6%
Gauteng	962 965	715 671	-25,7%
Mpumalanga	106 203	69 409	-34,6%
Limpopo	73 808	43 307	-41,3%
South Africa	**2 777 071**	**1 961 783**	**-29,4%**

Source: GHS 2002 and 2013

Table 3 reveals the skewed distribution of households with access to landlines across provinces. Western Cape and Gauteng, the provinces with the largest household access to landlines, commands 61,7% of all households with access to landlines although the two provinces only comprise 35,4% of the total population and 39,6% of all households. By contrast, only 2,2% of all households with access to landlines were in Limpopo although the province comprises 10,4% of the total population, and 9,5% of all households.

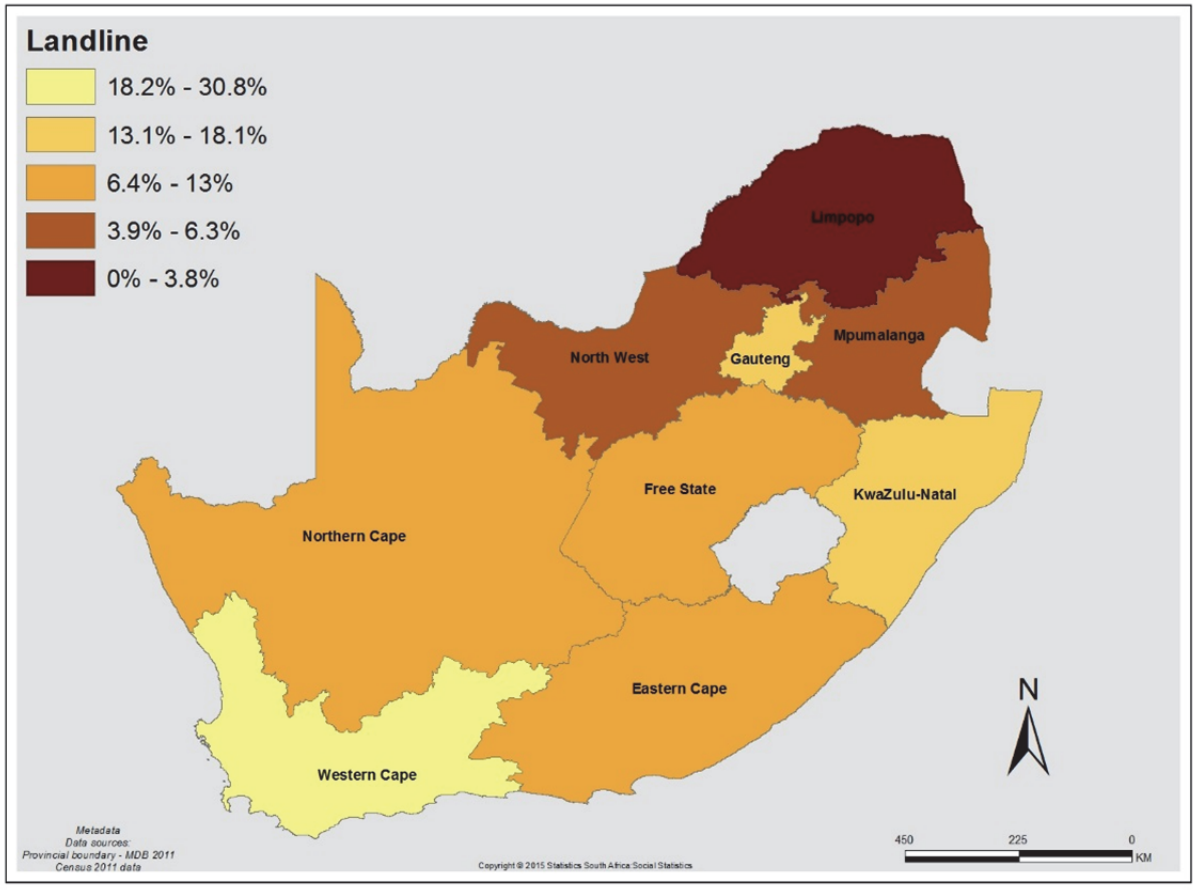
Table 3: Percentage comparison of the share of households with access to landlines with the share of the total population and households by province, 2013

	Share of total population	Share of total numbers of households	Share of households with access to landlines
Western Cape	11,4	11,0	25,2
Eastern Cape	12,5	11,0	6,1
Northern Cape	2,2	2,0	1,7
Free State	5,2	5,7	3,5
KwaZulu-Natal	19,7	17,1	18,6
North West	6,8	7,5	2,6
Gauteng	24,0	28,6	36,5
Mpumalanga	7,8	7,5	3,5
Limpopo	10,4	9,5	2,2

Source: GHS 2013

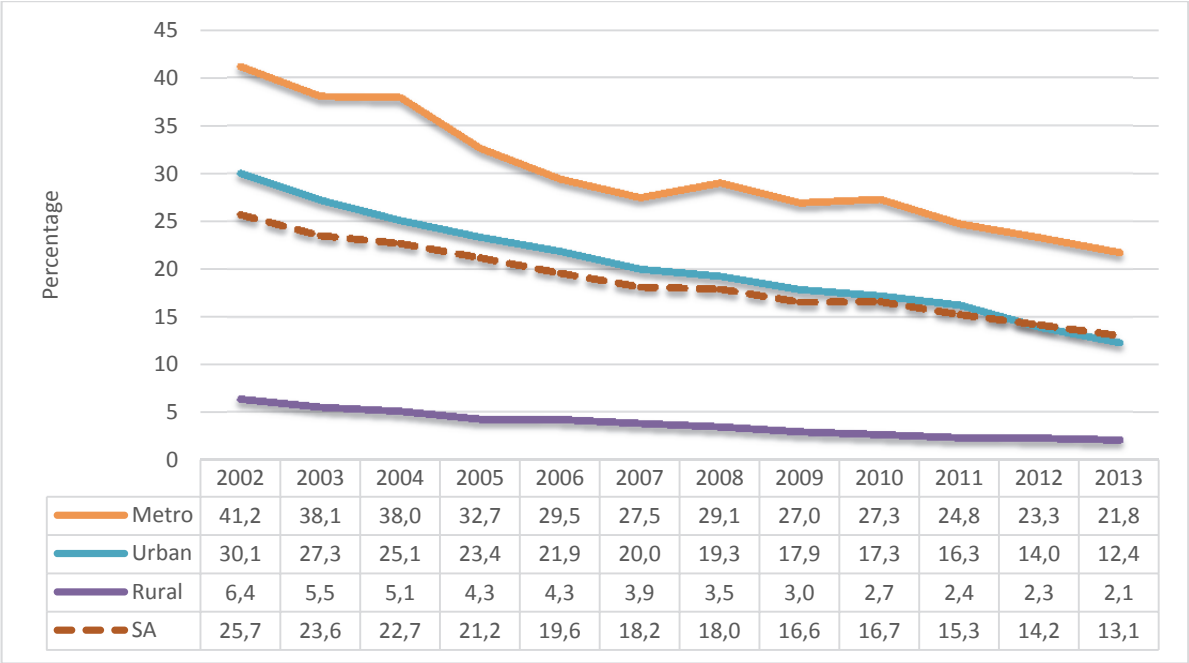
The percentage of households with access to landlines per province is presented in Map 1. The darkest colours represent the lowest access while access is highest in the light yellow areas. The map shows that Limpopo had the lowest percentage of households with access to landlines followed by Mpumalanga and North West. The map confirms that households in Western Cape had the highest access while Limpopo was lagging far behind.

Map 1: Percentage of households with access to landline telephones by province, 2011



Source: Census 2011

Figure 1: Percentage of households with access to landlines by settlement type, 2002-2013



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Metro	41,2	38,1	38,0	32,7	29,5	27,5	29,1	27,0	27,3	24,8	23,3	21,8
Urban	30,1	27,3	25,1	23,4	21,9	20,0	19,3	17,9	17,3	16,3	14,0	12,4
Rural	6,4	5,5	5,1	4,3	4,3	3,9	3,5	3,0	2,7	2,4	2,3	2,1
SA	25,7	23,6	22,7	21,2	19,6	18,2	18,0	16,6	16,7	15,3	14,2	13,1

Source: GHS 2002-2013

The provincial level access to landlines is very unevenly distributed across provinces as landlines tend to be concentrated in metropolitan and urban areas where greater wealth, population density and agglomeration have also led to better infrastructure. The percentage of households with access to landlines in Metropolitan Areas decreased by 19,4 percentage points from 41,2% in 2002 to 21,8% in 2013. This is represented in Figure 1. Households in the rural areas had the lowest access to landlines. Approximately 30% of households in the Urban areas had access to landlines in 2002 compared to 12,4% in 2013.

Table 4 shows that 1.3 million of households with access to landlines were found in metropolitan areas compared to 524 712 in other urban areas and only 97 891 households in rural areas. Since 2002 the number of households with access to landlines has, however, declined by 60,6% in rural areas, 38,3% in urban areas and 19,7% in metropolitan areas.

Table 4: Number of households with access to landline telephones, 2002 and 2013

	2002	2013	Change
Metro	1 668 557	1 339 179	-19,7%
Urban areas	850 611	524 712	-38,3%
Rural areas	248 240	97 891	-60,6%
Total	**2 767 408**	**1 961 782**	**-29,1%**

Source: GHS 2002 and 2013

Using data from Census 2011, Figure 2 shows the percentage of households with access to landlines by district municipality. The figure shows that households in predominantly rural districts in Eastern Cape and Limpopo were least likely to have access to landlines, while a much larger percentage of households in the Western Cape and in metropolitan areas had access to landlines. Compared to the Alfred Nzo and Greater Sekhukhune district municipalities where 2,0% and 2,1% of households respectively had access to landlines, more than a quarter of households in Eden (25,9%), Overberg (26,7%), eThekwini Metro (26,7%) and the City of Cape Town (34%) had access to fixed telephones lines.

The skewed distribution landlines amongst district municipalities is made evident by the fact that 25% of households with access to landlines were found in the bottom 38 municipalities which together comprised approximately 55% of the total population and 52% of all households. By comparison, a third of all households with access to landlines were found in only two metros, namely eThekwini and Cape Town. These metros, together, comprised 14% of the total population and 14% of all households.

Table 5 shows that a larger percentage of households with an employed head had access to landlines (16,8%) as compared to households where the head was either not economically active (10,3%), or unemployed (6,5%). A household head's level of education also seems to affect access to a landline as access to fixed telephone lines generally improved with a head's education. Whereas 35,6% of households with a head who have completed any post-school qualification had access to landlines, this was only true of 2% of households where the head had no education. The inverse is true when households without landlines are considered.

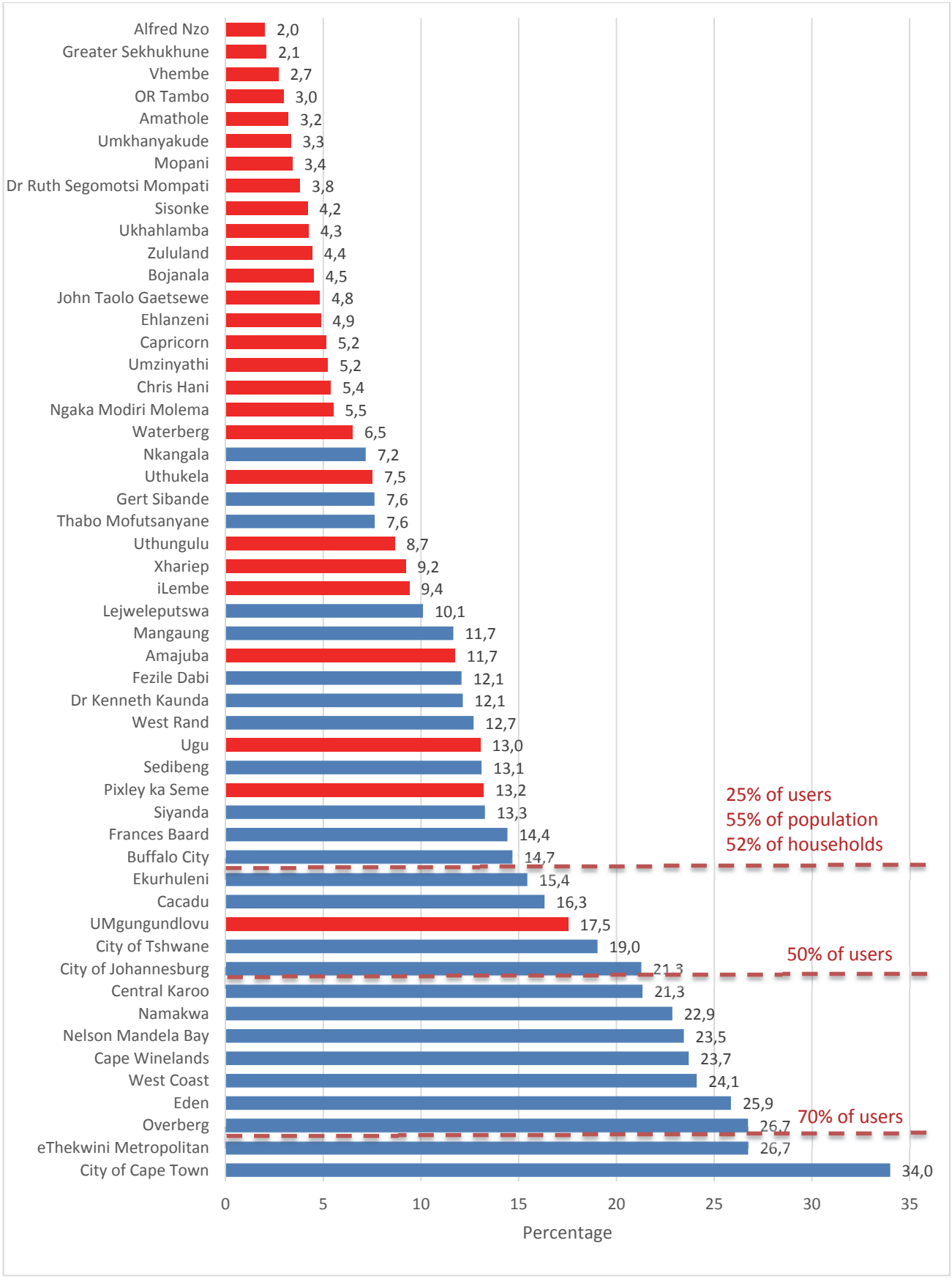
Table 5: Percentage of households with access to landlines by employment and education status of the household head, 2013

	With landline	Without landline
Employment status of the household head		
Employed (15-64)	16,8	83,2
Not economically active	10,3	89,7
Unemployed	6,5	93,5
Highest level of education of the household head		
Post-school	35,6	64,5
Completed matric	16,8	83,2
Some secondary	9,0	91,0
Some or completed primary	4,9	95,2
No education	2,0	98,0
Total	**13,1**	**86,9**

Source: GHS 2013

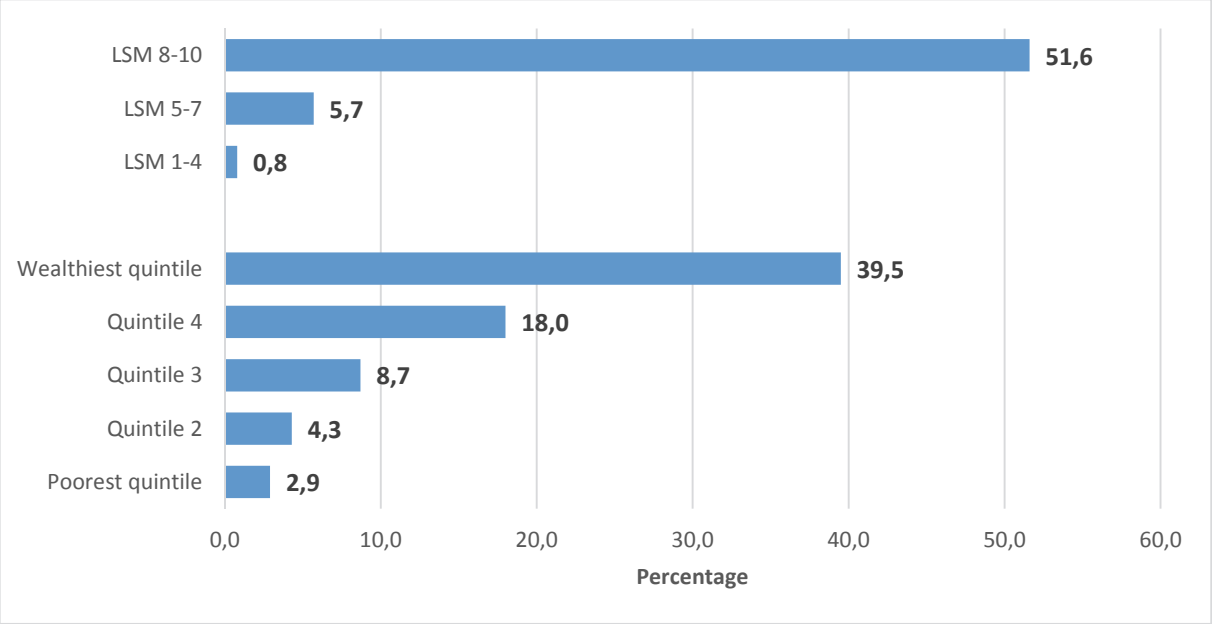
Increased access to landlines can also be associated with household wealth. Figure 3 shows that more than half (51,6%) of households in the Living Standard Measure (LSM) category 8-10 as well as 39,5% of households in the wealthiest per capita household income quintile had access to fixed telephone lines compared to less than 1% in the lowest LSM group, and 2,9% of households in the bottom income quintile.

Figure 2: Percentage of households with access to landlines by district municipality, 2011



Source: Census 2011

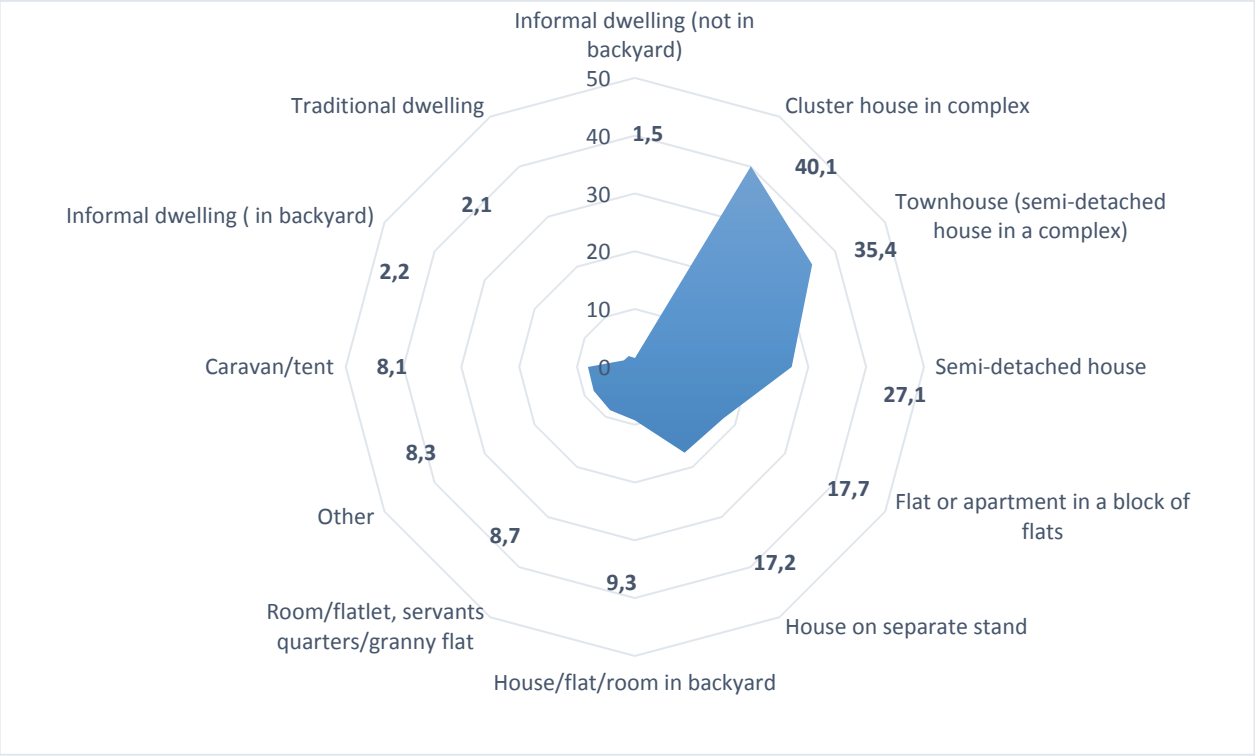
Figure 3: Percentage of households with access to landlines by per capita household income quintiles and LSM, 2013



Source: GHS 2013

Figure 4 explores access to landlines by type of dwelling. Census data was used here since the large number of respondents would benefit the results for smaller dwelling types. The figure shows that households in formal dwelling, particularly in cluster houses in complexes (40,1%) and townhouses (35,4%) had the largest access, while households in informal, traditional and other dwelling experienced much lower access.

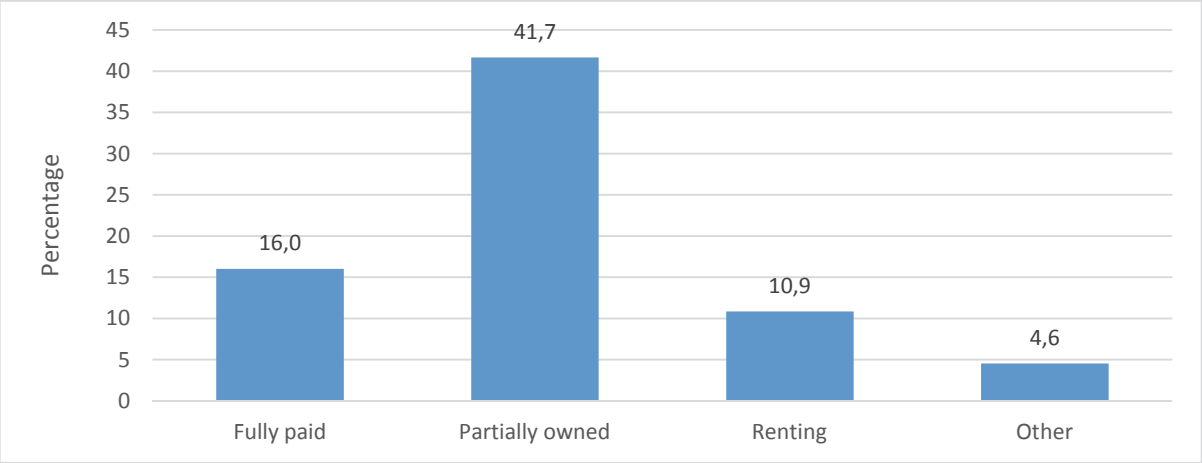
Figure 4: Percentage of households with access to landlines by type of dwelling, 2011



Source: Census 2011

Figure 5 uses tenure status to explore access to landlines. As expected, a much smaller proportion of households with more temporary tenure (renting) had access to landlines compared to a much higher percentage that enjoyed permanent tenure. It is interesting to note though that a much larger percentage of households that lived in dwellings that were still being paid off had access to landlines than households whose dwellings were already paid off. This is most probably due to the fact that fully-owned RDP houses are usually the property of poorer households who would be less likely to have access to landlines.

Figure 5: Percentage of households living in formal dwellings that have access to landlines by tenure status, 2013



Source: GHS 2013

5.2 Mobile telephones

While the fixed line market has been declining consistently over the past decade, access to mobile phones has increased exponentially. More growth in mobile technology is expected into the future as more services are provided to rival fixed line services. Table 5 shows that 94,8% of households in South Africa had access to a functional mobile telephone in 2013, up from 35,8% in 2002. Household access was the highest in Gauteng (98%), Mpumalanga (96,8%) and Limpopo (95,7%) and the lowest in Northern Cape (86,2%).

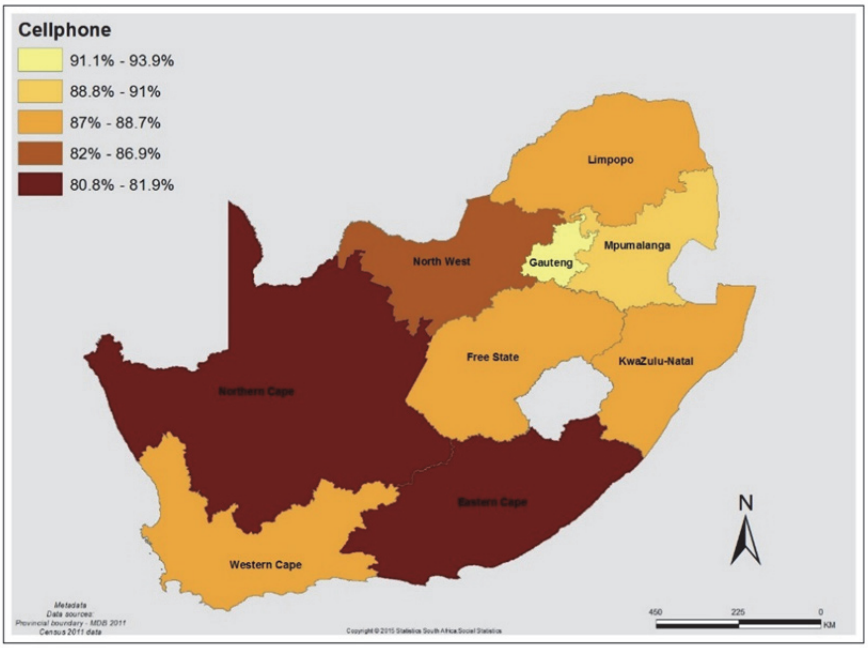
Table 6 : Percentage of households with access to mobile phones by province, 2002-2013

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
WC	42,0	53,7	57,7	69,6	73,9	76,6	80,9	78,2	86,0	87,5	92,0	92,1
EC	24,8	28,7	35,7	53,2	60,4	67,7	70,8	75,3	80,2	83,5	87,3	89,3
NC	28,4	31,8	39,7	54,6	57,8	66,8	67,2	74,5	76,0	80,9	82,4	86,2
FS	33,1	39,9	47,3	56,4	66,0	73,2	77,0	83,5	85,5	88,3	93,0	94,0
KZN	24,9	28,9	39,9	54,3	58,1	69,0	72,5	83,9	88,7	92,8	93,3	95,3
NW	33,4	37,0	45,4	59,7	68,4	75,2	79,1	81,4	87,0	89,4	93,6	94,0
GP	49,6	54,9	64,5	71,6	76,3	80,0	83,9	91,1	92,7	93,7	96,2	98,0
MP	37,6	43,6	54,2	65,7	76,4	79,4	82,9	88,4	92,8	93,3	96,1	96,8
LP	31,2	35,4	44,6	57,2	66,1	71,8	76,6	85,2	90,3	92,1	94,6	95,7
SA	**35,8**	**41,3**	**50,1**	**62,0**	**68,3**	**74,4**	**78,2**	**84,3**	**88,4**	**90,6**	**93,4**	**94,8**

Source: GHS 2002-2013

Provincial access to cellphones is visually presented in Map 2. The map visually shows that access was most restricted in Northern Cape and Eastern Cape and that it was most common in Gauteng.

Map 2: Percentage of households with access to mobile telephones by province, 2011



Source: Census 2011

The number of households with access to at least one functional mobile phone increased by 10,4 million between 2002 and 2013 to 14,3 million, representing an increase of 271% between these years. The largest numbers of households with access to mobile phones were found in Gauteng (4,2 million) and KwaZulu-Natal (2,5 million). By comparison only 261 871 households had access to a mobile phone in Northern Cape in 2013. The largest provincial increase in access to mobile phones between 2002 and 2013 were observed in KwaZulu-Natal at 421%, followed by increases in Eastern Cape (326%), Limpopo (325%) and Northern Cape (300%). Relatively speaking, the lowest increase was observed in Western Cape (206%) and Gauteng (213%).

Table 7: Number of households with access to mobile phones by province, 2002 and 2013

Province	2002	2013	Change
Western Cape	501 738	1 534 759	205,9%
Eastern Cape	347 852	1 482 733	326,3%
Northern Cape	65 441	261 871	300,2%
Free State	226 257	810 095	258,0%
KwaZulu-Natal	472 052	2 458 258	420,8%
North West	279 228	1 070 794	283,5%
Gauteng	1 353 056	4 231 067	212,7%
Mpumalanga	290 413	1 091 031	275,7%
Limpopo	323 433	1 373 478	324,7%
South Africa	**3 859 471**	**14 314 086**	**270,9%**

Source: GHS 2002 and 2013

In contrast to the extremely skewed distribution of fixed telephone lines across provinces, access to mobile phones is distributed much more equally across provinces. Table 8 shows that the distribution of households with access to mobile phones is, overall, very similar to the respective shares of the population and households in provinces. It is, however, notable that Gauteng households were slightly overrepresented, and Northern Cape households relatively underrepresented compared to their respective shares of the population and households.

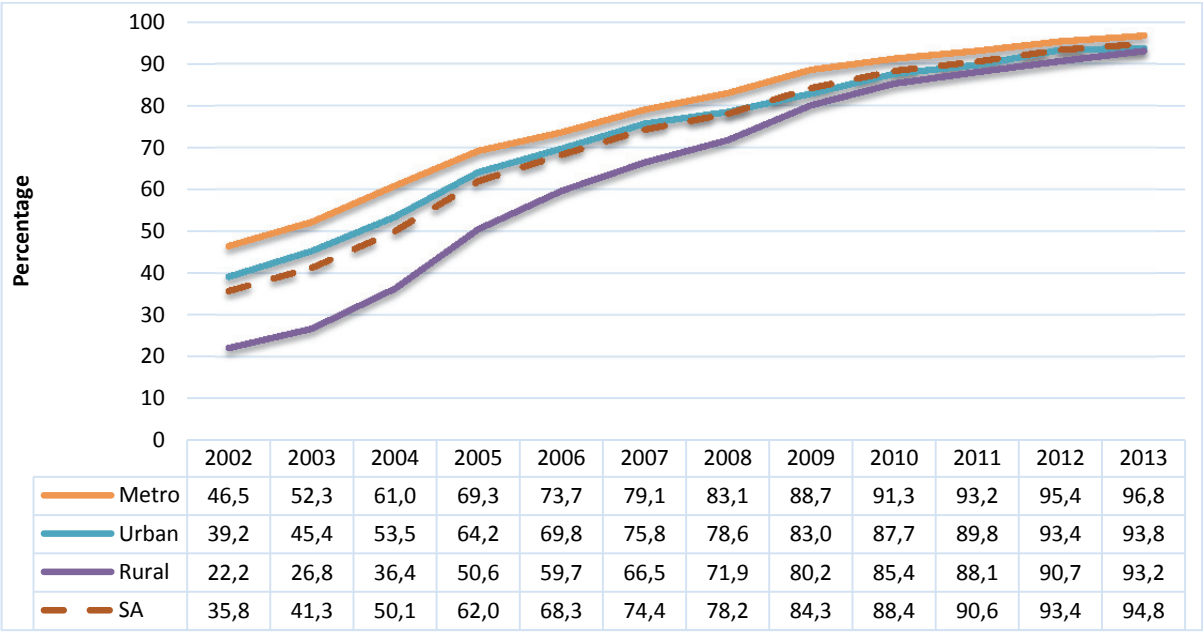
Table 8: Comparison of the share of households with access to landlines with the share of the total population and households by province, GHS 2013

	Share of total population	Share of total numbers of households	Share of households with access to mobile phones
Western Cape	11,4	11,0	10,7
Eastern Cape	12,5	11,0	10,4
Northern Cape	2,2	2,0	1,8
Free State	5,2	5,7	5,7
KwaZulu-Natal	19,7	17,1	17,2
North West	6,8	7,5	7,5
Gauteng	24,0	28,6	29,6
Mpumalanga	7,8	7,5	7,6
Limpopo	10,4	9,5	9,6

Source: GHS 2013

Access to mobile phones for households in metropolitan, urban and rural areas have converged tremendously over the past decade as mobile phones have become more attainable, affordable and indispensable. Mobile technology has made it much easier and cheaper to connect rural areas than through the installation of fixed lines. Despite the convergence, it is notable that a larger percentage of households in metropolitan areas (96,8%) than households in urban (93,8%) or rural (93,2%) areas had access to mobile phones. This is presented in Figure 6.

Figure 6: Percentage of households with access to mobile phones by settlement type, 2002-2013



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Metro	46,5	52,3	61,0	69,3	73,7	79,1	83,1	88,7	91,3	93,2	95,4	96,8
Urban	39,2	45,4	53,5	64,2	69,8	75,8	78,6	83,0	87,7	89,8	93,4	93,8
Rural	22,2	26,8	36,4	50,6	59,7	66,5	71,9	80,2	85,4	88,1	90,7	93,2
SA	35,8	41,3	50,1	62,0	68,3	74,4	78,2	84,3	88,4	90,6	93,4	94,8

Source: GHS 2002-2013

Table 9 shows that more than four-tenths (6 million) of all households with access to mobile phones were in rural areas. Considering change, the largest increase (400%) was noted for urban areas, followed by households in metropolitan areas.

Table 9: Number of households with access to mobile telephones, 2002 and 2013[1]

	2002	2013	Change
Metro	1 107 829	3 998 509	260,9%
Urban areas	861 473	4 302 334	399,4%
Rural areas	1 880 163	6 013 243	219,8%
Total	**3 849 465**	**14 314 086**	**271,8%**

Source: GHS 2013

Mobile phones have become so ubiquitous and indispensable that households are likely to have access to mobile phones despite their socio-economic conditions. Table 10 shows that access to mobiles was only fractionally higher for households with employed heads (97,4%) than for households in which the heads were either unemployed (97,1%) or not economically active (96,2%). The table, however, also shows that the percentage of households with access to mobile phones increased with the education of the household head. Whereas 86,9% of households with a head without any education had access to a mobile phone, access was almost universal (99,8%) for households where the head had some post-school qualification. This finding is probably linked to household income as one would expect wealthier households to have greater access. Table 10 shows that the percentage of households with access to mobile phones increases in each successive income quintile, rising from 95,6% for the poorest households to 99,6% for the wealthiest households. Analysis of the GHS data also shows that 93,7% of households who received any kind of social grant had access to a mobile phone.

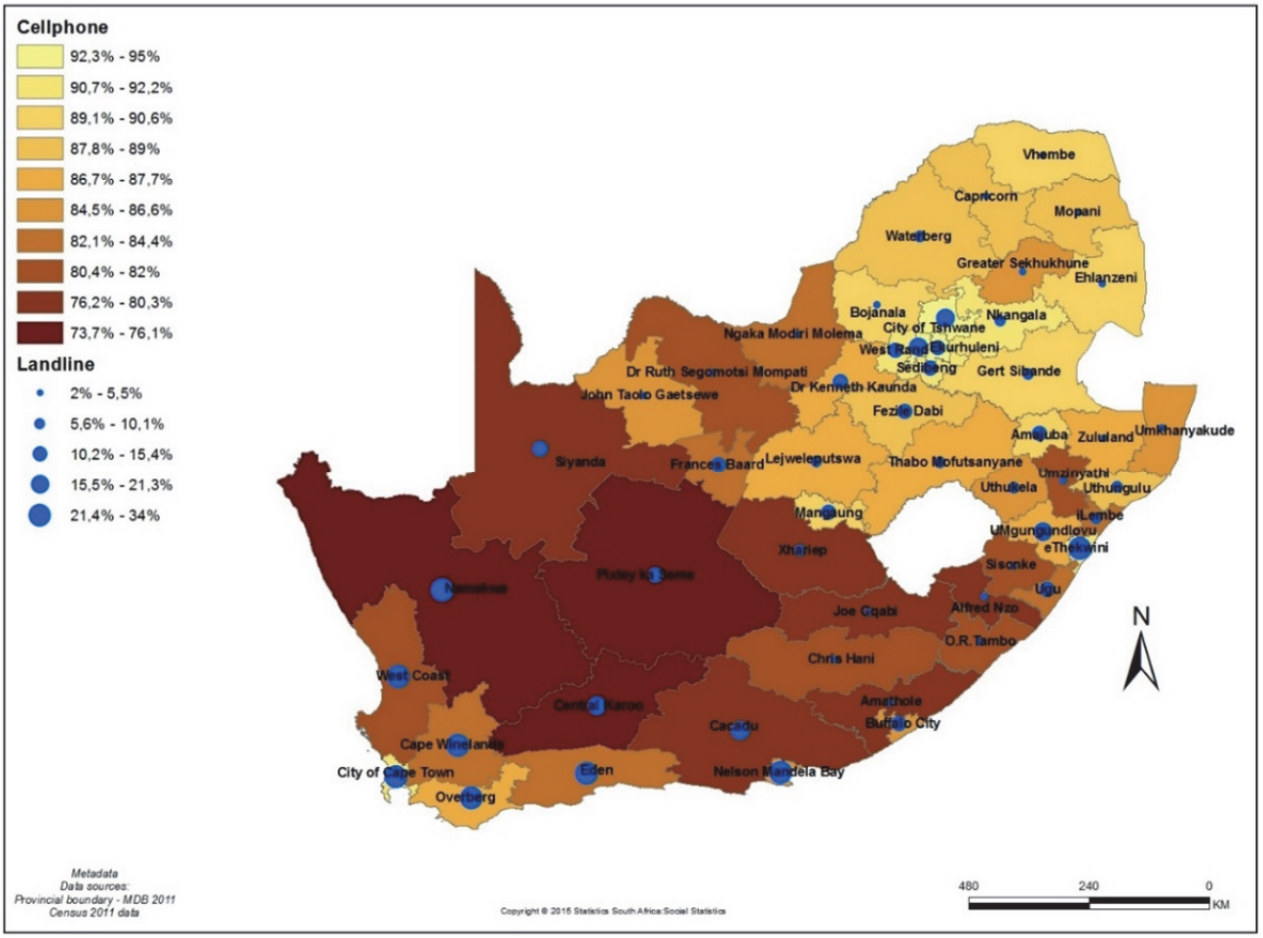
Table 10: Percentage of households with access to mobile phones by household income and socio-economic characteristics of the head, 2013

Employment status of the household head	
Employed (15-64)	97,4
Unemployed	97,1
Not economically active	96,2
Highest level of education of the household head	
No education	86,9
Some or completed primary	90,3
Some secondary	94,8
Completed Grade 12 / matric	98,7
Post-school	99,8
Per capita household income	
Poorest quintile	95,6
Quintile 2	95,8
Quintile 3	95,8
Quintile 4	98,6
Wealthiest quintile	99,6
South Africa	**94,8**

Source: GHS 2013

[1] The difference in the total number of households with access to mobile phones in 2002 between Table 6 and 7 is caused by missing values with regards to the classification of areas by settlement type in 2002. The slightly lower value in 2002 also affects the percentage increase over the period 2002 to 2013 in Table 9.

Map 3: Percentage of households with access to landlines and mobile phones per district municipality, 2011



Source: Census 2011

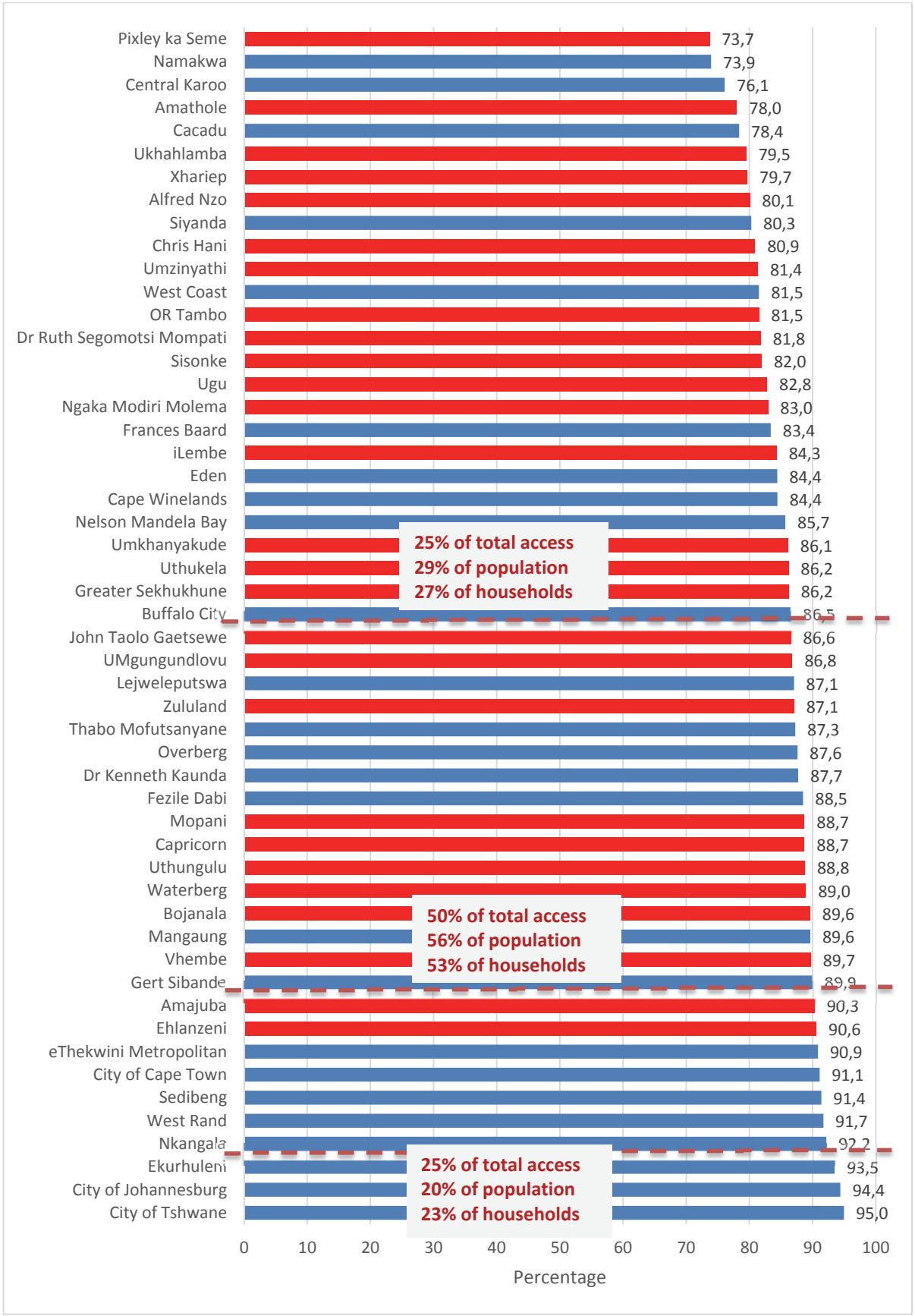
The distribution of fixed and mobile telephones by district municipality is presented in Map 3. The map reiterates the findings of the provincial data and shows that households in the Northern Cape districts of Pixley ka Seme, Namakwa and Central Karoo have the poorest access to mobile phones, followed by most of the districts in Eastern Cape and some in KwaZulu-Natal. By comparison, a much larger percentage of households in the Northern provinces, including Gauteng, Free State, Mpumalanga and Limpopo enjoyed better access.

While the map shows that a larger percentage of households generally had access to fixed telephone lines in metropolitan areas, it also seems to show an inverse relationship between household access to mobile and fixed line phones in some districts. Although relative few households in districts such as Pixley ka Seme, Namakwa and Central Karoo, as well as surrounding districts such as West Coast, Cape Winelands and Siyanda, had access to mobile phones, access to fixed line telephones were relatively high in these districts. Since some of these districts are sparsely populated, this finding might be indicative of poor mobile telephone signals in those areas. Conversely, access to fixed line phones were very limited in districts that had high levels of access to mobile telephones.

Figure 7 confirms the result of the map by showing that the districts in which households had the least access to mobile phones were generally located in Northern and Eastern Cape while the largest percentage of households with access to mobile telephones were found in the Gauteng metros. The results of Census 2011 shows that approximately 12,4 million households had access to a functional mobile phone. Compared to access to landlines, household access to mobile phones is much more equitable across the various districts.

The figure shows that 25% of users could be found in the 26 district municipalities with the lowest household access. Together these districts comprised 29% of the population and 27% of all households. Fifty percent of all households that had access to mobile phones were found in the 42 districts with the lowest household penetration. Approximately 56% of the population and 53% of all households lived in these districts. The three metropolitan areas in which households enjoyed the most access, namely Ekurhuleni, Tshwane and Johannesburg, between them shared 25% of all households with access to a mobile phone. Combined, 20% of the population and 23% of households lived in these metros. The 27 presidential priority districts were spread relatively evenly across the distribution of districts.

Figure 7: Percentage of households with access to mobile phones by district municipality, 2011

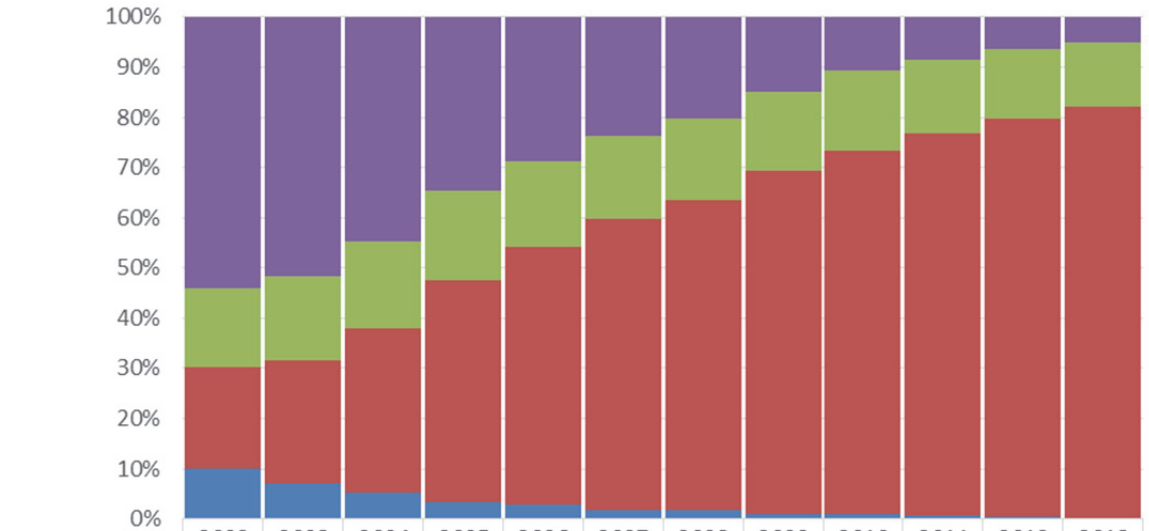


Source: Census 2011

5.3 Households with access to fixed-line and mobile telephones

Figure 8 confirms that mobile substitution has accompanied the decline of fixed telephone lines. While households with access to only mobile telephones increased from 20,2% in 2002 to 81,9% in 2013, the percentage of households who either had only a fixed line, or who had both a mobile and fixed telephone line continued to drop. By 2013, 0,2% of households only had a fixed telephone line, while another 12,9% had access to both types. The advent of the mobile telephone has led to a large decline in the number of households without any access to telephones. This is almost surely caused by the fact that mobile telephones provide greater convenience and price elasticity to users.

Figure 8: Percentage of households by access to fixed line or mobile telephones, 2002-2013

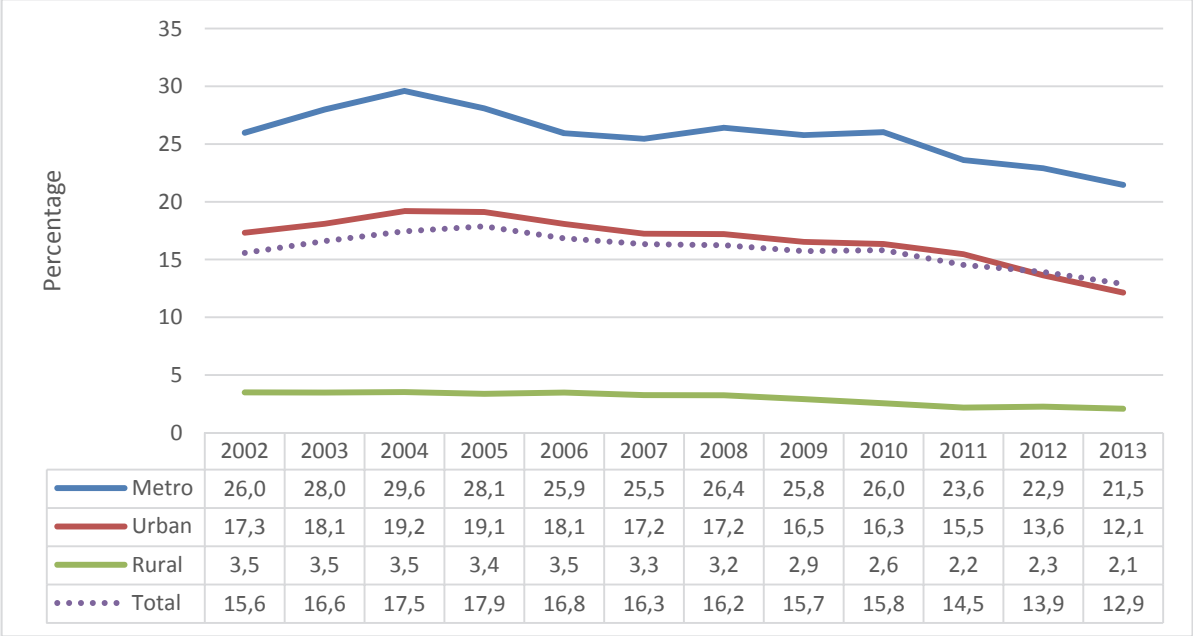


	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Neither	54,1	51,7	44,6	34,6	28,9	23,8	20,2	14,9	10,7	8,6	6,3	5,0
Both	15,6	16,6	17,5	17,9	16,8	16,3	16,2	15,7	15,8	14,5	13,9	12,9
Only Mobile	20,2	24,7	32,6	44,2	51,5	58,0	61,9	68,5	72,6	76,1	79,5	81,9
Only fixed line	10,1	7,0	5,3	3,4	2,8	1,9	1,7	0,9	0,9	0,8	0,3	0,2

Source: GHS 2002-2013

Figure 9 shows that the percentage of households that have had access to both fixed and mobile telephones have been declining relatively consistently in percentage terms across all three settlement types over the past decade. A larger percentage of households had such dual access in metropolitan areas than in urban or rural areas. However, a slightly different picture emerges when frequencies are summarized in Table 11.

Figure 9: Percentage of households with access to both landline and mobile phones by settlement types, 2002-2013



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Metro	26,0	28,0	29,6	28,1	25,9	25,5	26,4	25,8	26,0	23,6	22,9	21,5
Urban	17,3	18,1	19,2	19,1	18,1	17,2	17,2	16,5	16,3	15,5	13,6	12,1
Rural	3,5	3,5	3,5	3,4	3,5	3,3	3,2	2,9	2,6	2,2	2,3	2,1
Total	15,6	16,6	17,5	17,9	16,8	16,3	16,2	15,7	15,8	14,5	13,9	12,9

Source: GHS 2002-2013

Table 11 shows that, between 2002 and 2013, the number of households with dual access increased by 15,2% to 1,9 million. The largest increase was noted in metros (25,7%) while the number of households with dual access actually declined by 29,8% in rural areas.

Table 11: Number of households with access to both fixed and mobile telephones, 2002 and 2013

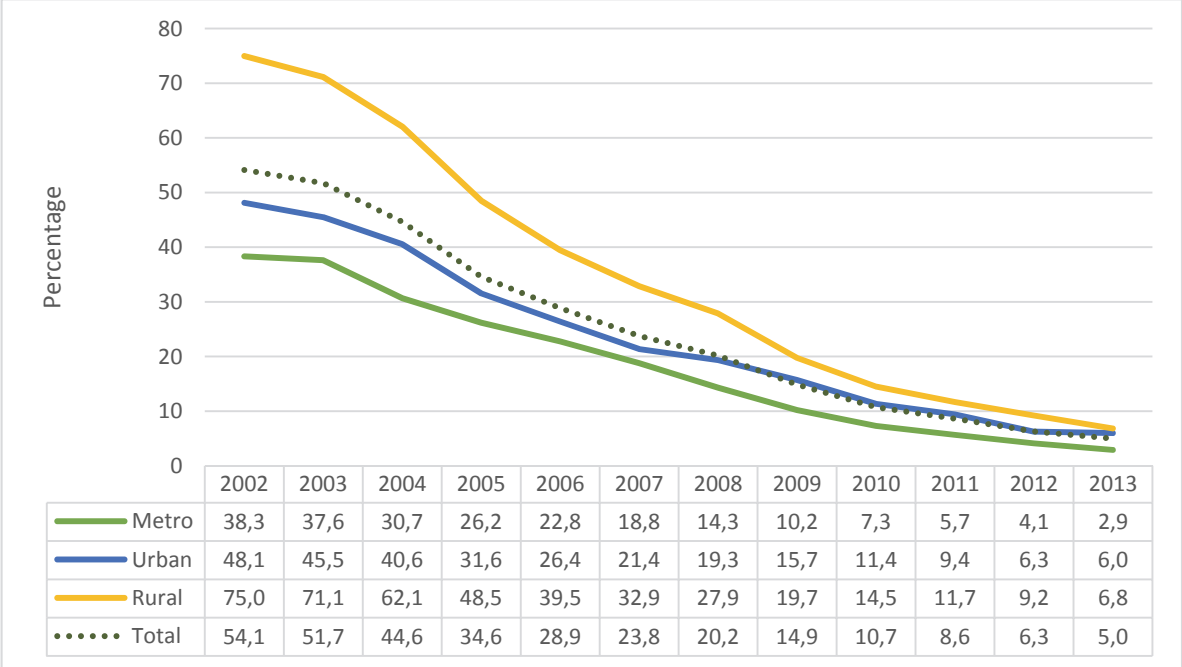
	2002	2013	Change
Metro	1 049 634	1 319 910	25,7%
Urban	489 901	514 440	5,0%
Rural	135 460	95 113	-29,8%
Total	**1 674 996**	**1 929 463**	**15,2%**

Source: GHS 2002 and 2013

5.4 Households without access to either fixed-line or mobile telephones

Telephones have evolved tremendously over the past century and have in many ways transcended voice communication by adding electronic communication through SMSs and the Internet through mobile phones technologies. In spite of this, telephonic interaction still remains a fast, efficient and reliable way of communicating. Although penetration is high, high airtime and data charges continue to hamper improved access and use. According to Gillwald (2005) high levels of access have been achieved, despite the high cost of the services, by the introduction of pre-paid contracts. This not only allowed users to circumvent the various prerequisites to get a contract, but also provided more flexibility in terms of use and payment.

Figure 10: Percentage of households with access to neither landlines nor mobile phones by settlement type, 2002-2013



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Metro	38,3	37,6	30,7	26,2	22,8	18,8	14,3	10,2	7,3	5,7	4,1	2,9
Urban	48,1	45,5	40,6	31,6	26,4	21,4	19,3	15,7	11,4	9,4	6,3	6,0
Rural	75,0	71,1	62,1	48,5	39,5	32,9	27,9	19,7	14,5	11,7	9,2	6,8
Total	54,1	51,7	44,6	34,6	28,9	23,8	20,2	14,9	10,7	8,6	6,3	5,0

Source: GHS 2002-2013

The percentage of households without access to any telephones have, particularly due to the introduction of affordable mobile technology, declined exceptionally over the past decade. Whereas 54% of households still reported no access to any telephony in 2002, only 5% did not have access to either fixed or mobile phones in 2013. Great convergence is noted in Figure 10 as the increased coverage of mobile networks has led to improved access to telephones in particularly rural areas. Despite the improvement, a larger percentage of households in rural areas (6,8%) as opposed to urban (6%) and metropolitan (2,9%) areas still did not have access to any form of telephone.

Table 12 shows that the number of households without access to either fixed or mobile telephones declined by 87%, or 5,1 million, between 2002 and 2013. The fact that similar declines were observed across metros, urban and rural areas confirms the dominant role mobile penetration played in providing households with access.

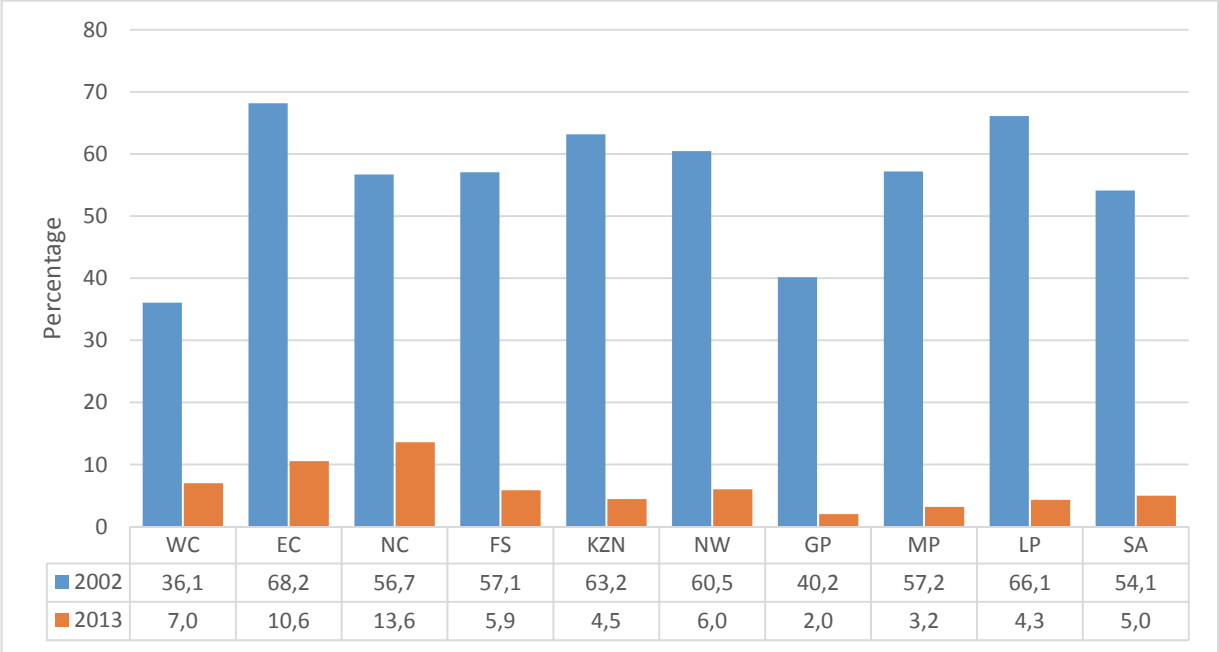
Table 12: Number of households without access any telephones, 2002 and 2013

	2002	2013	Change
Metro	1 548 013	178 840	-88,4%
Urban	1 361 138	254 118	-81,3%
Rural	2 913 407	313 399	-89,2%
Total	**5 822 558**	**746 357**	**-87,2%**

Source: GHS 2002 and 2013

The decline in the percentage of households without access to either fixed or mobile telephones was least pronounced in the two most urbanised province, Western Cape and Gauteng. Figure 11 shows that, between 2002 and 2013, the largest percentage point decreases took place in provinces with the largest rural populations, namely Limpopo (61,8 percentage points), KwaZulu-Natal (58,7 percentage points), Eastern Cape (57,6 percentage points) and North West (54,5 percentage points).

Figure 11: Percentage of households with no access to either fixed telephone lines or mobile phones by province, GHS 2002 and 2013



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
2002	36,1	68,2	56,7	57,1	63,2	60,5	40,2	57,2	66,1	54,1
2013	7,0	10,6	13,6	5,9	4,5	6,0	2,0	3,2	4,3	5,0

Source: GHS 2002 and 2013

Table 13 shows that the sex of the household head had no relationship to access to phones. Households with elderly heads (8,6%) were more likely to have no access than households headed by younger individuals aged 15-34 years (4,7%) and 35-59 years (4,8%). Access to phones were almost universal amongst households headed by White and Indian/Asian individuals but a substantial percentage of households headed by Coloured (11,3%) and Black African (5,9%) individuals still had no access. In addition, the table shows that a larger percentage of households in traditional (11,5%) and informal dwellings (10,9%) did not have access to any telephony than compared to households living in formal dwellings (4,5%). As could be expected, a smaller percentage of households in the wealthiest income quintiles did not have access to phones than households in the lower income quintiles.

Table 13: Percentage of households with no access to either a landline or mobile telephone in the dwelling by characteristics of the household and the household head, 2013

	Percentage
Sex of household head	
Male	5,8
Female	5,8
Population group of household head	
Black African	5,9
Coloured	11,3
Indian/Asian	0,8
White	0,6
Age Group of household head	
15 - 34	4,7
35 - 59	4,8
60+	8,6
Dwelling Type	
Formal	4,5
Informal	10,9
Traditional	11,5
Per Capita household income quintile	
Poorest quintile	7,0
Quintile 2	6,7
Quintile 3	10,3
Quintile 4	2,8
Wealthiest Quintile	0,6

Source: GHS 2013

Ninety percent of households without access to any telephones in the dwelling reported that they lived within a kilometre from a phone the household could use, and 68% reported that a telephone was less than 500 meters away. This is presented in Figure 12. It is interesting to note from Table 14 that the percentage of households that reported that the nearest accessible telephone was more than one kilometre away increased from 6,1% in 2009 to 9,8% in 2013. As could be expected, a much larger percentage of households in rural areas (17,5%) as compared to households in metro or urban areas indicated that they would have to travel at least a kilometre to get to a phone.

Figure 12: Nearest accessible telephone for households without any fixed or mobile telephones, 2013

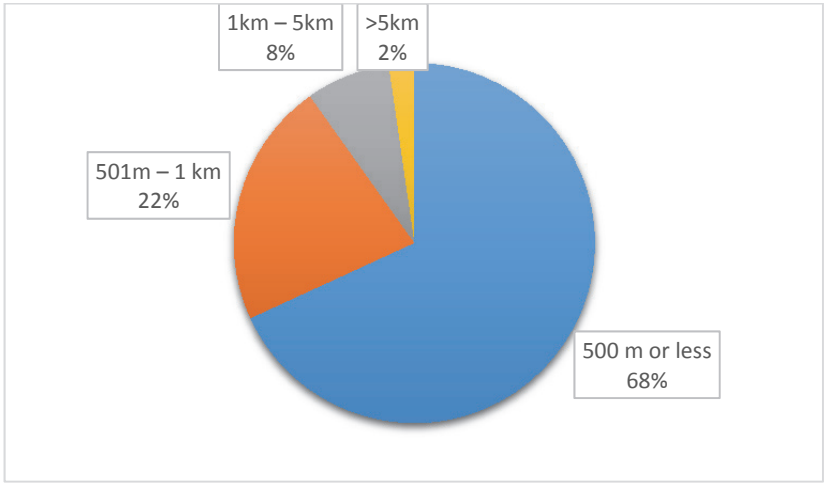


Table 14: Percentage of households without access to fixed or mobile telephones where the nearest accessible phone is more than 1km away, 2013

	2009	2010	2011	2012	2013
Metro	0,5	1,8	2,4	2,4	1,6
Urban	1,3	3,0	4,2	3,5	5,3
Rural	12,4	17,1	15,3	17,0	17,5
Total	**6,1**	**8,8**	**8,6**	**9,4**	**9,8**

Source: GHS 2013

5.4.1 Predictors of households without access to landlines or mobile telephones using logistics regression

A logistic regression was performed to predict a household's lack of access to any telephones, whether fixed of mobile using a set of independent variable. The model is presented in Table 15.

The odds of households in Eastern and Northern Cape not to have access to either mobile or fixed telephones were respectively 1,336 and 1,429 times greater than the odds of households in Western Cape. Similarly, households in Free State, KwaZulu-Natal and North West were less likely to have access to mobile or fixed telephones than households in the reference category. However, it should be noted that the difference were insignificant for Eastern and Northern Cape. Urban households were more likely to not have access to fixed or mobile telephones but were less likely than households in metro areas not to have access to fixed or mobile telephones. Households in formal dwellings were 55% and 76% higher not to have access to fixed or mobile telephones than traditional and informal dwellings.

The odds of households in the poorest quintile not to have access to fixed or mobile telephones were lower than households in the wealthiest income quintile. Black Africans were less likely not to have access to fixed or mobile telephones than Coloureds but were more likely than Indians/Asian and Whites. The youth headed households were also less likely not to have access to fixed and mobile telephones as compared to households headed by 35 – 59 year olds and households headed by older persons (60 years and older). The odds of households headed by Males were 21% lower than the odds of households headed by females not to have access to fixed and mobile telephones.

Table 15: Predictors of households without access to landlines or mobile telephones using logistics regression, 2013

	No phones
Likelihood ratio chi-square	1 325
Hosmer and Lemeshow goodness of fit test (P-value)	<,0001
N	24 866
Intercept	-2,6674
Odds ratio	
Province	
Western Cape (Reference category)	
Eastern Cape	1,336
Northern Cape	1,429
Free State	0,792*
KwaZulu-Natal	0,596
North West	0,838*
Gauteng	0,38
Mpumalanga	0,45
Limpopo	0,557
Geographical Location	
Urban (Reference)	
Rural	1,029*
Metro	0,656
Dwelling Type	
Formal (Reference category)	
Traditional	1,554
Informal	2,759
Per Capita income quintile	
Poorest quintile (Reference)	
Quintile 2	0,847
Quintile 3	1,404
Quintile 4	0,441
Wealthiest Quintile	0,131
Age of household head	
15 – 34 (Reference category)	
35 - 59	1,093*
60+	1,918
Population group of household head	
African (Reference category)	
Coloured	1,873
Indian/Asian	0,368
White	0,302
Gender of household head	
Male (Reference category)	
Female	0,79

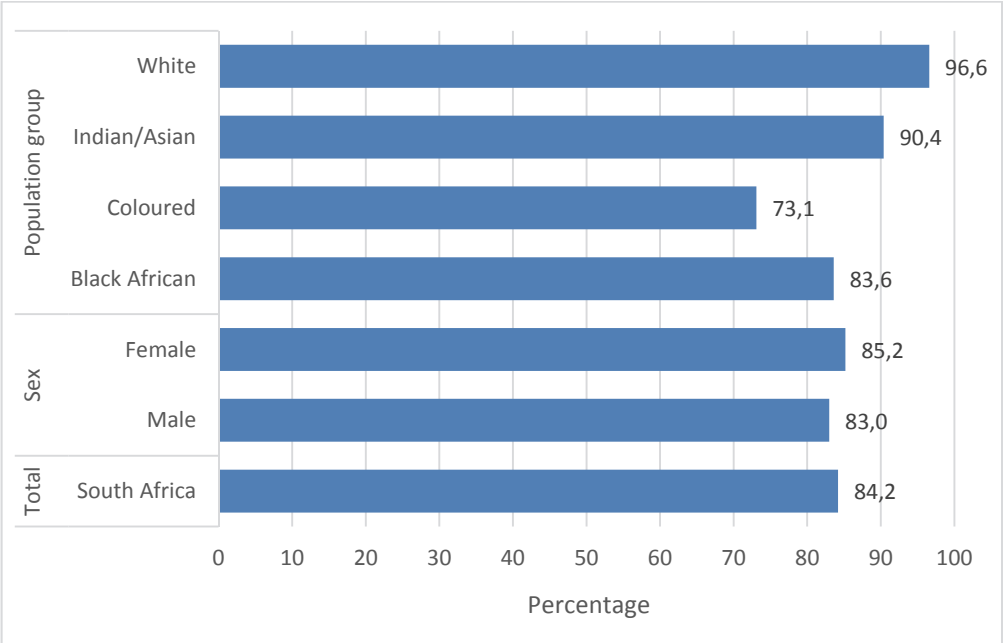
*Value that are not significant at 95% level of significance
Source: GHS 2013

5.5 Ownership of mobile phones by individuals aged 15 years and older

In order to assess individual ownership of mobile phones, household members were requested to indicate whether they owned one or more mobile telephones in working condition during some or all of the past 12 months.

Figure 13 shows that 84,2% of South Africans aged 15 years and older owned a functional cellphone and that a slightly larger percentage of females than males owned mobiles in the year before the survey. Cellphone ownership was most common amongst white individuals (96,6%) and least common amongst coloured individuals (73,1%).

Figure 13: Percentage of individuals aged 15 years and older who owned one or more mobile phones by sex and population group, 2013

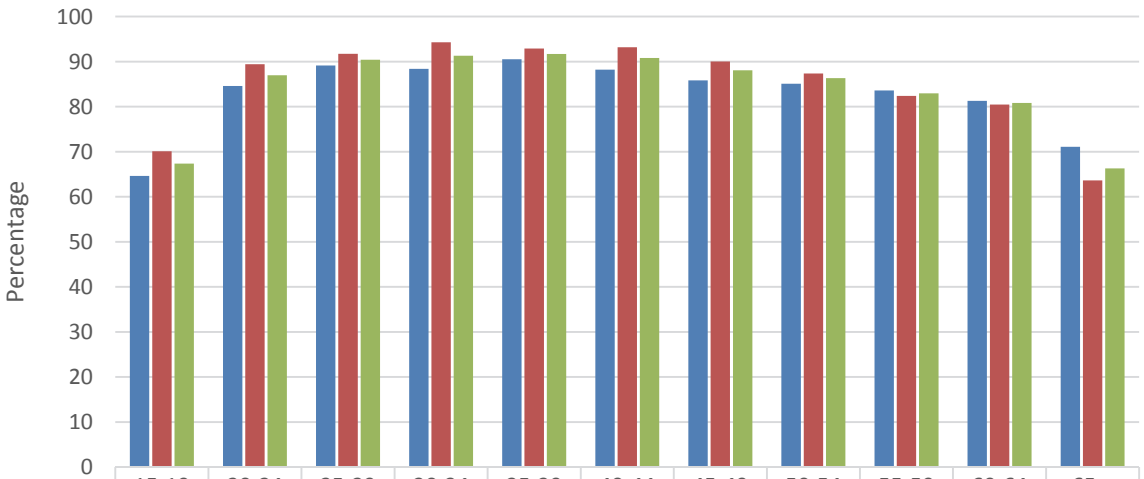


Source: GHS 2013

Analysis of ownership by age (Figure 14) shows that ownership was highest for individuals in the age group 35-39 years followed closely by individuals in the preceding age group, 30-34 years. About two-thirds (67,4%) of youth in the age group 15-19 owned a cellphone. Figure 14 also shows that ownership increased steadily from age 20-24 years before peaking in the age group 35-39, after which it declines to 66,3% for persons in the age group 65 years and older.

It is notable that female ownership of mobile phones exceeded male ownership in all age groups until the age group 50-54 years of age. From the following age group, 55-59 years, male ownership becomes more common than female ownership.

Figure 14: Percentage of individuals aged 15 years and older who owned one or more mobile phones by five year age group, 2013

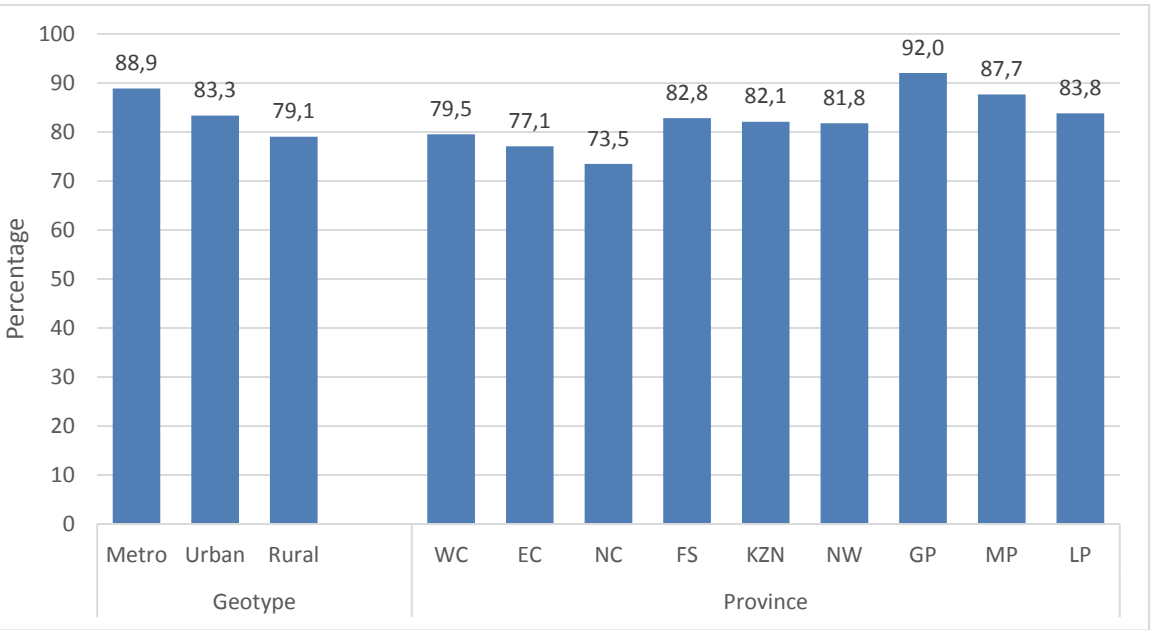


	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 +
Male	64,6	84,6	89,2	88,4	90,5	88,2	85,8	85,1	83,6	81,3	71,1
Female	70,1	89,4	91,7	94,3	92,9	93,2	90,0	87,4	82,4	80,5	63,6
Total	67,4	87,0	90,4	91,3	91,7	90,8	88,1	86,3	83,0	80,8	66,3

Source: GHS 2013

According to Figure 15, ownership of mobile phones was most common amongst persons that lived in one of the metros (88,9%), followed by those in urban areas (83,3%) and finally individuals in rural areas (79,1%). Ownership was most common in Gauteng (92%), followed by Mpumalanga (87,7%) and Limpopo (83,8%). Ownership was least common in Northern Cape, where less than three-quarters (73,5%) of individuals owned a phone.

Figure 15: Percentage of individuals aged 15 years and older who owned one or more mobile phones by province and settlement type, 2013



Source: GHS 2013

Cellphone ownership seems to be closely associated with income. Table 16 shows that a much larger percentage of employed persons owned cellphones compared to those that were unemployed or not economically active. Notably, a larger percentage of unemployed persons (86,4%) than persons who were not economically active

(74,2%) owned a phone. Cellphones have become an indispensable tool to socialize and to look for work with and it has been reported that many poor people would rather sacrifice food or other essentials than lose their connectivity (Gillwald et al, 2005).

Table 16 also shows that ownership seems to increase with education. Ownership of mobile phones increased consistently across educational attainment categories from 56,6% for persons without any education across a number of categories, including completing matric (95,4%), and 98,8% for persons who have some post-school qualifications. Persons that lived in households with the highest per capita household income were most likely to own cellphones, while those in the poorest households were least likely to do so.

Table 16: Percentage of individuals aged 15 years and older who owned one or more cellphones, 2013

	Percentage
Labour force status	
Employed	94,1
Unemployed	86,4
Not economically active	74,2
Highest level of education	
No schooling	56,6
Completed some primary school	69,0
Completed primary school	70,8
Completed some secondary school	82,7
Completed secondary school	95,4
Post-school qualifications	98,8
Per capita household income	
Poorest quintile	70,2
Quintile 2	75,6
Quintile 3	80,8
Quintile 4	92,4
Wealthiest quintile	97,8

Source: GHS 2013

6. Access to the Internet

The Human Rights Council of the United Nations General Assembly has declared that access to the internet is a basic human right which enables individuals to 'exercise their right of freedom of opinion and expression' (DTPS, 2013). There has been a significant growth in the number of South African households that have a functioning internet connection. The cost of, and slow pace at which fixed broadband services (ADSL) have been deployed have, however, made mobile broadband access the primary driver of this growth. Although the relatively high cost of internet services have translated into relatively low penetration rates due to the unaffordability of the service to many individuals and households, wireless broadband penetration is expected to continue growing into the future (DTPS, 2014: 27). According to Gillwald (2015: 9) many African users prefer to use mobile handsets or 3G dongle modems to access the internet instead of setting up fixed ADSL connections. Since wireless technology is inherently less stable than fixed broadband technologies, the absence of omnipresent, reliable, high speed connectivity could seriously undermine efforts to build an information society and knowledge economy that could ignite socio-economic development (Gillwald, 2015; DTPS, 2014:55).

6.1 Household access to the Internet using multiple services

Access to the Internet is possible through a variety of means, including fixed lines, mobile internet devices and WiFi using a variety of devices such as mobile telephones and tablets, desktop and notebook PCs. A set of

questions designed to measure household access to the Internet was introduced in the GHS in 2009. Although the questions have, for comparison purposes, largely remained the same since additional categories were added to improve measurement in 2011, when access using a mobile cellular telephone was added as a response category. To provide for households that used a 3G dongle modem or similar device, such a category was added in 2012. Data on Internet access using mobile devices is therefore not comparable to data collected before 2012. Another important point to note is that, unlike the census question, households were allowed to indicate the use of multiple services, not just the main service that is usually utilized.

Table 17 shows that households that indicated that they had an Internet connection at home remained relatively stable around the 10% mark since 2010. By comparison, more than 30% of households accessed the Internet using mobile devices (on cellphones, or using other mobile devices) in 2012 and 2013. The percentage of households that reportedly accessed Internet at work ranged between 14,2% in 2009 and 18,1% in 2013. After mobile Internet connections, this was the most commonly use service used by households. Very similar percentages of households (approximately 5%) accessed the Internet at school and through Internet Cafes.

Table 17: Percentage of households with access to the Internet using different services, GHS 2009-2013

	2009	2010	2011	2012	2013
Home	8,9	10,5	10,1	9,8	10,0
Mobile	*	*	19,4**	31,2	30,8
Library	1,7	3,3	2,8	2,3	1,9
School	4,1	5,8	5,1	5,4	5,1
Work	14,2	17,5	16,6	18,1	16,2
Internet cafe	5,0	6,9	6,4	5,5	4,7

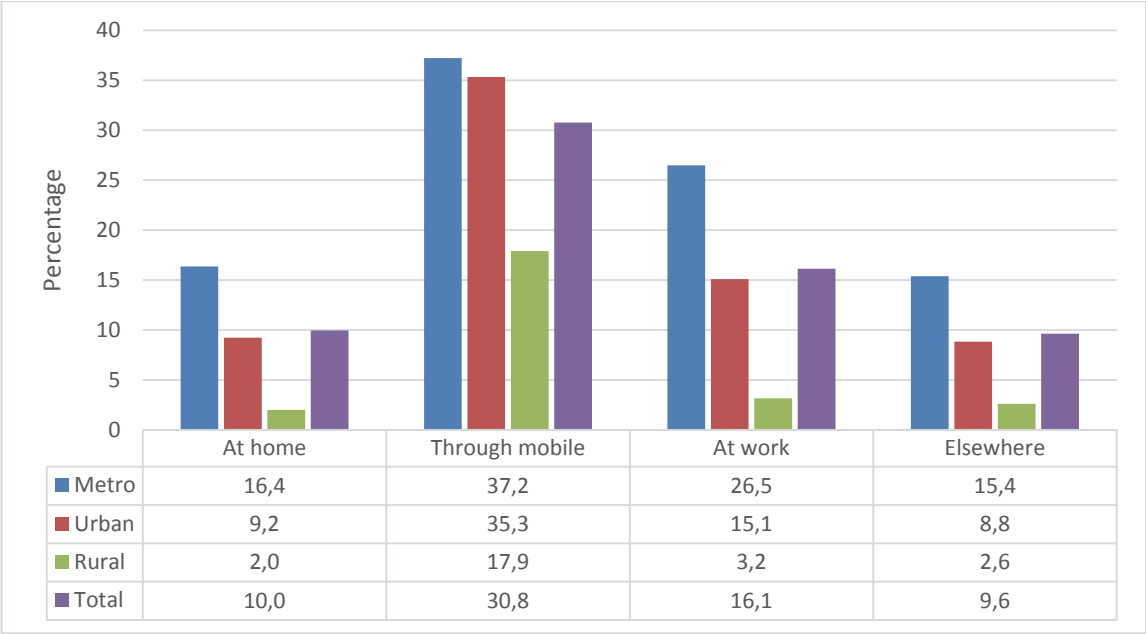
*Not asked;

** Not comparable with data from 2012 and 2013 as it did not refer to devices.

Source: GHS 2009-2013

Despite ICT regulatory commitments to provide universal, affordable and accessible telecommunications services to residents across all geographic areas, Figure 16 shows that households in rural areas are still much less likely to have access to the Internet than their peers in urban and metropolitan areas. Internet access by rural households is substantially lower than access by households in metros and urban areas across all categories, including when using mobile phones or devices. By contrast, households in metropolitan areas had the highest access across all four categories, at home (16,4%), through mobile (37,2%), at work (26,5%) and elsewhere – including at education institutions and using internet cafes (15,4%). Although lagging the access by metropolitan households, households in urban areas still enjoyed significantly better access that households in rural areas.

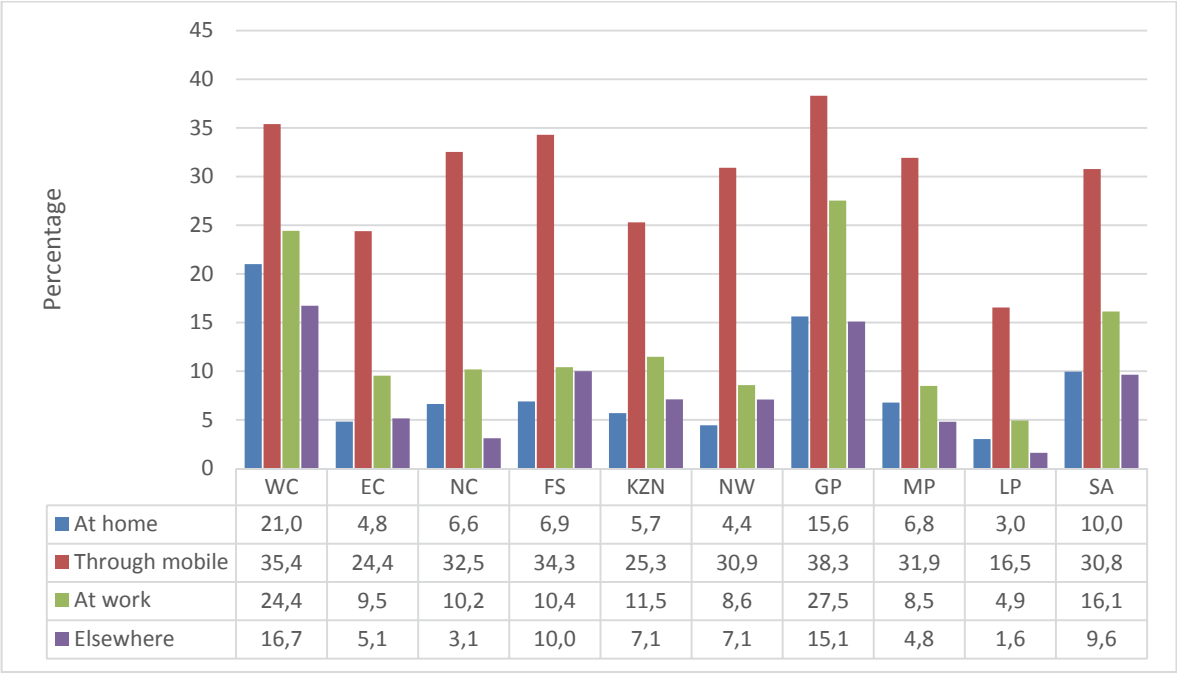
Figure 16: Percentage of households with access to the Internet by type of access and settlement type, 2013



	At home	Through mobile	At work	Elsewhere
Metro	16,4	37,2	26,5	15,4
Urban	9,2	35,3	15,1	8,8
Rural	2,0	17,9	3,2	2,6
Total	10,0	30,8	16,1	9,6

Source: GHS 2013

Figure 17: Percentage of households with access to the Internet by type of access and province, 2013



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
At home	21,0	4,8	6,6	6,9	5,7	4,4	15,6	6,8	3,0	10,0
Through mobile	35,4	24,4	32,5	34,3	25,3	30,9	38,3	31,9	16,5	30,8
At work	24,4	9,5	10,2	10,4	11,5	8,6	27,5	8,5	4,9	16,1
Elsewhere	16,7	5,1	3,1	10,0	7,1	7,1	15,1	4,8	1,6	9,6

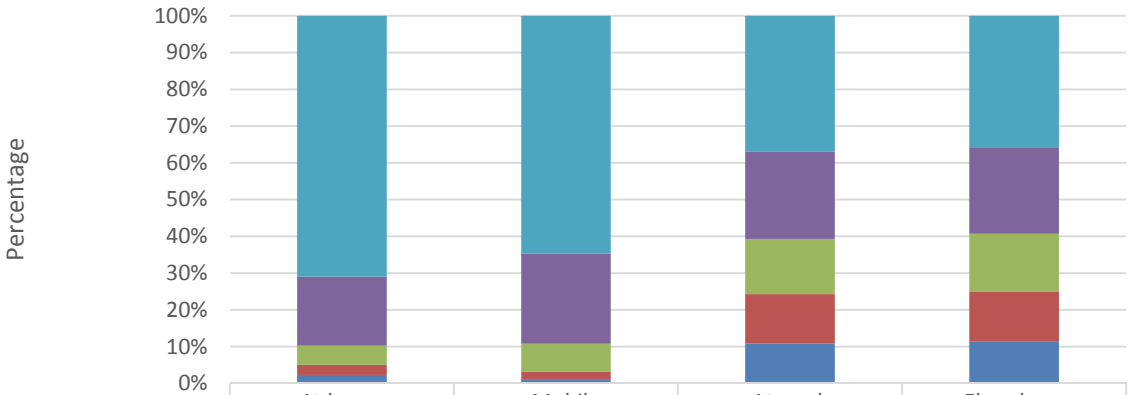
Source: GHS 2013

A comparison of internet access across provinces shows that mobile access provided the most substantial form of access across all provinces. The poorest access was measured in a rural province, Limpopo (16,5%), while the largest access was measured in Gauteng (38,3%) and Western Cape (35,4%), both very urbanised provinces. As with mobile internet access, the largest household access to the Internet at home was observed in Western Cape (21%) and Gauteng (15,6%) while the lowest access was found in Limpopo (3%). Access to the internet at work was also most common in Gauteng and Western Cape.

Although mobile broadband packages are much cheaper than comparable ADSL or fixed broadband ones, South African prices are still considered expensive. The relatively high cost of access explains why 71% of households

that accessed the internet at home, and 64,7% of households that used mobile devices to access the internet were from the wealthiest per capita income quintile. By contrast, 5,1% of households that access internet at home and 3,2% of households that access mobile internet were from the bottom two quintiles. Households from the poorest income quintiles were much better represented amongst those that used the internet at work or elsewhere.

Figure 18: Percentage of households with access to the Internet by type of access and per capita household income, 2013

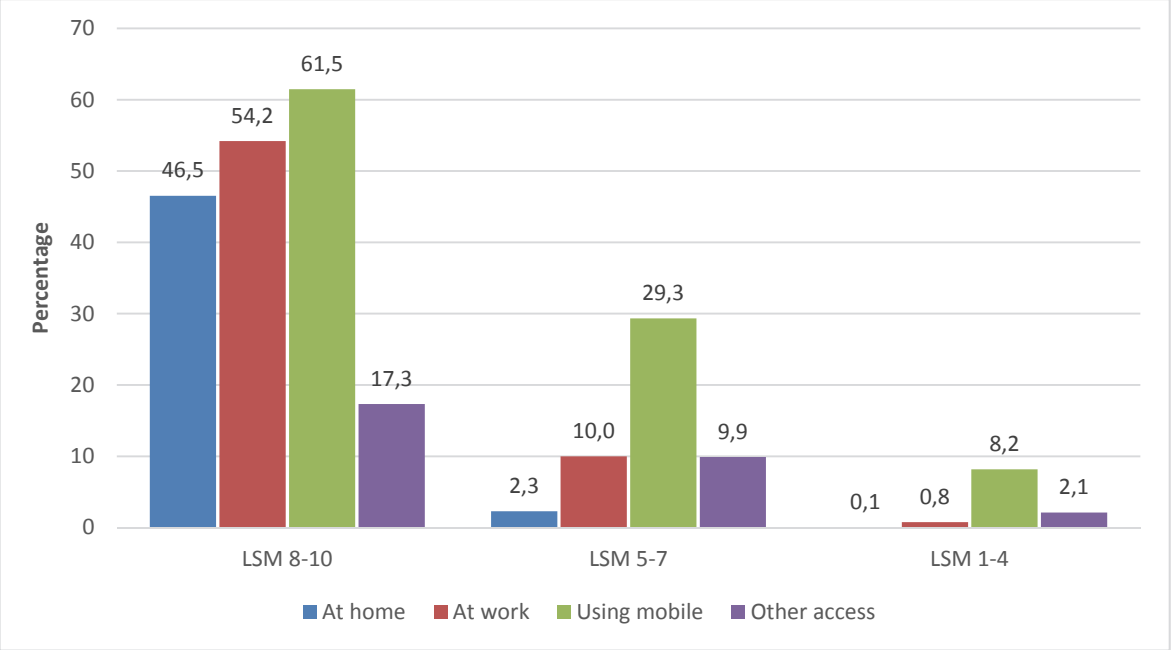


	At home	Mobile	At work	Elsewhere
Wealthiest quintile	71,0	64,7	36,9	35,7
Quintile 4	18,8	24,6	23,8	23,6
Quintile 3	5,2	7,5	15,1	15,7
Quintile 2	2,8	2,1	13,4	13,5
Poorest quintile	2,3	1,1	10,9	11,5

Source: GHS 2013

As could be expected, households that were classified as LSM 8-10 households had much better access to the Internet using all forms of access than households from the other LSM categories. While 61,5% of LSM 8-10 households accessed mobile internet, this was only the case for 29,3% of LSM 5-7 and 8,2% of LSM 1-4 households. A much larger percentage of LSM 8-10 households also had access at home (46,5%) compared to 2,3% for LSM 5-7 and 0,1% for LSM 1-4 households.

Figure 19: Percentage of households with access to the Internet by LSM, 2013

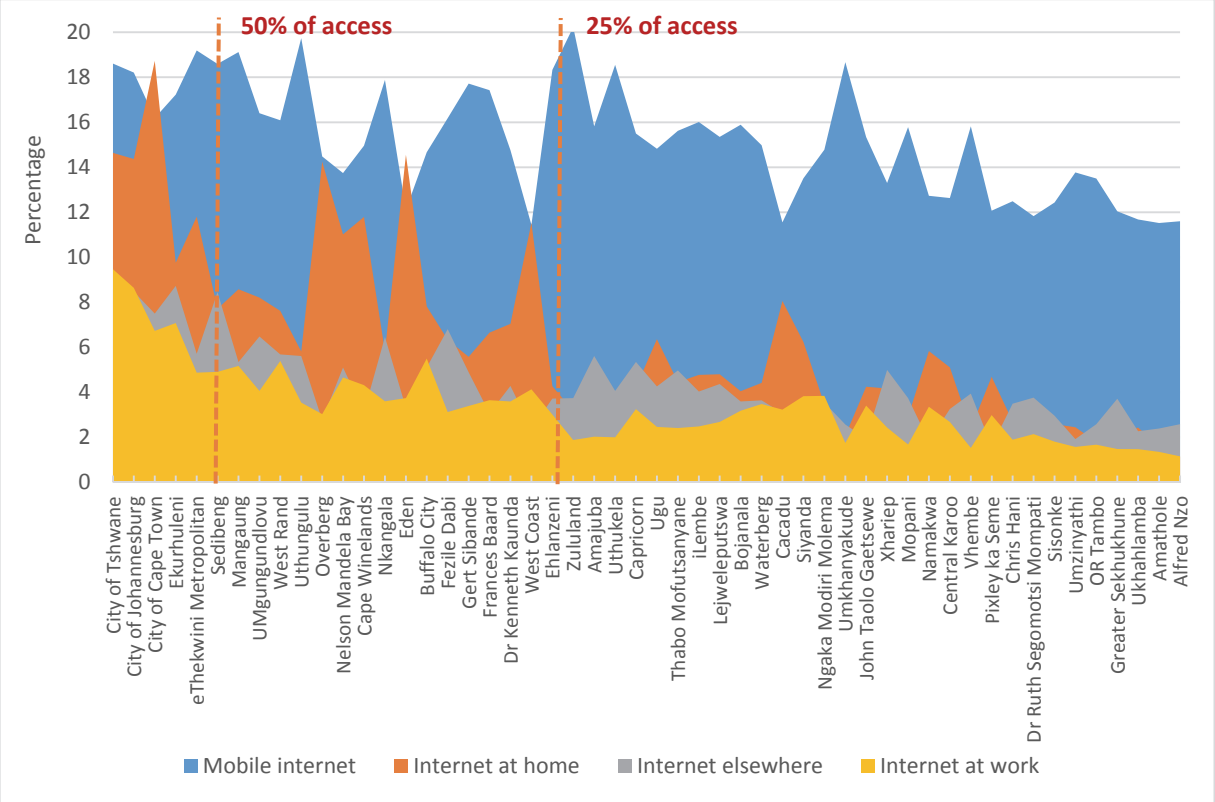


Source: GHS 2013

In Census 2011 Stats SA asked households how they mainly accessed the internet. Households were given five options of which they could select one. The categories were: from home; from cellphone; from work; from elsewhere; and no access to the internet. Unlike the question that was asked in the General Household Survey and that was used to compile the information that were used thus far, this only measured the main source of access as opposed to all forms of access. One can therefore assume that the data obtained from the census and from the GHS would differ. The fact that census data is available on sub-provincial level makes it a valuable contribution to analyse internet penetration. Figure 20 and 21 explore access to the Internet using different modes of access by district municipality as sourced from census data.

It is notable from Figure 20 that mobile Internet access has consistently provided the single largest form of access across all districts except for the three Western Cape districts of Cape Town, Eden and West Coast where a larger percentage of households said they used internet at home. Access to the Internet at home was highest in the metros, namely Johannesburg (14,4%), Tshwane (14,6%) and Cape Town (18,7%) as well as the Eden district municipality (14,6%).

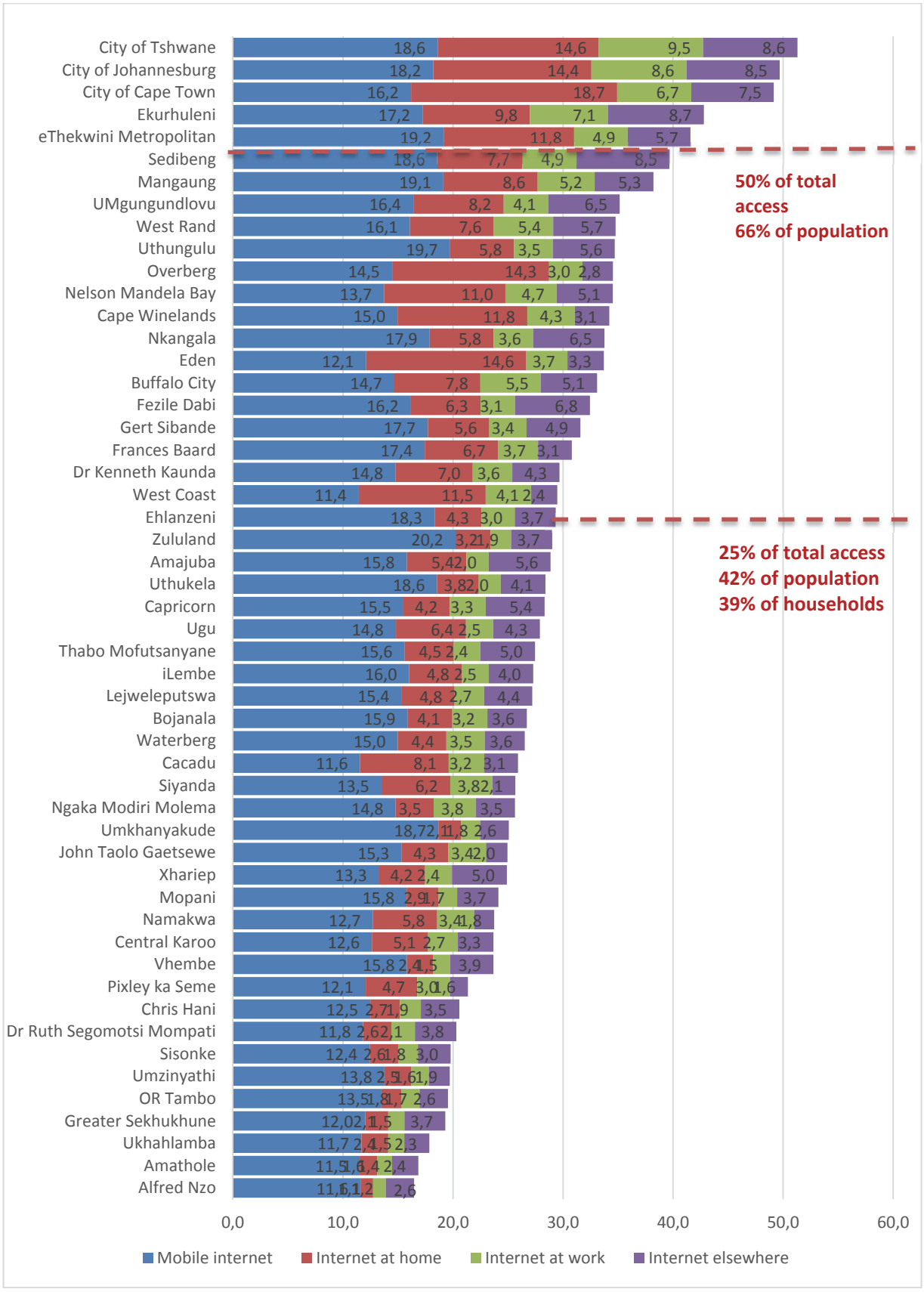
Figure 20: Percentage of households with access to the Internet by type of access and district municipality.



Source: Census 2011

Figure 21 shows that 35,2% of all households had some kind of access to the Internet using any of the modes of access. The lowest household access was observed in Alfred Nzo (16,5%), Amathole (16,9%) and Ukhahlamba (17,9%). On the other end of the scale, internet access was much more common for households in Cape Town (49,2%), Johannesburg (49,7%) and Tshwane (51,3%).

Figure 21: Percentage of households with access to the Internet by type of access and district municipality, 2011

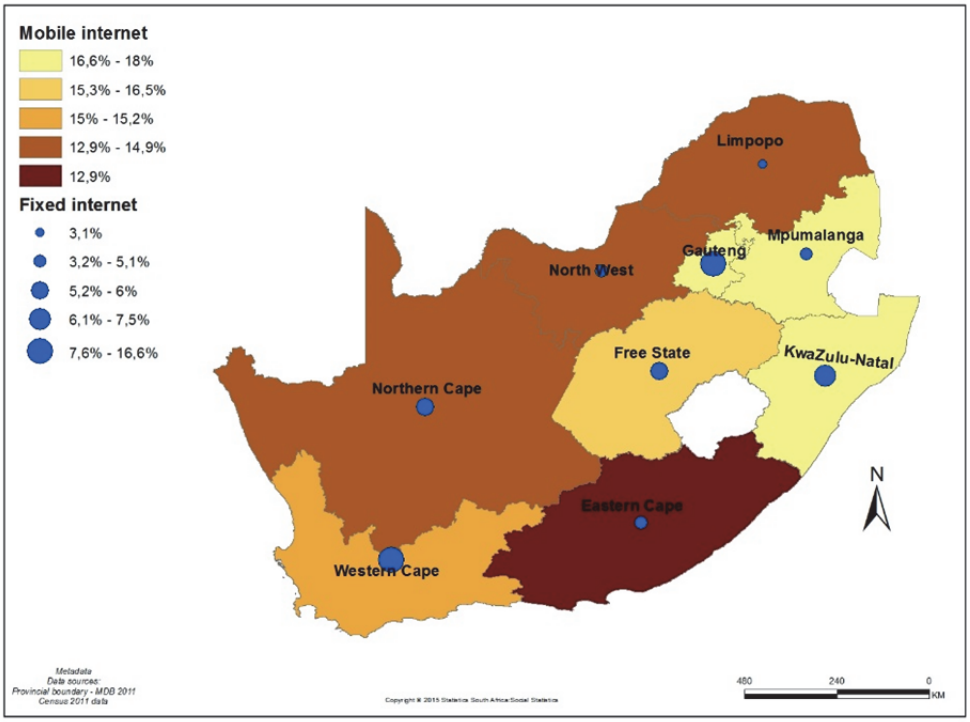


Source: Census 2011

6.2 Fixed and mobile access to Internet

There has been significant growth in the number of households with access to internet. RIA reports that the percentage of households with access to a working Internet connection increased from 4,8% in 2008 to 20% in 2012 (Gillwald et al, 2012: 63). Figures are however still low compared to those in economies with similar sized economies and significant opportunity for growth remains. Although Telkom reports that the number of fixed broadband internet (ADSL) subscribers have increased to 926 944 in March 2014, up 6,5% from a year earlier (New Telkom ADSL numbers impress, 2014), growth will be stunted by relatively high charges and line rentals as demand in the short term will be met through mobile services and devices (Gillwald, Moyo and Stork, 2014: 44). The authors continue to point out that mobile broadband is faster, cheaper and more convenient than fixed line broadband due to the lower set-up cost, more convenient payment options, faster installation time, and because it is not bound to a formal dwelling. Although cheaper, more accessible mobile internet will help internet penetration to grow more rapidly, they argue that it is unlikely to replace fixed-line internet for consumers who require a stable and reliable connection.

Map 4: Percentage of households with an Internet connection at home by province, Census 2011



Source: Census 2011

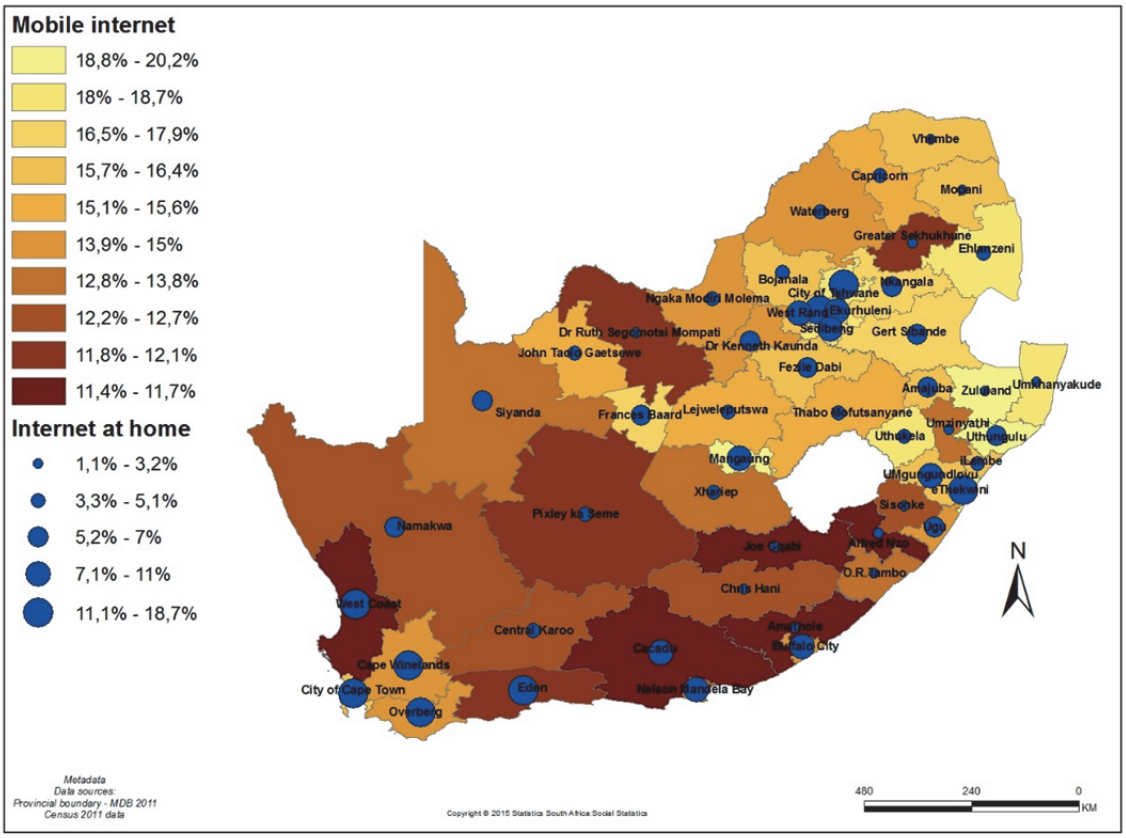
The provincial household access to mobile internet or internet at home is presented in Map 4 using data from Census 2011. The map shows that access to the internet at home is most common in Western Cape (16,6%) and Gauteng (12,3%), the two provinces in which households also experienced the highest access to fixed telephone lines according to Census 2011 and successive GHSs. Access to the internet at home was most restricted in Limpopo (3,1%), North West (4,3%) and Eastern Cape (4,9%) according to Census 2011. In terms of access to mobile internet it is notable that, while access differential still exist, it is generally much less pronounced than those with regards to 'internet at home'. Household access to mobile internet was highest in Mpumalanga (18%), Gauteng (17,9%) and KwaZulu-Natal (17,7%) and most restricted for households in Eastern Cape (12,9%). The ranking of provinces according to their access to mobile Internet largely corresponds to their access to cellphones.

The distribution of household access to mobile internet and internet at home is presented in Map 5, below. According to this map, the lowest household access to mobile internet in 2011 was found in West Coast,

Amathole, Cacadu, Alfred Nzo and Ukhahlamba. Household access was most common in Umkhanyakude, Mangaung, eThekwini, Uthungulu and Zululand, four of which are in KwaZulu-Natal. Taking into account that darker shades signify lower access while lighter coloured areas signify improved access, a visual overview seems to suggest that, in general, districts in the North-Eastern part of the country enjoyed better access than those in the South-West.

Figure 21 shows that, whilst access to mobile internet was relatively equally distributed across districts, household access to internet access at home is clearly more skewed towards the large metros and districts in Western Cape. Of the ten district with the highest household access to internet at home, six were metros and four were districts in Western Cape. Although the ranking is not exactly the same, these are also the areas in which access to fixed line telephones were the highest. Household access to the internet at home was most common in Cape Town (18,7%), Tshwane and Eden district municipality (both 14,6%) and Johannesburg (14,4%). On the opposite side of the spectrum, less than two percent of households in Alfred Nzo, Amathole and OR Tambo had access to the internet at home. As can be seen from the map, Alfred Nzo and Amathole were also two of the four districts in which households enjoyed the poorest access to mobile internet.

Map 5: Percentage of households with an Internet connection at home by district.



Source: Census 2011

Table 18 shows that a larger percentage of households headed by males than females (13,1% compared to 5,6%) had access to internet at home. Although the same observation is true for mobile internet as well, the difference between male and female headed households is much smaller. A much larger percentage of households headed by Indian/Asians (54,6%) and White individuals (52,3%) had access to mobile internet than those headed by Black Africans (26,7%) and Coloureds (36,2%). For internet at home, households with white heads outstripped households with heads from other population groups in terms of access. When the age group of the head is considered it becomes clear that, at least for mobile internet, access was less common for households headed by

older individuals. Whereas more than one-third (35,6%) of households with heads aged 15-34 had access to mobile internet, only 31,7% of those with heads aged 35-59 and 22,3% of those with heads aged 65 years and older had mobile access. The relationship of head age to internet access at home is less clear cut.

Table 18: Percentage of households with access to internet at home and mobile internet by characteristics of the household head, 2013

	Percentage	
	Mobile	**At home**
Sex		
Male	33,0	13,1
Female	27,6	5,6
Population group		
Black African	26,7	3,8
Coloured	36,2	11,1
Indian/Asian	54,6	29,8
White	52,3	51,3
Age Group		
15 - 34	35,6	8,4
35 - 59	31,7	10,8
60+	22,3	10,0

Source: GHS 2013

Table 19 shows that a larger percentage of household in metro areas than in urban or rural areas had access to mobile internet or internet at home. In terms of dwelling type, it is clear from Table 19 that a larger percentage of households in formal dwellings than other dwellings types accessed mobile internet or internet at home. Similarly, households from the wealthiest income quintile experienced better access to mobile internet or internet at home than households in the other quintiles, particularly households from the poorest income quintile. Households in the latter quintile endured the most restricted access to both mobile internet and internet at home.

Table 19: Percentage of households with access to internet at home and mobile internet by characteristics of the household head, 2013

	Percentage	
	Mobile	**At home**
Settlement type		
Metro	37,2	16,5
Urban	35,3	9,3
Rural	17,9	2,0
Dwelling Type		
Formal	35,6	12,7
Informal	15,0	0,6
Traditional	10,6	0,2
Per Capita income quintile		
Poorest quintile	16,9	1,1
Quintile 2	20,8	1,4
Quintile 3	23,4	2,6
Quintile 4	36,5	9,1
Wealthiest quintile	57,9	35,2

Source: GHS 2013

6.2.1 Predictors of households that access internet at home or using mobile devices using logistics regression

Table 20: Predictors of household access to the internet at home, or using mobile access using logistics regression, 2013

Probability Modelled	Internet at home	Mobile Internet
Likelihood ratio chi-square	5 444	3 400
Hosmer and Lemeshow goodness of fit test (P-value)	<,0001	<,0001
N	24 948	25 055
Intercept	-3,5783	-1,0131
Odds ratio		
Province		
Western Cape (Reference category)		
Eastern Cape	0,61	1,174
Northern Cape	0,644	1,349
Free State	0,788*	1,513
KwaZulu-Natal	0,377	0,965*
North West	0,587	1,54
Gauteng	0,705	1,141
Mpumalanga	0,746	1,479
Limpopo	0,498	0,708
Geographical Location		
Urban (Reference)		
Rural	0,703	0,619
Metro	1,416	1,111
Dwelling Type		
Formal (Reference category)		
Traditional	0,124	0,493
Informal	0,146	0,349
Per Capita income quintile		
Poorest quintile (Reference)		
Quintile 2	0,806*	1,271
Quintile 3	1,387	1,284
Quintile 4	3,992	2,367
Wealthiest Quintile	10,366	3,915
Age of household head		
15 – 34 (Reference category)		
35 - 59	N/A	0,715
60+	N/A	0,503
Population group of household head		
Black African (Reference category)		
Coloured	1,49	1,091*
Indian/Asian	4,491	1,436
White	6,462	1,181
Sex of household head		
Male (Reference category)		
Female	0,583	1,113

*Value that are not significant at 95% level of significance

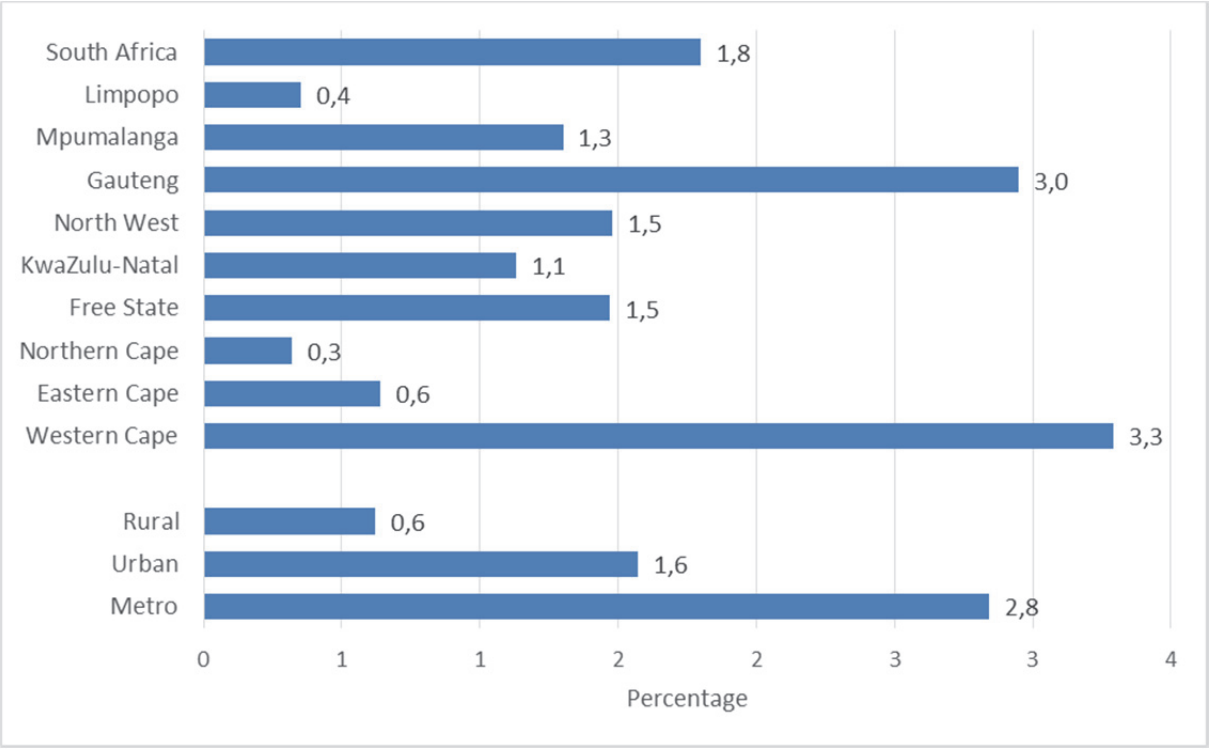
Source: GHS 2013

A model to predict households' use of mobile internet and internet at home is presented in Table 20. The table shows that the odds of Western Cape to have access internet were greater than the odds of the other 8 provinces. Traditional and informal households had lesser odds of accessing internet at home or using mobile devices than households in formal dwellings. Households in the richest income quintile were 10 times more likely to have access to internet at home than households in the poorest income quintile. Households headed by white individuals were 546% more likely to have access to internet at home than households headed by Black Africans. Households headed by Black Africans had smaller odds of accessing mobile internet that households headed by the other population groups. Households in rural areas were less likely to have access to internet at home or using mobile devices than households in urban areas whereas households in metro areas were more likely to have access to internet at home or mobile devices than urban households.

6.3 Public access to internet

Limited access to the internet at home or using mobile devices, have made public access options like libraries, Thusong centres and internet café viable options for households that need access to the internet or to send an email. Although the use of these services are generally low (only 1,8% of households used these services in 2013), Figure 22 show that it was most common in the Western Cape (3,3%) and Gauteng (3%), and least common in Northern Cape (0,3%) and Limpopo (0,4%). A larger percentage of households in metropolitan areas (2,8%) than urban (1,6%) or rural areas (0,6%) used public access services.

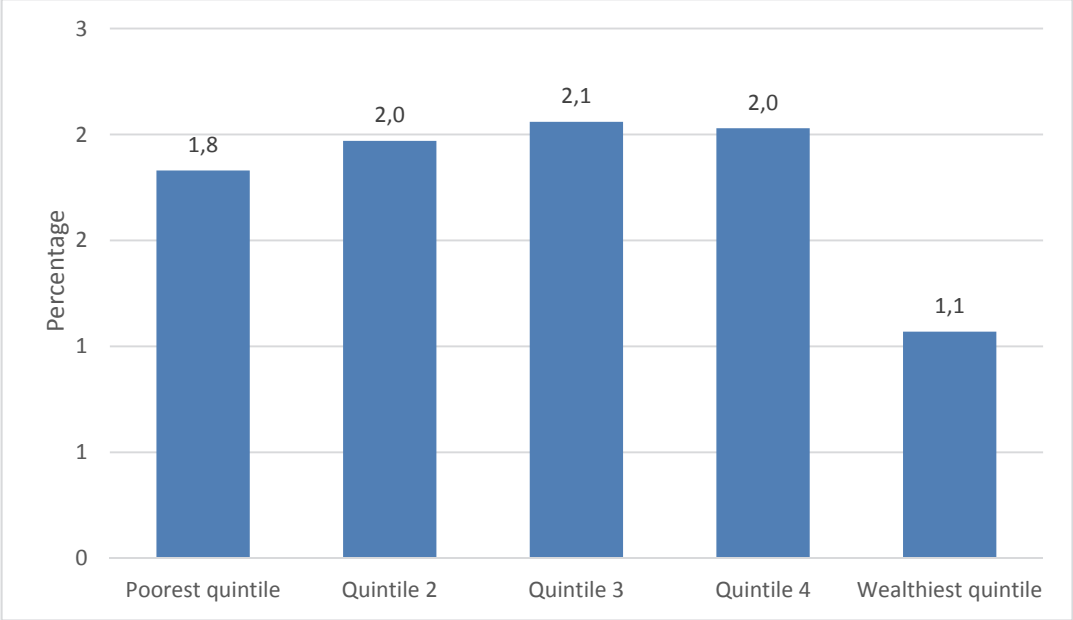
Figure 22: Percentage of households that access the Internet using public access services by province and settlement type, 2013



Source: GHS 2013

It could be expected that the use of public access facilities would be lower for households that could afford alternative modes of access. Figure 23 shows that only 1,1% of households in income quintile 5 used public access services compared to between 1,8% and 2,1% of household in the four lower income quintiles.

Figure 23: Percentage of households that access the Internet using public access services by per capita household income, 2013



Source: GHS 2013

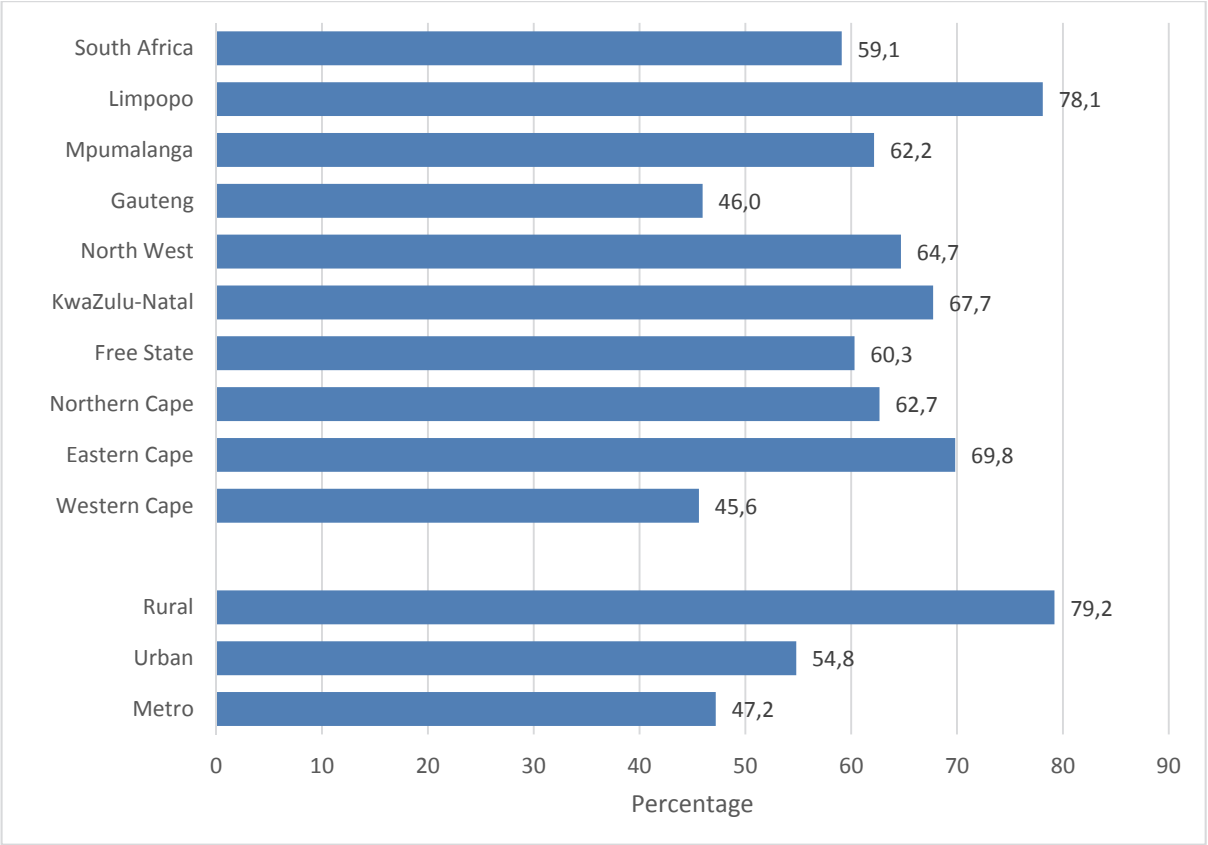
Although Census 2011 did not measure access to libraries, Thusong centres and internet café's, it did give households the opportunity to indicate whether they access the internet through another access point than work, home or mobile internet. Using these responses, the lowest access to the internet 'from elsewhere' was also measured in Northern Cape (2,3%) followed by Eastern Cape (3,5%) and North West (3,7%). The highest access was measured in Gauteng (8,4%) and Western Cape (5,7%). In terms of districts, the lowest access elsewhere was measured in Pixley ka Seme (1,6%), Namakwa (1,8%), Umzinyathi (1,9%) while households in more densely populated areas, in particularly Cape Town (7,5%), Sedibeng (8,5%), Johannesburg (8,5%), Tshwane (8,6%) and Ekurhuleni (8,7%) had slightly more access.

6.4 No internet connection

Although household access to the internet has, and continues to increase, the majority of South African households continue to lack access altogether. Figure 24 shows that 59,1% of South African households lacked any kind of internet access in 2013. The lowest penetration was observed in Limpopo where more than three-quarters (78,1%) of households lacked access, and Eastern Cape where 69,8% did not have any access. Household access was most common in Western Cape and Gauteng.

Figure 24 also confirms the lack of internet connectivity in rural areas by showing that a much larger percentage of households in rural areas (79,2%) than urban (54,8%) or metropolitan areas (47,2%) lacked any access to the Internet.

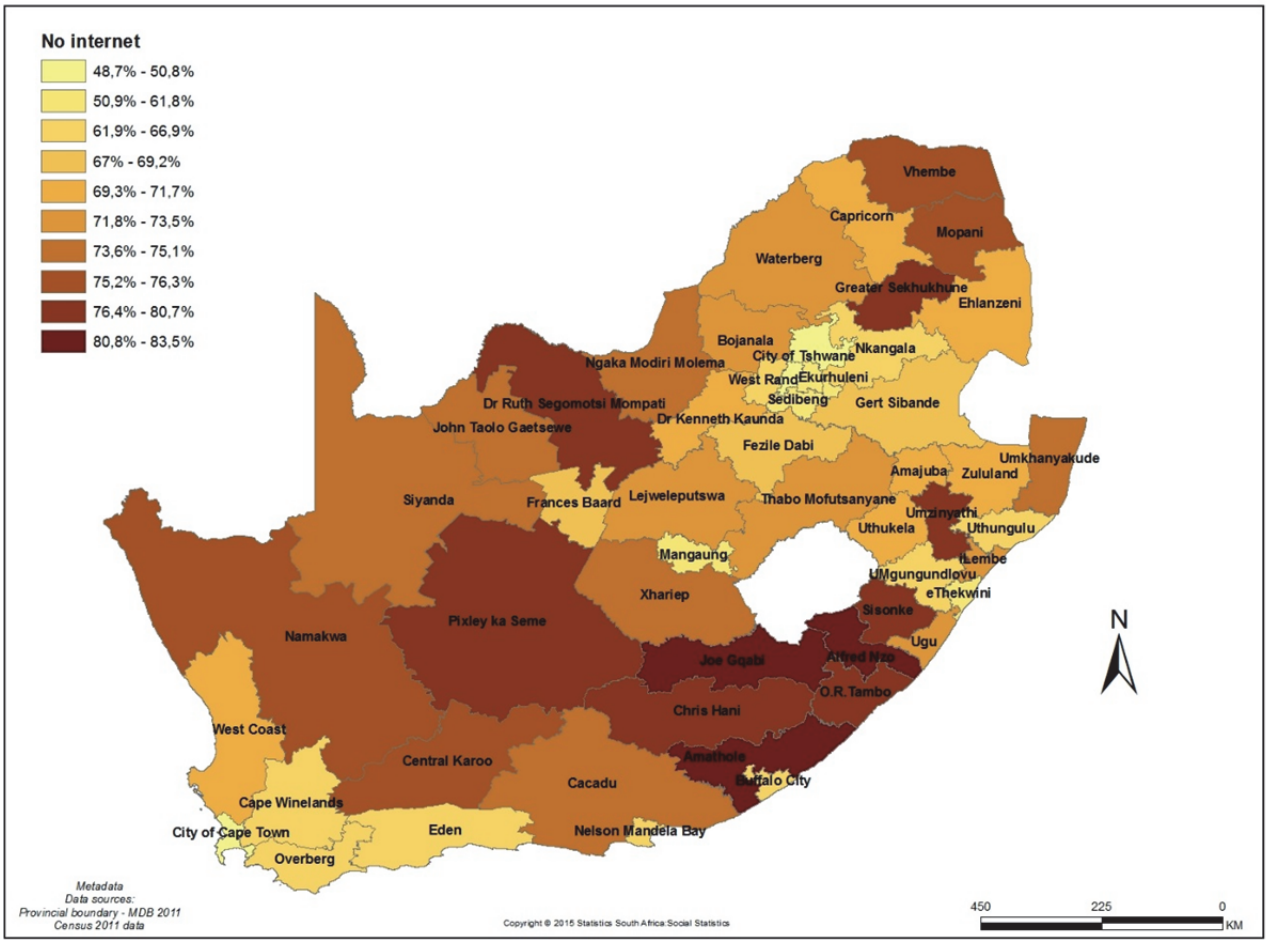
Figure 24: Percentage of households with no Internet connection by province and settlement type, 2013



Source: GHS 2013

The distribution of district municipalities by lack of access to the Internet is presented in Map 6. Since the map is based on Census 2011 data as opposed to GHS 2013 data it is important to point out that the percentages differs slightly from those obtained from the GHS. Although this is partly due to the time lag between 2011 and 2013, the main reason is related to the fact that the census question asked about main mode of accessing the internet as opposed to multiple ways. Although the rank order of provinces is therefore different than the rank order one would get using the GHS, the gist of the ranking is the same, i.e. Limpopo and Eastern Cape being the provinces with the least access, and Gauteng and Western Cape being the provinces with the most common access to the internet. Map 6 shows that, according to Census 2011, seven districts experienced a situation in which more than 80% of households did not have access to the internet. The situation was most pronounced in Alfred Nzo and Amathole. This is also shown in Figure 25 and Annexure 1. By comparison, a relatively lower percentage of households did not have access in Tshwane (48,7%), Johannesburg (50,3%) and Cape Town (50,8%). It is notable that, as already shown in Figure 24, a smaller percentage of households in metropolitan areas lacked any access to the internet compared to those in the other areas.

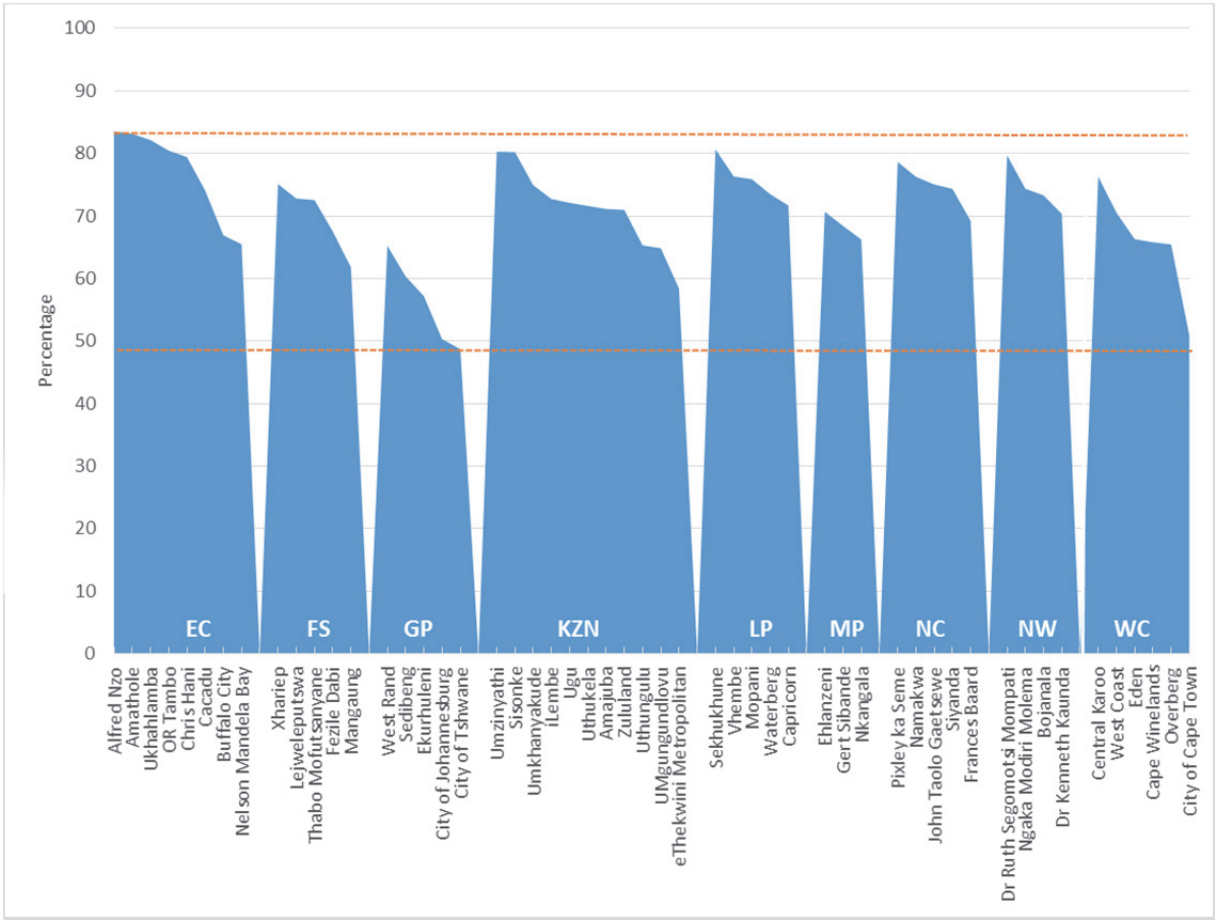
Map 6: Percentage of households without access to the Internet by District, 2011



Source: Census 2011

Figure 25 represents the percentage of households that did not have access to the internet by province and district. The horizontal red dotted line at the top marks the level of Alfred Nzo (83,5%) and Amathole (83,2%) as the districts with the highest percentage of households without access to the Internet. By contrast, the bottom line shows the other end of the spectrum where the percentage of households without access to the internet was lowest, namely Tshwane (48,7%), Johannesburg (50,3%) and Cape Town (50,8%). The figures for each district is available from Annexure 1. It is notable that, in each province, the smallest percentage of households without access to the internet were either found in metros, or districts that contains the largest towns in the province. So for instance the percentage of households with the highest access to the internet were found as follows: Nelson Mandela Bay and Buffalo City in Eastern Cape, Mangaung in Free State, Johannesburg and Tshwane in Gauteng, Ethekwini in KwaZulu-Natal, Capricorn in Limpopo, Nkangala in Mpumalanga, Frances Baard in Northern Cape, Dr Kenneth Kaunda in North West and Cape Town in Western Cape.

Figure 25: Percentage of households without access to the Internet by district municipality, 2011



Source: Census 2011

The extent to which the sex, age and population group of the household head impact on internet access is explored in Table 21. The table shows that more than two-thirds of households headed by a woman lacked access to the internet compared to 55,9% of those headed by males. Internet access differed widely by the population group of the household head. Approximately two-thirds of households headed by black African individuals had no access compared to 20,4% of households headed by white individuals. Lacking access was highest for households that were headed by elderly persons.

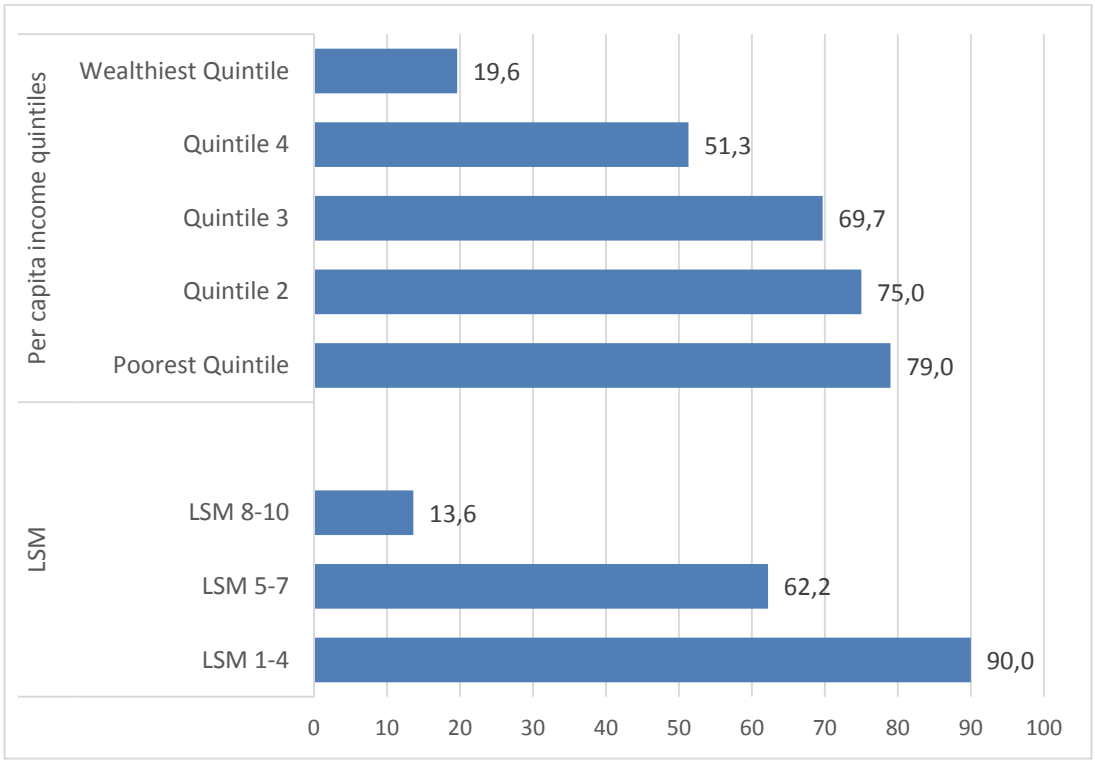
Table 21: Percentage of households without access to internet anywhere by characteristics of the household head, 2013

	Percentage without internet access
Sex	
Male	55,9
Female	63,7
Population group	
Black African	66,1
Coloured	49,8
Indian/Asian	28,1
White	20,4
Age Group	
15 - 34	56,1
35 - 59	57,1
60+	68,3

Source: GHS 2013

Households access to the internet increases with higher incomes and standards of living. Figure 26 shows that 90% of households in LSM 1-4 did not have access to the internet compared to only 13,6% in the highest LSM category. Similarly, 79% of households in the poorest income quintile had no access. The percentage of households without internet access improved during each quintile and only 19,6% of households in the wealthiest quintile did not have any access to the internet.

Figure 26: Percentage of households with no Internet connection by per capita household income and LSM, 2013



Source: GHS 2013

6.4.1 Predictors of lacking household access to the internet using logistics regression, 2013

A model to predict no household access to the internet using logistic regression is presented in Table 22. The odds of households in Western Cape to be without access to internet were respectively 1,136; 1,197; 1,409 and 1,847 times greater than the odds of Households in Eastern Cape, Northern Cape, KwaZulu-Natal and Limpopo. Household in Western Cape were less likely to have lack access to internet anywhere than households in Free State, North West, Gauteng and Mpumalanga. However, it should be noted that the differences between Households in Western Cape and Households in Eastern Cape, Free State, North West and Mpumalanga were insignificant. Urban areas were more likely not to have access to internet anywhere that rural households but were less likely than metro households. Households in formal dwellings were 115% and 219% higher not to have access to internet connection anywhere than traditional and informal dwellings. Generally households in the poorest quintile had lower odds of not having access to internet anywhere than households in the other four income quintiles. The odds ratios of population group and gender of the household head show similar trend as the income quintile where the odds of Africans and females not having access to internet anywhere were less. The youth headed households were 30% and 100% higher not to have access to internet anywhere as compared to households headed other age groups.

Table 22: Predictors of households lacking access to the internet using logistic regression, 2013

Probability Modelled	No access to internet
Likelihood ratio chi-square	6 730
Hosmer and Lemeshow goodness of fit test (P-value)	<,0001
N	25 055
Intercept	0,5168
Odds ratio	
Province	
Western Cape (Reference category)	
Eastern Cape	1,136*
Northern Cape	1,197
Free State	0,973*
KwaZulu-Natal	1,409
North West	0,937*
Gauteng	0,88
Mpumalanga	0,926*
Limpopo	1,847
Geographical Location	
Urban (Reference)	
Rural	1,794
Metro	0,911*
Dwelling Type	
Formal (Reference category)	
Traditional	2,152
Informal	3,196

Table 22: Predictors of lacking household access to the internet using logistics regression, 2013 (concluded)

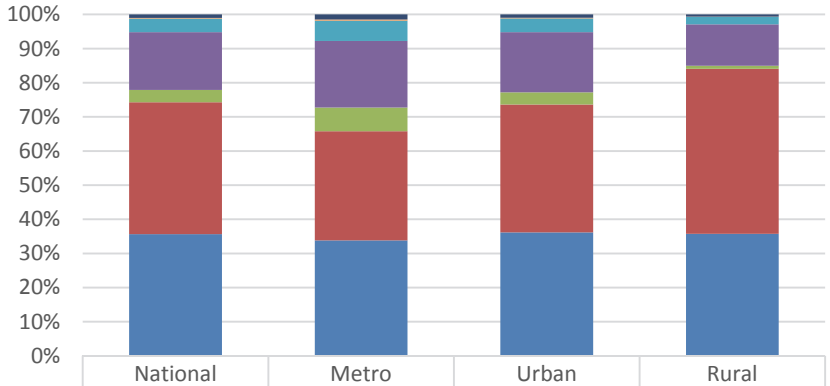
	Odds ratio
Per Capita income quintile	
Poorest quintile (Reference)	
Quintile 2	0,809
Quintile 3	0,759
Quintile 4	0,366
Richest Quintile	0,141
Age of household head	
15 – 34 (Reference category)	
35 - 59	1,309
60+	2,011
Population group of household head	
African (Reference category)	
Coloured	0,858
Indian/Asian	0,482
White	0,428
Gender of household head	
Male (Reference category)	
Female	0,873

Source: GHS 2013

6.4.2 Reasons for not having access to the internet at home or by using a mobile device

Figure 27 shows that, nationally, the main reasons given for not having access to the internet at home or by using a mobile device were a lack of knowledge/skills or confidence (38,6%) and a lack of confidence or not needing to use the internet (35,7%). Just over one-fifth (20,9%) were concerned about the high cost of equipment and subscription fees. Less than one-half percent of households were primarily concerned about possible exposure to harmful contents on the internet. It is notable that a smaller percentage of households in metros (65,8%) than in urban areas (73,7%) or rural areas (84%) were concerned about a lack of knowledge/skills/confidence or had a lack of access/need. Households in metro tended to be more concerned with the cost of equipment and subscription and also tended to have better access to alternative modes of access than households in urban or rural areas. These findings suggest that the readiness to use ICT is still insufficient in particularly rural areas. This seems to be in line with findings from the RIA survey data reported in Gillwald et al (2013: 66).

Figure 27: Reasons for not having access to internet at home or using mobile devices by settlement type, 2013



	National	Metro	Urban	Rural
Do not know	1,0	1,5	1,0	0,7
Concern about contents on Internet	0,2	0,3	0,2	0,0
Cost of subscription too high	4,0	6,0	4,0	2,2
Cost of equipment too high	16,9	19,5	17,6	12,2
Have access to internet elsewhere	3,6	6,9	3,6	0,9
Lack of knowledge/skills/confidence	38,6	32,0	37,5	48,3
Lack of access/no need	35,7	33,8	36,2	35,7

Source: GHS 2013

Figure 28: Reasons for not having access to internet at home or using mobile devices by settlement type, 2013

	Poorest households	Quintile 2	Quintile 3	Quintile 4	Wealthiest households
Do not know	1,0	0,8	1,2	1,0	1,4
Concern about internet contents	0,1	0,1	0,1	0,3	0,4
Cost of subscription too high	2,7	3,3	3,9	6,3	5,6
Cost of equipment too high	17,1	16,9	15,5	17,7	18,5
Have access to internet elsewhere	1,6	2,1	2,5	4,9	16,0
Lack of knowledge/skills/confidence	45,6	42,0	39,7	30,9	21,5
Lack of access/no need	31,9	34,8	37,1	38,9	36,7

Source: GHS 2013

Besides geographical location, household income has also been shown to play an important role in the decisions about ICT. Figure 28 shows that the percentage of households that were primarily concerned with a lack of knowledge/skills/ or confidence were highest in the poorest quintile (45,6%) and that it declined in each successive income quintile. Just under one-fifth (24,1%) of households in the wealthiest income quintile gave this as the dominant reason for not having access to internet at home or through a mobile. The other notable observation is that access to alternative sources of access (most likely at work) increased with the level of household income. Whereas 1,6% of households in the poorest income quintile indicated some alternative, 16%

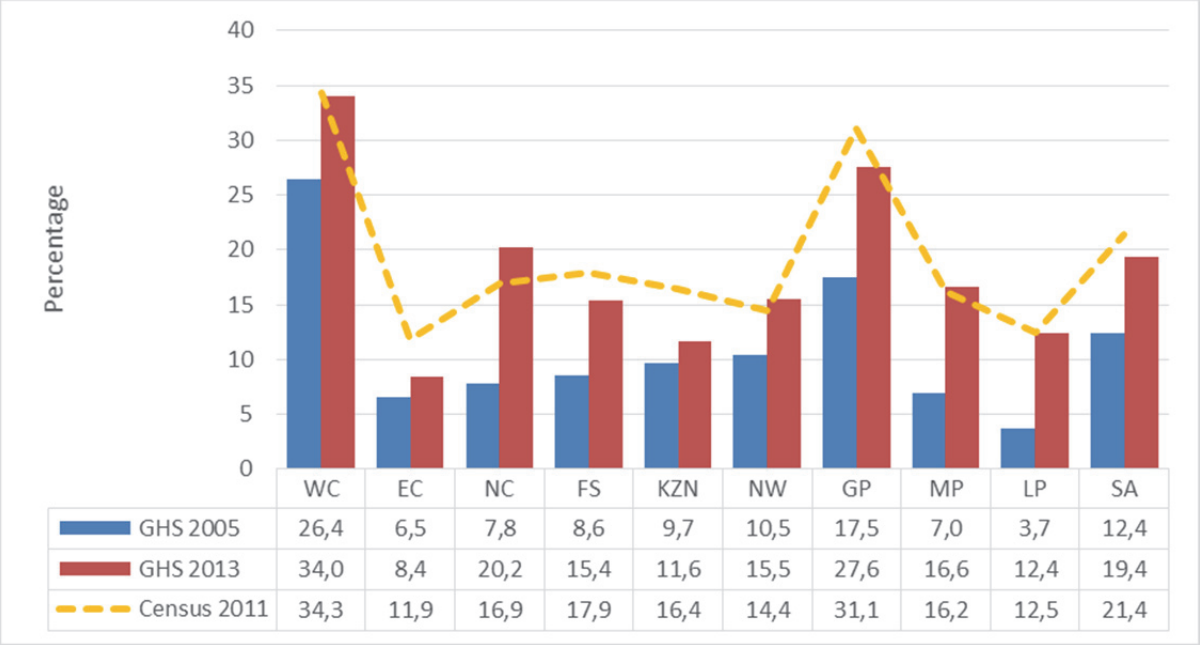
of households in the wealthiest income quintile did so. It is curious to note that households in the wealthiest income quintile were more concerned about the cost of subscription than poorer households.

7. Household access to computers

Growth in the number of household that have a functioning internet connection is closely associated with the penetration of access to devices such as smart phones, tablets, laptops and personal computers. Although most households primarily access the internet through mobile access devices, Gillwald et al (2013: 63) report that 65% of households surveyed in 2012 indicated that they first used the internet on a computer. According to the DTPS (2013: 50) the demand for personal computer has increased steadily as they have become more affordable. Computers are important productivity tools that facilitate a variety of tasks related to communication, such as the manipulation, storage, analysis, retrieval and sharing of data and information. The level of access to computers can therefore increase the extent to which households can exploit ICT to their benefit, or constitute a serious barrier to access the information society as user and producer.

Using data from GHS 2005 and 2011, as well as Census 2011, Figure 29 shows that 19,4% of South African households owned personal computers in 2013, up from 12,4% in 2005. The national figure is a bit lower than the figure of 21,4% measured in 2011 by the census. In 2013, ownership was most common in Western Cape and Gauteng (34,0% and 27,6% respectively) and least common in Eastern Cape and Limpopo (8,4% and 12,4% respectively).

Figure 29: Percentage of households with access to computers by province, census 2001 and 2011

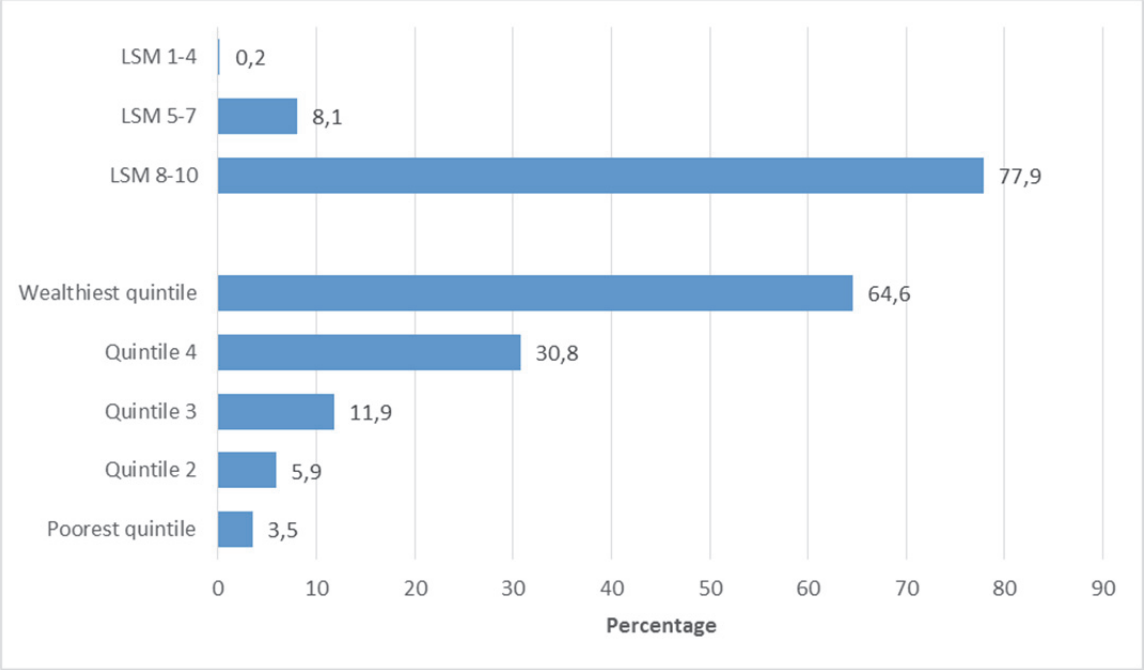


	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
GHS 2005	26,4	6,5	7,8	8,6	9,7	10,5	17,5	7,0	3,7	12,4
GHS 2013	34,0	8,4	20,2	15,4	11,6	15,5	27,6	16,6	12,4	19,4
Census 2011	34,3	11,9	16,9	17,9	16,4	14,4	31,1	16,2	12,5	21,4

Source: GHS 2005 and 2013, Census 2011

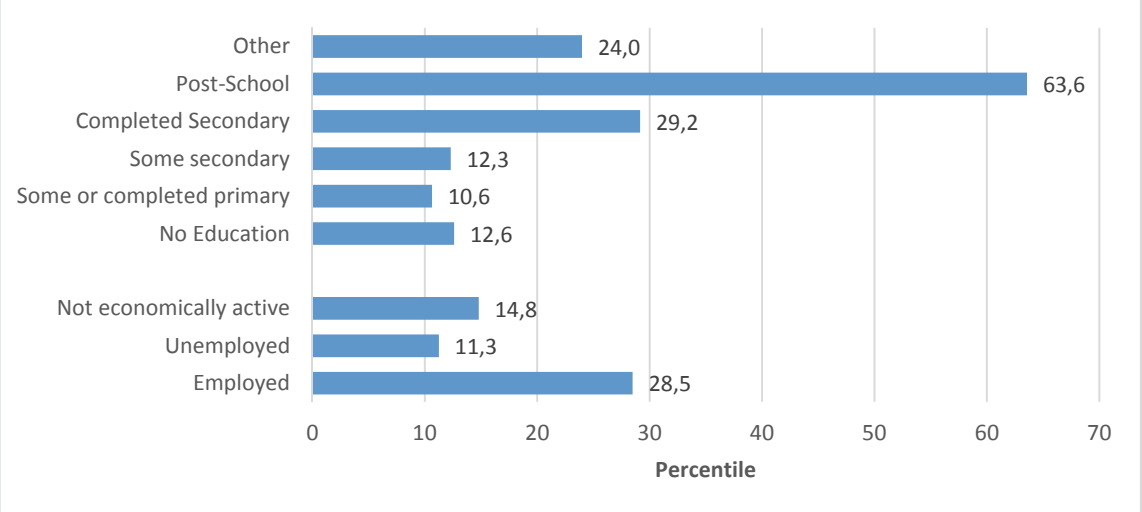
Although personal computers have become more affordable, cost continues to stifle growth. Figure 30 shows that nearly two-thirds (64,6%) of households in the wealthiest income quintile owned computers in 2013. The percentage of households that own computers declines for each income quintile until only 3,5% of households in the poorest income quintile owned a personal computer. Similarly, only 0,2% of households in LSM 1-4 and 8,1% of households in LSM 5-7 owned a computer compared to more than three-quarters (77,9%) of households in LSM 8-10.

Figure 30: Percentage of households with access to computers by per capita household income and LSM, 2013



Source: GHS 2013

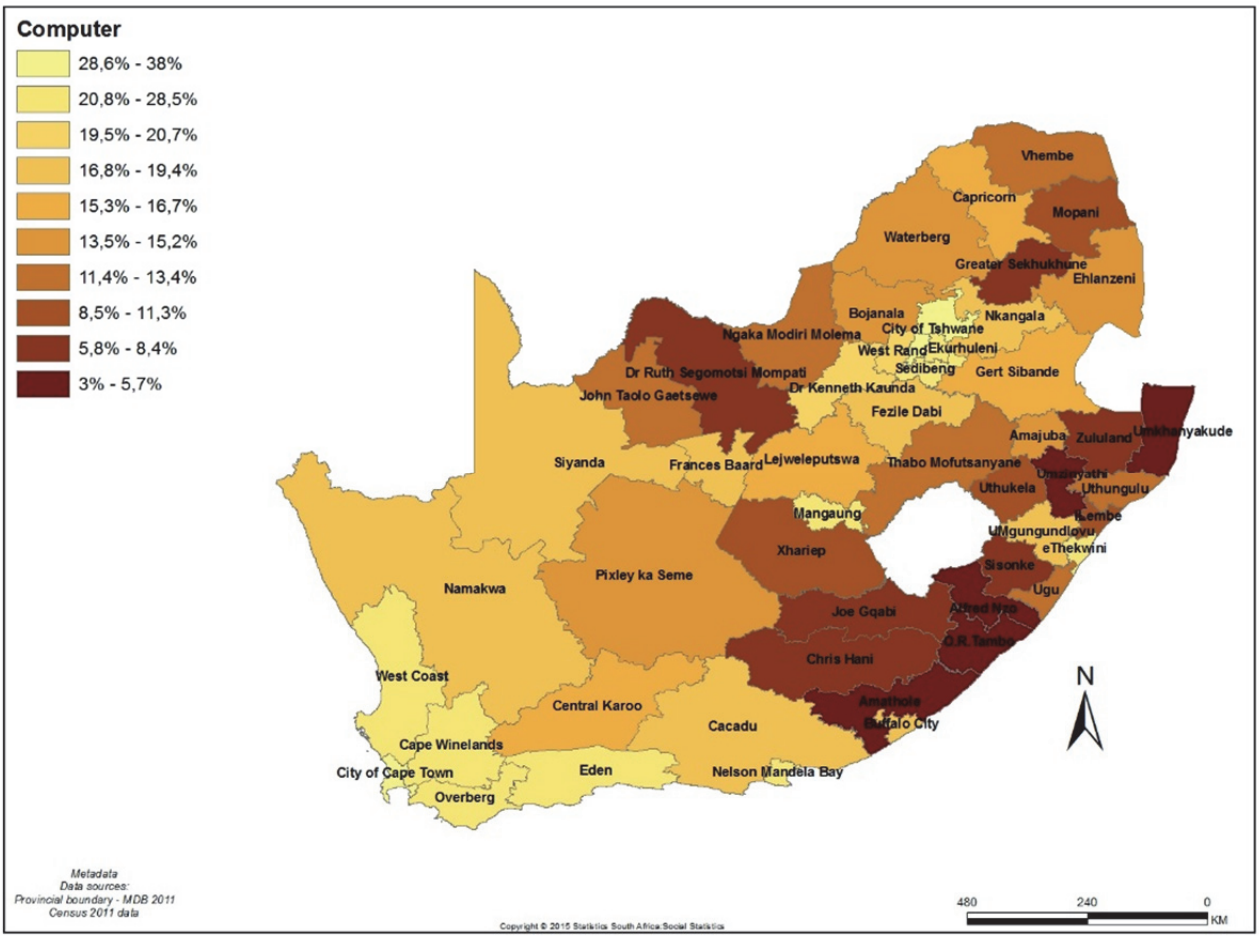
Figure 31: Percentage of households with access to computers by the employment status and highest level of education of the household head, 2013



Source: GHS 2013

Figure 31 shows that computer ownership is positively associated with being employed and having higher educational qualifications. Households headed by persons with no education (12,6%), Some or completed primary education (10,6%) or some secondary education (12,3%) had much more limited access to computers than households headed by person who have completed secondary school (29,2%) or some post-school qualifications (63,6%). Similarly, more than one-quarter (28,5%) of households who had an employed head owned computers compared to much smaller percentages for households with heads that were either unemployed or not economically active.

Map 7: Percentage of households with access to computers by district municipality, 2011



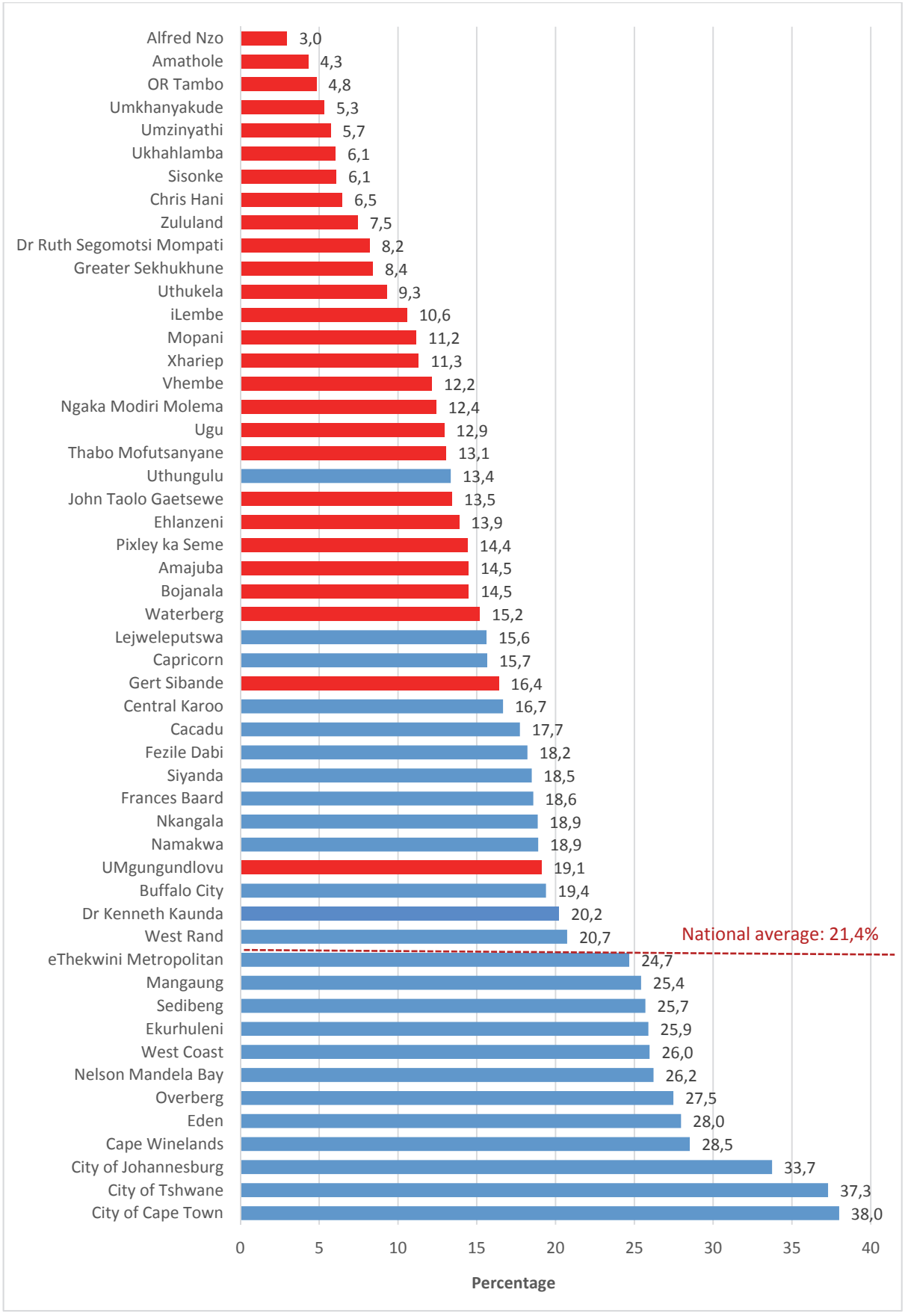
Source: Census 2011

Map 7 shows household ownership of computers was highest in districts located in Gauteng and Western Cape, followed by households in most of the other metropolitan municipalities. A visual inspection reveals that ownership was most restricted in districts in Eastern Cape, parts of KwaZulu-Natal and Limpopo.

Figure 32 shows that twelve districts recorded ownership rates of less than 10%. Of these, four were in Eastern Cape, including the three with the worst penetration – Alfred Nzo (3,0%), Amathole (4,3%) and OR Tambo (4,8%). Six of the districts were located in KwaZulu-Natal, and one each in North West and Limpopo.

A total of 39 district municipalities recorded lower ownership rates than the national average of 21,4% in 2011. Household ownership of computers was highest in Cape Town (38,0%), Tshwane (37,3%) and Johannesburg (33,7%).

Figure 32: Percentage of households with access to computers by district municipality, 2011



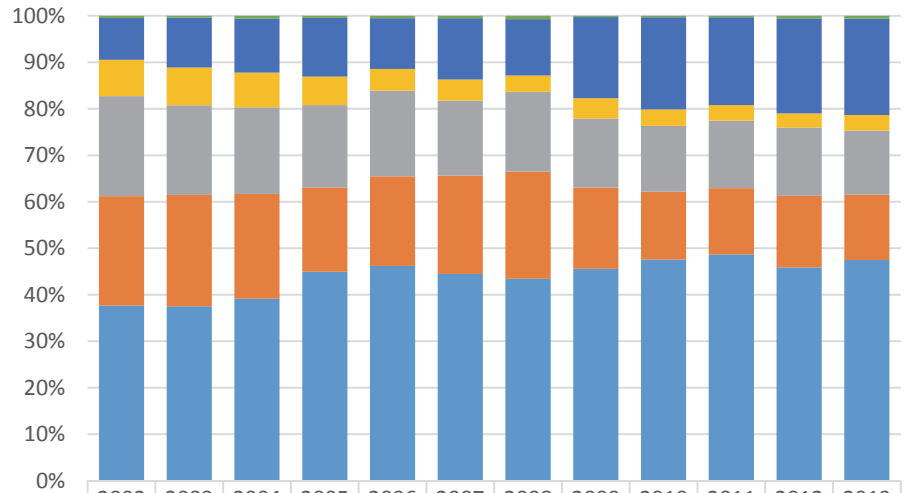
Source: Census 2011

8. Access to postal services

The postal service is the most basic and common means by which messages and goods were historically delivered. The importance of the postal service as primary or even a main source of business to customers, or even inter-personal communication have, over the past decades, declined as a result of electronic substitution (shifting from hard copy to electronic communication) but the service is unlikely to disappear completely, particularly in communities without access to electronic media or in rural areas (DTPS, 2013). In fact, the DTPS (2014: 29) reported that the postal service is still an important component of the economic sector, contributing approximately 3,16% to GDP (DTPS, 2014:29). The Postal Services Act (Act 124 of 1998) mandates the South African Post Office (SAPO) to provide postal services to all South Africans on an exclusive basis with a monopoly on delivering postal items weighing less than one kilogram (DTPS, 2013: 22). It is considered a public service with associated expectations of universal service and policies therefore stress that South Africans have the right to an effective, efficient and affordable basic postal service regardless of geographic location or economic status.

The types of postal services that are mainly used by households are presented in Figure 29. The data is based on a question that has been asked in the GHS since 2002 to track improvements in postal service delivery. A few trends are notable over the period 2002 to 2013. Firstly, the figure shows that the percentage of households that reported that they did not receive any mail has increased relatively consistently from 9,0% in 2002 to 20,8% in 2013. Secondly it is also clear that the percentage of households that received post through a third party like neighbours or relatives, a shop, or a tribal or traditional authority has decreased, dropping relatively continuously from 21,5% in 2002 to 13,8% in 2013. The percentage of households that received their post mainly through work has also declined over the reference period.

Figure 33: Percentage of households with access to postal services by type of service, 2002-2013



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Other	0,5	0,4	0,6	0,4	0,5	0,5	0,7	0,3	0,3	0,3	0,5	0,6
Do not receive	9,0	10,7	11,7	12,6	10,9	13,2	12,1	17,5	19,8	18,9	20,5	20,8
Received at work	7,8	8,1	7,5	6,1	4,7	4,5	3,5	4,4	3,6	3,3	3,0	3,3
Delivered through third parties	21,5	19,3	18,7	17,7	18,4	16,1	17,2	14,8	14,2	14,6	14,7	13,8
Delivered to a post box/private bag	23,6	24,0	22,6	18,2	19,3	21,2	23,1	17,5	14,6	14,2	15,4	14,0
Delivered at the dwelling	37,7	37,5	39,1	45,0	46,2	44,5	43,4	45,6	47,6	48,7	45,9	47,5

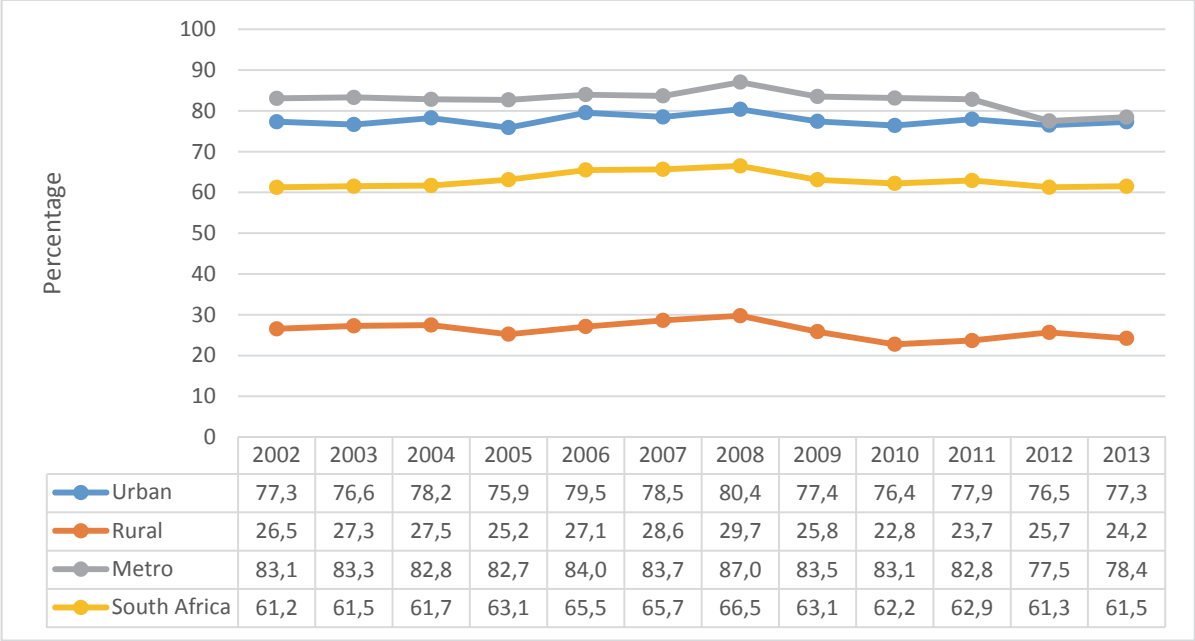
Source: GHS 2002-2013

Two interesting trends are identified when postal delivery at home or at a post box is reviewed in Figure 33. The percentage of households that reported receiving their mail through either post boxes or home delivery increased

from 61,2% in 2002 to 66,5% in 2008 before declining to 61,5% in 2013. However, during this period the percentage of households that received their mail at a post box or private bag declined consistently (from 23,6% in 2002 to 14,0% in 2013) while the households that primarily received mail at home increased from 37,7% to 47,5%. The increased service to individual dwellings is most likely linked to the improved provision of addresses and address infrastructure mandated by international agreements such as at the 2012 Doha conference of the Universal Postal Union (UPU) entitled 'Addressing the World – An address for everyone'. (DTPS, 2014: 35).

Figure 34 shows that the percentage of households that received mail at home or through post boxes or private bags has hardly changed between 2002 and 2013. Although a decline is noticed in metropolitan areas over this time, most of these changes only took place between 2011 and 2013.

Figure 34: Percentage of households that receive mail at home or through post boxes by settlement type, 2002-2013



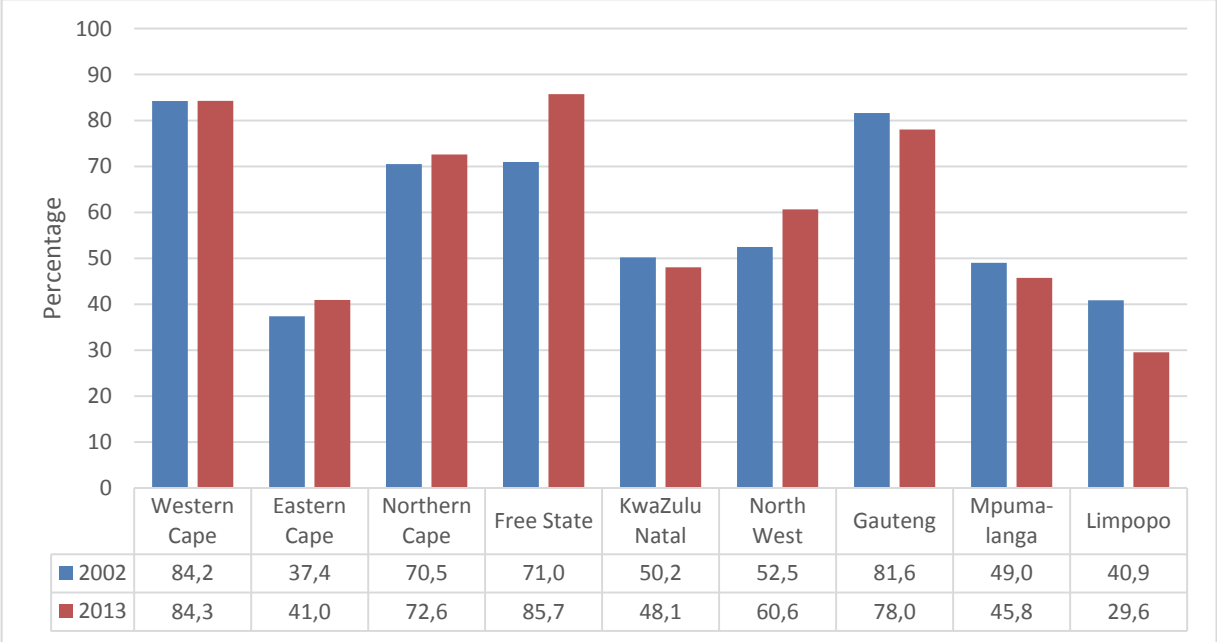
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Urban	77,3	76,6	78,2	75,9	79,5	78,5	80,4	77,4	76,4	77,9	76,5	77,3
Rural	26,5	27,3	27,5	25,2	27,1	28,6	29,7	25,8	22,8	23,7	25,7	24,2
Metro	83,1	83,3	82,8	82,7	84,0	83,7	87,0	83,5	83,1	82,8	77,5	78,4
South Africa	61,2	61,5	61,7	63,1	65,5	65,7	66,5	63,1	62,2	62,9	61,3	61,5

Source: GHS 2002-2013

Figure 35 provides a provincial view of changes in access to postal services through home delivery or post boxes between 2002 and 2013. The figure shows that access to postal services improved in five provinces. The largest improvements were noted in Free State (14,7 percentage points), North West (8,1 percentage points) and Eastern Cape (3,6 percentage points). Declines were, however, inter alia noted in Limpopo (-11,3 percentage points), Gauteng (-3,6 percentage points) and KwaZulu-Natal (-2,1 percentage points).

The findings of Figure 35 could, however, be misleading as an assessment of frequencies shows that the postal delivery has, nationally, increased by 39,7% to 9,2 million in 2013. The largest growth between 2002 and 2013 was observed in urban areas (50,0%) and metros (43,9%) while growth was much more limited in rural areas (7,9%). This is not presented graphically.

Figure 35: Percentage of households that receive mail at home or through post boxes by province, 2002 and 2013



	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu Natal	North West	Gauteng	Mpuma-langa	Limpopo
2002	84,2	37,4	70,5	71,0	50,2	52,5	81,6	49,0	40,9
2013	84,3	41,0	72,6	85,7	48,1	60,6	78,0	45,8	29,6

Source: GHS 2002 and 2013

Table 23 shows that, between 2002 and 2013, the number of households that received postal services increased most in North West (56,9%), Free State (51,6%) and Gauteng (50,3%). The only decline in the number of households was found in Limpopo (0,1%).

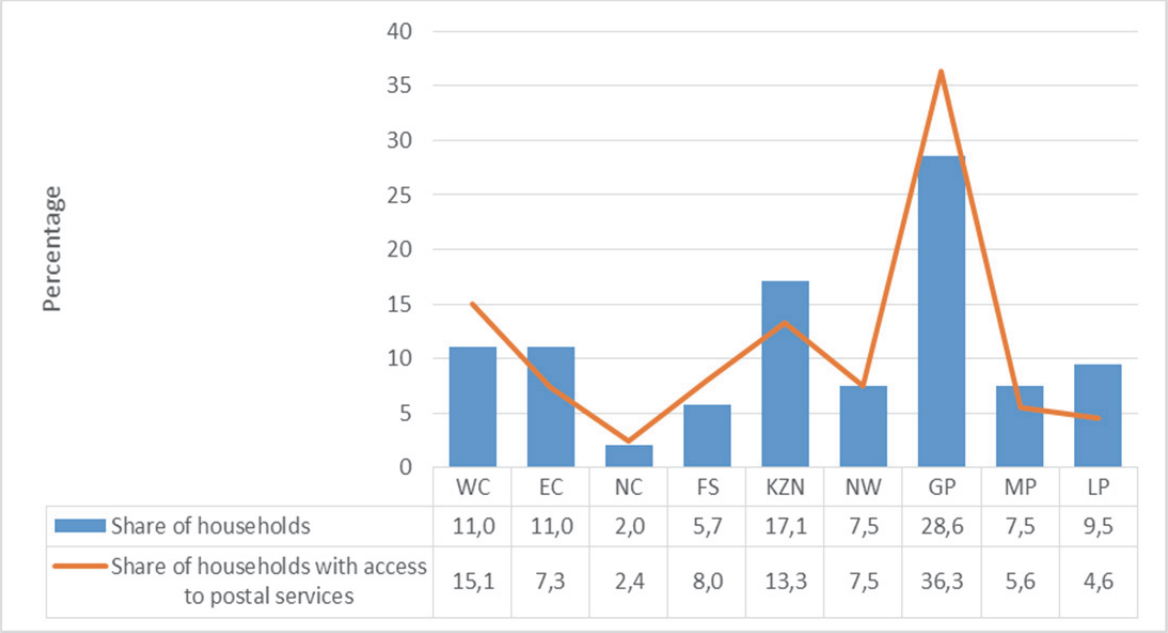
Table 23: The number of households that receive mail through home delivery or post boxes by province, 2002 and 2013

Province	2002	2013	Change (%)
Western Cape	1 008 933	1 391 344	37,9
Eastern Cape	525 571	677 172	28,8
Northern Cape	162 865	219 752	34,9
Free State	486 539	737 432	51,6
KwaZulu-Natal	954 005	1 231 656	29,1
North West	439 202	688 943	56,9
Gauteng	2 234 997	3 359 064	50,3
Mpumalanga	379 032	513 800	35,6
Limpopo	423 338	422 838	-0,1
South Africa	**6 614 481**	**9 242 001**	**39,7**

Source: GHS 2002 and 2013

Where services are provided equitably to all households, regardless of geographic location or other characteristics, one would expect the share of households per province to be the same or at least very similar to the provincial share of all households that have access to the service. Figure 36 shows that, relative to the provincial share of all households, households that received postal services were over-represented in Western Cape, Gauteng and Free State, and under-represented in pre-dominantly rural provinces like Limpopo, KwaZulu-Natal and Eastern Cape.

Figure 36: Share of households with access to postal services compared to share of household per province, 2013



	WC	EC	NC	FS	KZN	NW	GP	MP	LP
Share of households	11,0	11,0	2,0	5,7	17,1	7,5	28,6	7,5	9,5
Share of households with access to postal services	15,1	7,3	2,4	8,0	13,3	7,5	36,3	5,6	4,6

Source: GHS 2013

Table 24 shows that more than three-quarters of households in metro (78,4%) and urban areas (77,3%) received mail at home or at a post box compared to less than one-quarter (24,2%) in rural areas. It was also much more common for households in rural areas to not receive post than for those in metro or urban areas.

Table 24 also shows that 71,1% of households that lived in formal dwellings received mail compared to 37,9% in informal dwellings and only 7,6% in traditional dwellings. When households that are not receiving any mail is considered, the inverse situation is identified. Here it becomes clear that more than half (52,8%) of all households that lived in traditional dwellings did not have access to any postal services compared to 38,6% of households in informal dwellings, and 14,4% of households in formal dwellings.

Table 24: Percentage of household not receiving mail or receiving mail either at home or through post box by settlement type and dwelling type, 2013

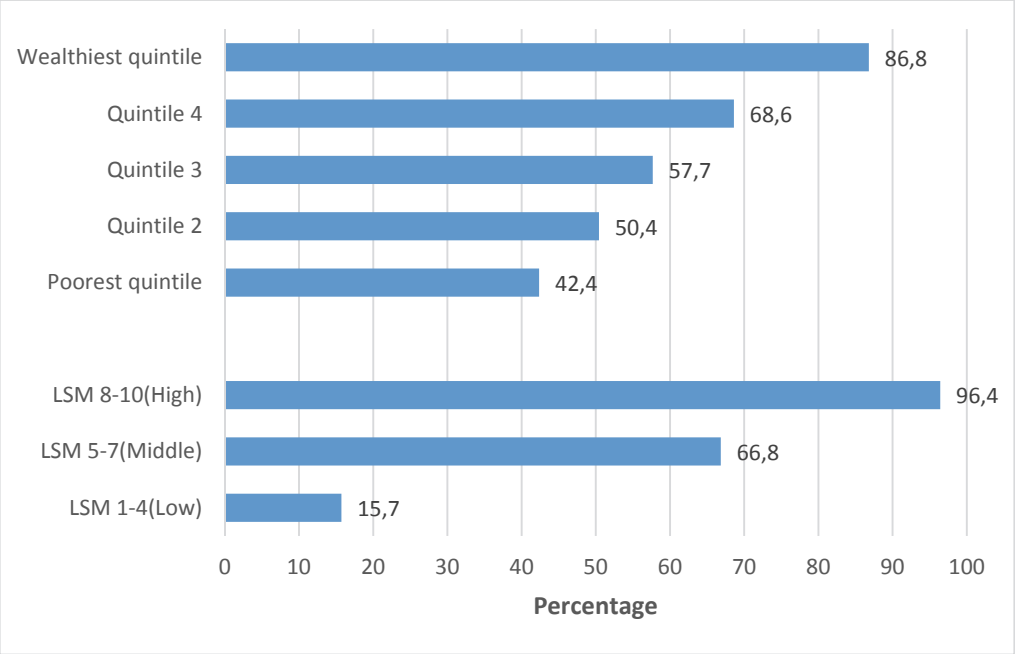
Province	Not receiving mail	Receiving mail at home or through post box
Settlement type		
Metro	12,7	78,4
Urban	11,9	77,3
Rural	39,7	24,2
Dwelling Type		
Formal	14,4	71,1
Informal	38,6	37,9
Traditional	52,8	7,6

Source: GHS 2013

Access to postal services is positively associated with household income and standards of living. Figure 37 shows that only 42,4% of households in the poorest income quintile had access to any postal services and that the percentage increased in each successive income quintile up to the wealthiest quintile in which 86,8% of all

households reported having had access. Similarly, 96,4% of households in the category LSM 8-10 had access to postal services compared to 15,7% in the lowest LSM categories.

Figure 37: Percentage of households that receive mail at home or through post boxes by per capita household income and LSM, 2013



Source: GHS 2013

Table 25: Percentage of household not receiving mail or receiving mail either at home or through post box by settlement type and dwelling type, 2013

Province	Not receiving mail	Receiving mail at home or through post box
Head age		
15 - 34	29,2	50,4
35 - 59	17,2	66,1
60+	19,1	64,1
Head Population group		
Black African	25,6	53,5
Coloured	2,6	88,4
Indian / Asian	2,4	95,1
White	1,4	96,0
Head Sex		
Male	20,4	63,9
Female	21,2	58,1

Source: GHS 2013

The relationship between the characteristics of household heads and postal services is explored in Table 25. Although the table shows very little differentiation by the sex of the household head, it makes it clear that households headed by persons in the age group 15-34 years of age are less likely to receive postal services than those in older age groups. This is most probably a side effect of younger persons being more mobile and living in informal dwellings. Table 25 shows that only 53,5% of households that were headed by black Africans received

postal services compared to 88,4% of those households headed by Coloured persons, and 95,1% and 96,0% of households respectively headed by Indian/Asian and White individuals. This finding is closely associated with household income as well as the greater concentration of households headed by non-black African individuals in metro and/or urban areas as well as formal dwellings.

8.1.1 Predictors of households who did not receive any mail and those who received mail through home delivery or through post boxes using logistics regression

The odds of households in all provinces but Free State not receiving mail were greater than the odds of households in Western Cape. The difference was, however, insignificant for Free State. Rural and metro households' odds of not receiving mail were greater than the odds of urban households, but the difference was insignificant for households in metro areas. Households living in traditional and informal dwellings were 195% and 267% more likely than households in formal dwellings not receiving mail. Households headed by in individuals in the age group 15 to 34 years, black Africans, and males were also more likely not to receive mail compared to their peers in the respective categories. This is also the case for households in the poorest income quintiles.

Northern Cape, Free State and North West households' odds of receiving mail at home or through post were greater than the odds of households in Western Cape; whilst the odds were smaller for the remaining provinces. Households in metropolitan areas odds of receiving mail at home or through post were greater than the odds urban households. Households in Traditional and Informal dwellings were less likely to receive post at home or through post than households in formal dwellings. Households headed by age group individuals aged 15 to 34, Black Africans and falling in the poorest income quintile were less likely to receive mail at home or through post in comparison to their respective categories.

Table 26: Predictors of households who did not receive any mail and those who received mail through home delivery or through post boxes using logistic regression, 2013

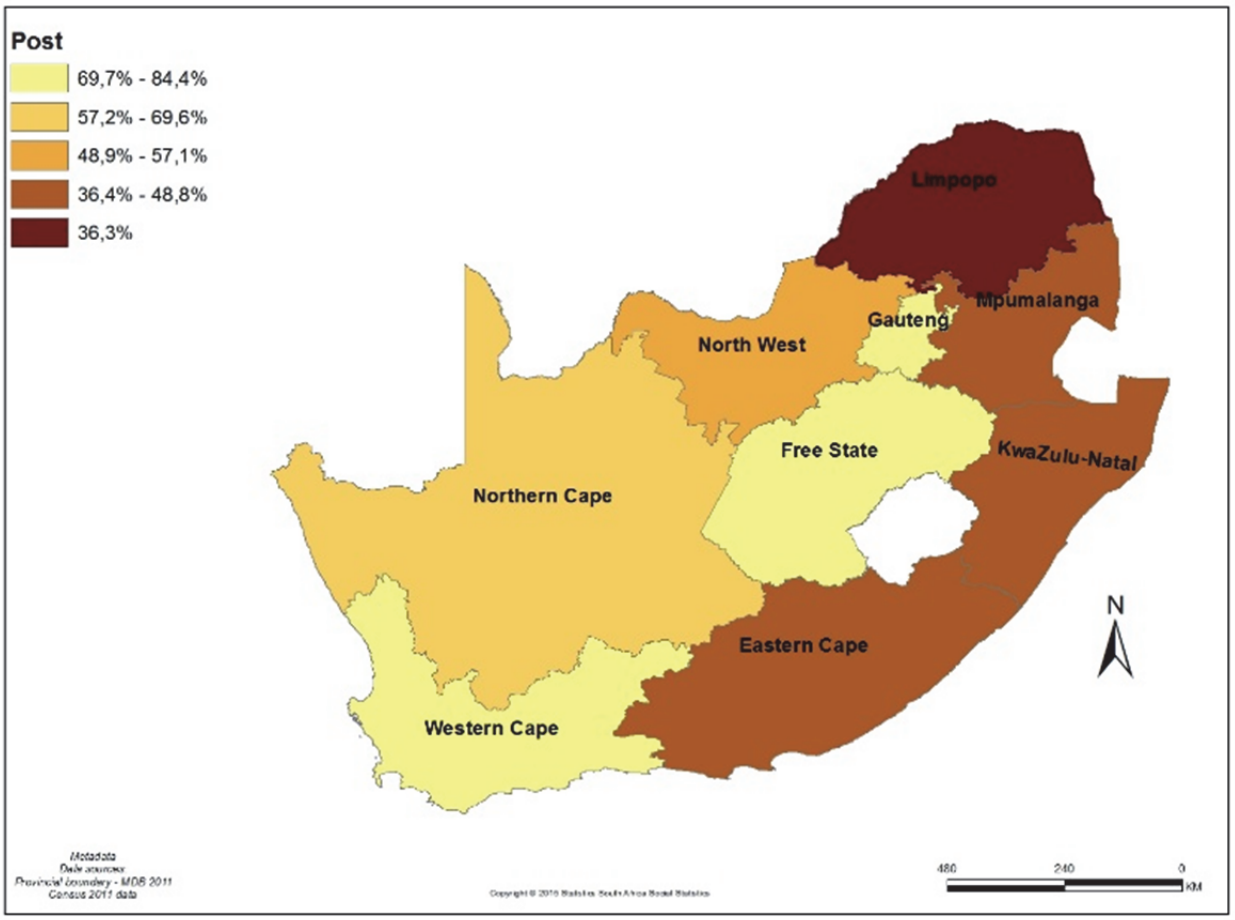
Probability Modelled	Not receiving mail	Receiving mail at home or via post
Likelihood ratio chi-square	6 001	12 954
Hosmer and Lemeshow goodness of fit test (P-value)	<,0001	<,0001
N	24 938	24 938
Intercept	-2,4141	0,9504
Odds ratio		
Province		
Western Cape (Reference category)		
Eastern Cape	3,64	0,504
Northern Cape	1,909	1,052*
Free State	0,876*	3,176
KwaZulu-Natal	2,451	0,453
North West	2,229	1,649
Gauteng	2,12	0,849*
Mpumalanga	3,943	0,602
Limpopo	5,606	0,466
Geographical Location		
Urban (Reference)		
Rural	3,507	0,106
Metro	1,1*	1,291
Dwelling Type		
Formal (Reference category)		
Traditional	2,946	0,126
Informal	3,666	0,187
Per Capita income quintile		
Poorest quintile (Reference)		
Quintile 2	0,902	1,106*
Quintile 3	1,024*	1,07*
Quintile 4	0,614	1,43
Richest Quintile	0,308	1,923
Age of household head		
15 – 34 (Reference category)		
35 - 59	0,505	2,13
60+	0,514	2,606
Population group of household head		
African (Reference category)		
Coloured	0,318	2,511
Indian/Asian	0,44	4,128
White	0,208	4,503
Gender of household head		
Male (Reference category)		
Female	0,817	1,091

Source: GHS 2013

8.1.2 District level households access to postal services

This section is based on the combined results of two questions that were asked in the Census 2011 questionnaire about access to 'mail post box/bag' and 'mail delivery at home'. Map 8 confirms the findings of the GHS, as described in the preceding sections, that households enjoyed the weakest access to postal services in Limpopo, and the most common access in Gauteng, Free State and Western Cape.

Map 8: Percentage of households with access to postal services by province, 2011

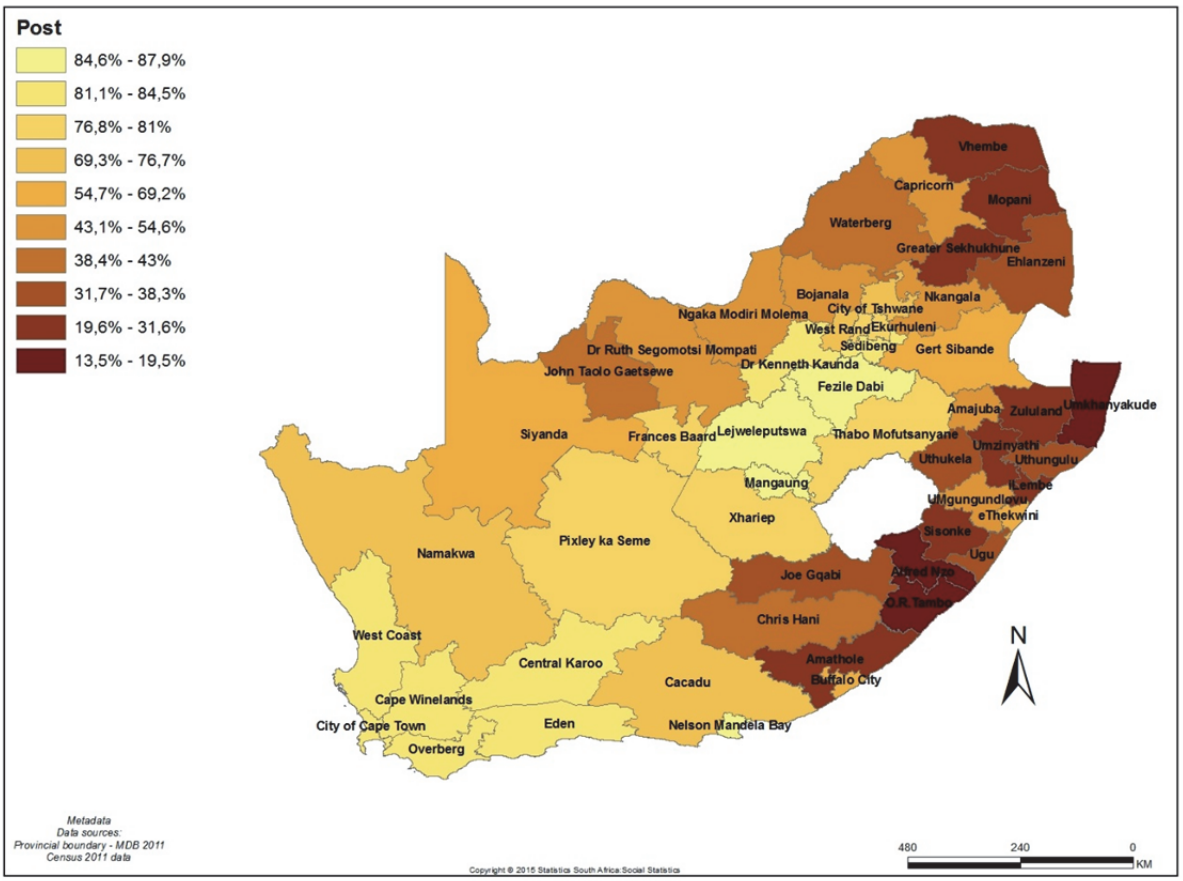


Source: Census 2011

Map 9 shows that districts with relatively little household access to postal services seems to be concentrated in Eastern Cape, KwaZulu-Natal and Limpopo. The lowest access was observed in Alfred Nzo (13,5%), OR Tambo (18,2%) and Umkhanyakude (19,5%) while household access to home delivery or post boxes was most common in Free State, particularly Fezile Dabi (87,9%), Nelson Mandela Bay (85,9%) and Mangaung (85,7%). These figures are also presented in Figure 39. It is notable from this figure that 25% of all households that received postal services were located in 27 districts that, together, comprised 42% of all households and 45% of the total population of the country.

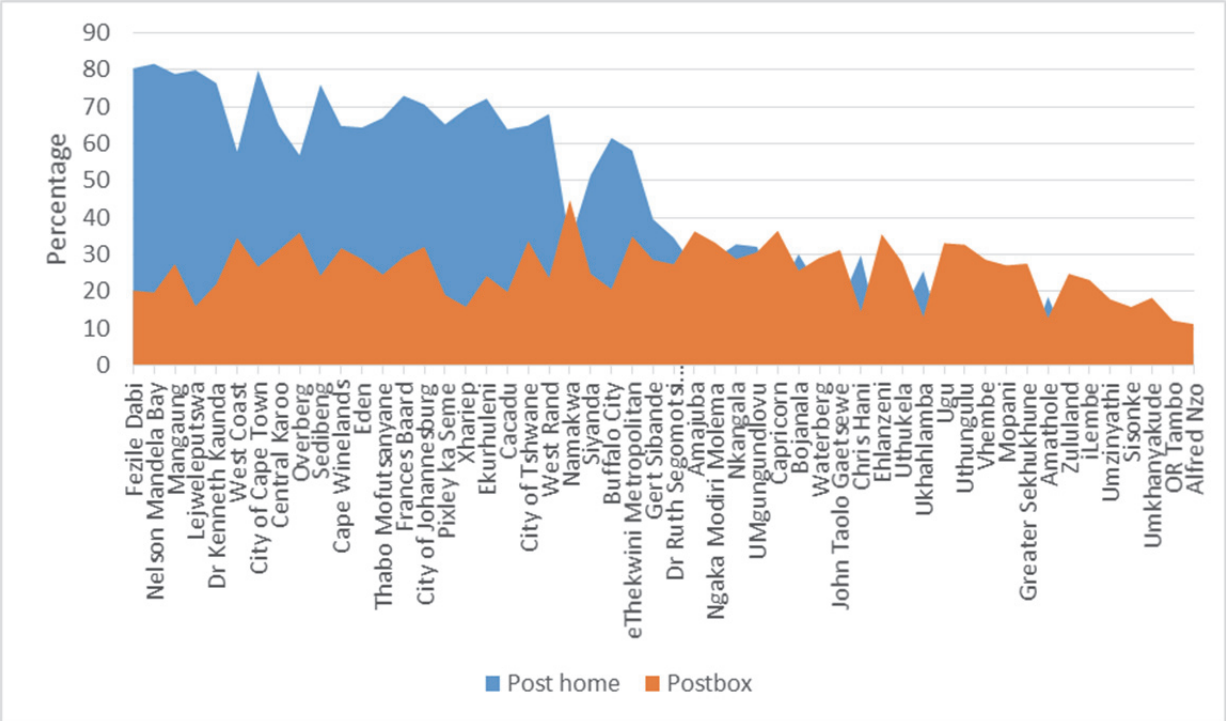
Figure 38 shows how household access to postal delivery at home and via post boxes are compared. The figure shows that access to postal delivery at home is relatively large in districts that have reported high access to postal services but that it is very low in districts with poor access. Although access to post boxes or private bags remain relatively consistent across district municipalities it is not common enough to make up for a lack of home delivery in many rural areas.

Map 9: Percentage of households with access to postal services by district municipality, 2011



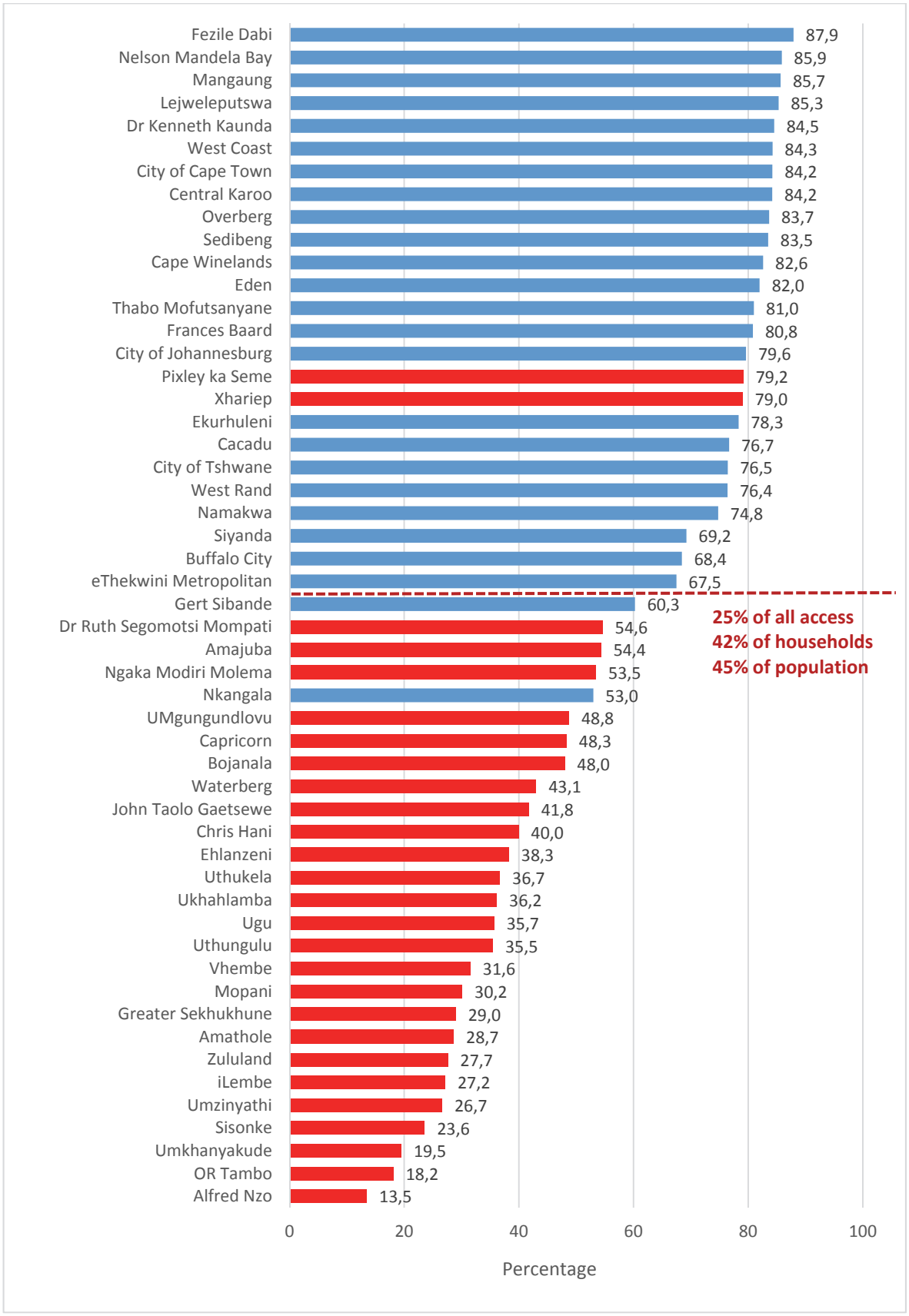
Source: Census 2011

Figure 38: Percentage of households with access to postal services at home or through post boxes by type of service and district municipality, 2011



Source: Census 2011

Figure 39: Percentage of households with access to postal services at home or through post boxes, 2011



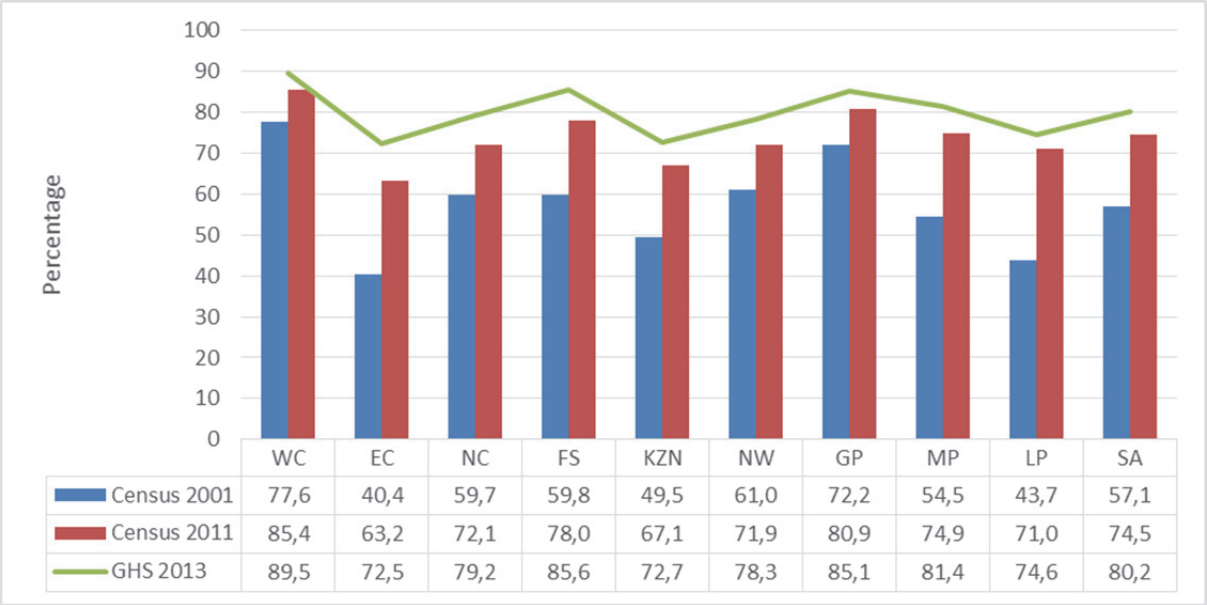
Source: Census 2011

9. Household access to televisions and radios

Technological improvements and improved access to new technologies, such as high speed affordable broadband, have and will continue to fundamentally change the way in which audio-visual material is accessed. Although material is increasingly being accessed on a variety of media, including computers, mobile devices, and tablets, the large majority of households in South Africa still access audio-visual news and entertainment via their televisions and radio sets. According to the DTPS (2013: 19), in 2012, the analogue terrestrial television broadband network reached 91,7% of the adult population while 92,6% of adults listen to the radio (DTPS, 2013).

Figure 40 shows that the percentage of households who owned television increased from 57,1% in 2001 to 74,5% in 2011. Increased ownership was observed across all provinces. Ownership of functional televisions sets was lowest in Eastern Cape (63,2%) and KwaZulu-Natal(67,1%) while it was much more common in Western Cape (85,4%) and Gauteng (80,9%). The 2013 GHS found even higher figures, showing that 80,2% of households owned television sets nationally in 2013.

Figure 40: Percentage of households who owned televisions by province, census 2001 and 2011 and GHS 2013



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
Census 2001	77,6	40,4	59,7	59,8	49,5	61,0	72,2	54,5	43,7	57,1
Census 2011	85,4	63,2	72,1	78,0	67,1	71,9	80,9	74,9	71,0	74,5
GHS 2013	89,5	72,5	79,2	85,6	72,7	78,3	85,1	81,4	74,6	80,2

Source: GHS 2013, Census 2001 and Census 2011

In contrast to the rapid growth of television ownership, household ownership of radios has declined in the decade before the 2011 census. Nationally, the percentage of households that reported owning a radio declined from 75,1% in 2001 to 67,5% in 2011. In 2011, household ownership of radios was highest in Free State (76,2%), Gauteng (69,8%) and Western Cape (69,2%), and the lowest in Eastern Cape (61,3%) and Northern Cape (61,6%). Figure 41 shows that less than one-third of households (62,1%) still owned radios by 2013. In addition, the GHS found that less than one-half (47,1%) of households in Eastern Cape still owned radios. This is likely the consequence of technological innovation as households are increasing accessing radio content via other devices such as phones, satellite decoders/televisions and entertainment centres. The findings of GHS 2013 confirms the continued decline of radio ownership in households.

Figure 41: Percentage of households with access to radios by province, 2001, 2011, 2013.

	WC	EC	NC	FS	KZN	NW	GP	MP	LP	SA
Census 2001	79,7	65,7	69,3	78,7	75,8	73,0	79,3	76,5	72,7	75,1
Census 2011	69,2	61,3	61,6	76,2	68,3	64,7	69,8	68,9	62,1	67,5
GHS 2013	62,6	47,1	57,2	71,4	74,9	62,0	61,8	53,5	59,1	62,1

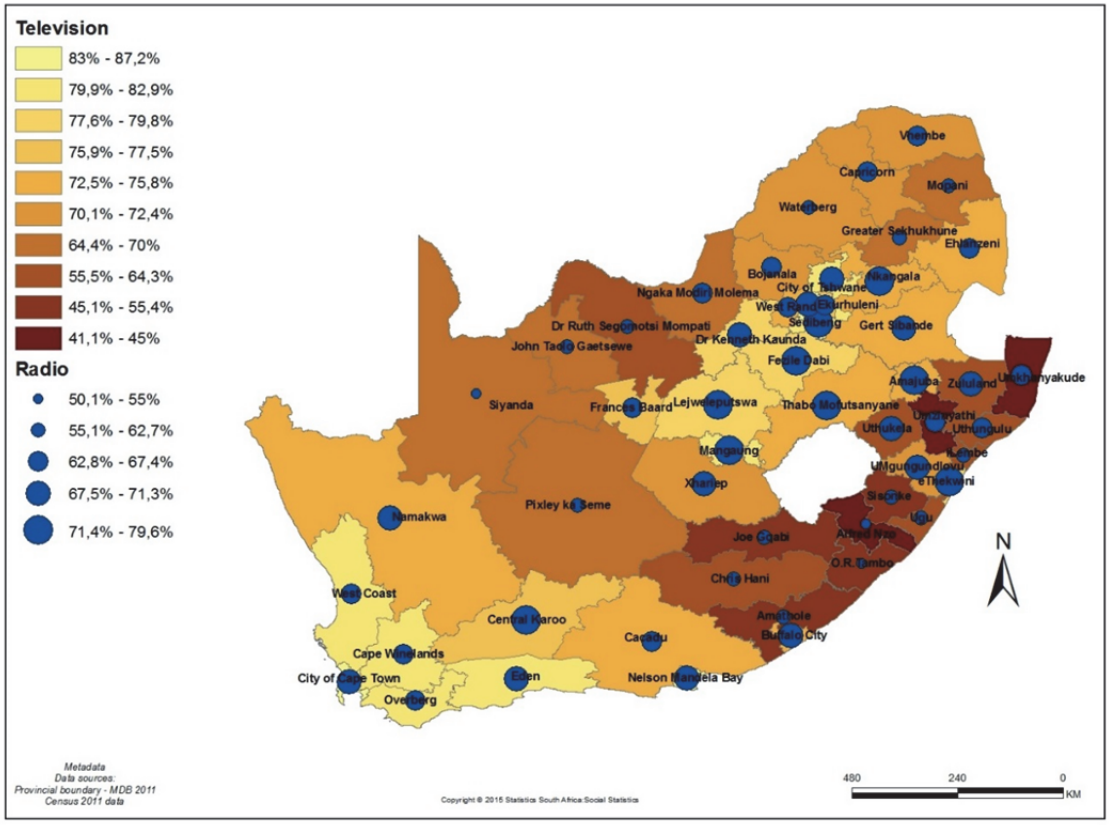
Source: GHS 2013, Census 2001 and Census 2011

Household ownership of radios and television by district municipality is presented in Map 10. Districts with the lowest television ownership was largely concentrated in Eastern Cape and KwaZulu-Natal. Less than half of all households owned television sets in three districts, namely Alfred Nzo (41,1%), Umkhanyakude (42,8%) and Umzinyathi (45,0%). In fact, of the ten distcits with the lowest ownership rates, all were either in Eastern Cape or KwaZulu-Natal. Television ownership was most common in the large metros in general, and districts in Gauteng and Western Cape. Of the ten districts in which more than 80% of households owned television sets, five (Cape Town, Nelson Mandela Bay, Johannesburg, Mangaung, and Tshwane) were metros, while another five were either in Western Cape (Cape Winelands, Overberg, Eden, West Coast) or in Gauteng (Sedibeng).

Ownership of radios was least common in Siyanda (50,1%), OR Tambo (52,0%), Alfred Nzo (55,0%), Sisonke (58,3%), Sekhukhune (59,4%) and Dr Ruth Segomotsi Mompati (59,5%). More than three-quarters of households in Mangaung (79,6%), Fezile Dabi (76,8%) and Thabo Mofutsanyane (76,4%) owned radios. This is also presented in Annexure 5.

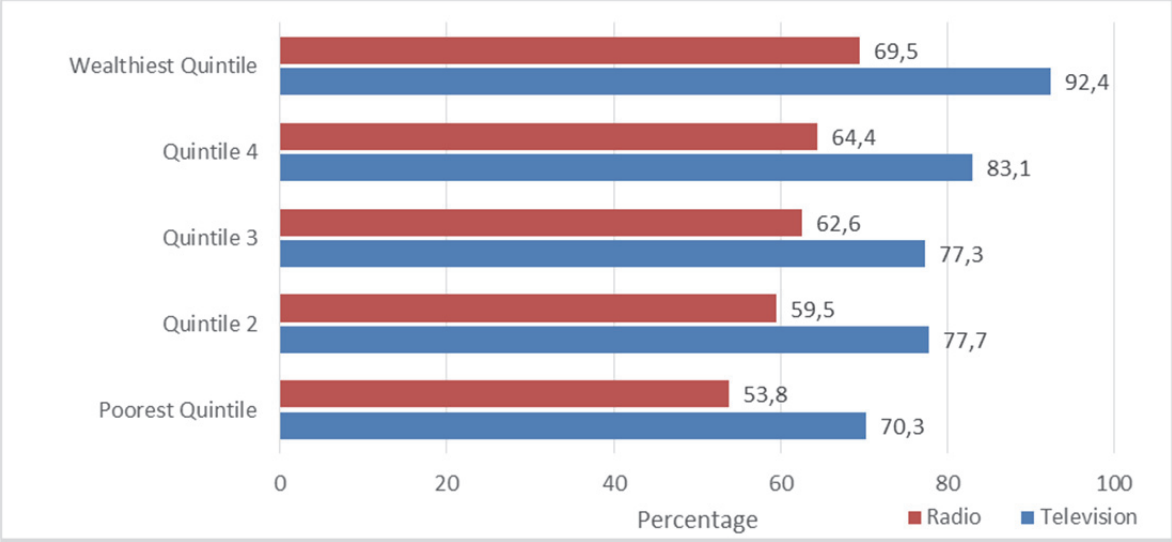
As with the ownership of, or access to other household amenities, income plays a very important role. A positive association was found between per capita household income ownership of radios and televisions as can be observed in Figure 42. The figure shows that, for both television and radio, the percentage of households that owned radios and televisions was higher in the wealthiest income quintile after which it dropped for each successive quintile. Ownership was least common for households in the poorest income quintile.

Map 10: Percentage of households with access to television and radio by district municipality, 2011



Source: GHS 2013

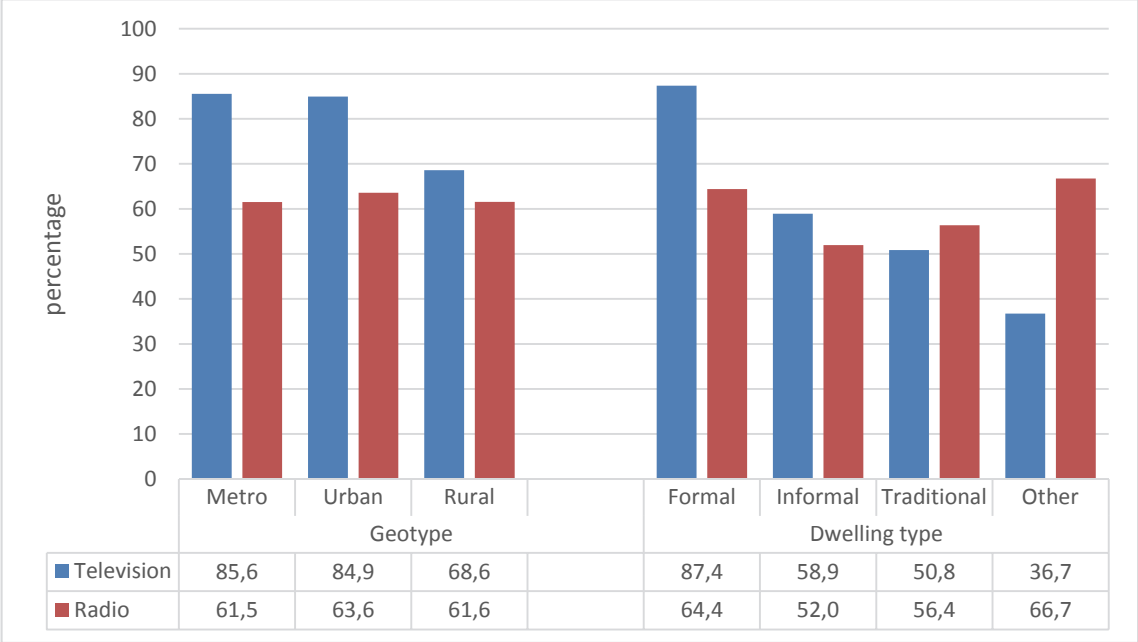
Figure 42: Percentage of households with access to radios and televisions by per capita income quintiles, 2013.



Source: GHS 2013

Figure 43 shows that household ownership of televisions were least common in rural areas where 68,8% of households owned one or more television sets compared to approximately 85% of households in urban and metro areas. Radio ownership was very similar across geographical areas. The figure also shows that a much larger percentage of households that lived in formal dwellings (87,4%) owned television sets that those in either informal (58,9%) or traditional dwellings (50,8%). Although ownership of radios was also slight skewed towards households in formal dwellings, the differences between households that lived in different types of dwellings were smaller than for television ownership.

Figure 43: Percentage of households with access to computers by per capita household income and LSM, 2013

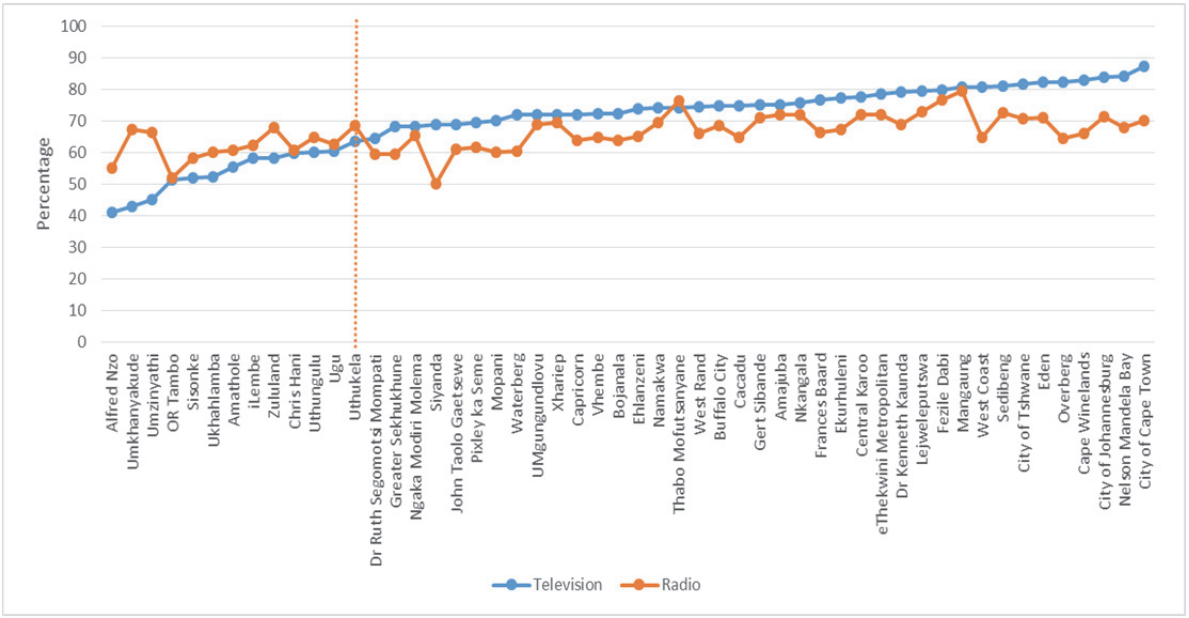


	Metro	Urban	Rural	Formal	Informal	Traditional	Other
Television	85,6	84,9	68,6	87,4	58,9	50,8	36,7
Radio	61,5	63,6	61,6	64,4	52,0	56,4	66,7

Source: GHS 2013

It is notable from Figure 44 that the percentage of households that owned television sets lagged the percentage that owned radios in only 14 districts. Thirteen of these also have the lowest ownership of television. The district in question are indicated by the space to the left of the vertical red line.

Figure 44: Percentage of households with access to radios by province, census 2001 and 2011



Source: Census 2011

10. Composite indicators of ICT access in South Africa

10.1 Background

Since the ICT environment in South Africa is so diverse and continuously in flux, it is vital to have the means to compare multiple indicators across a variety of administrative units over space and time in order to gauge progress. With nine province, eight metropolitan municipalities, 44 district municipalities, and 226 local municipalities, South Africa lends itself well to the introduction of composite measures.

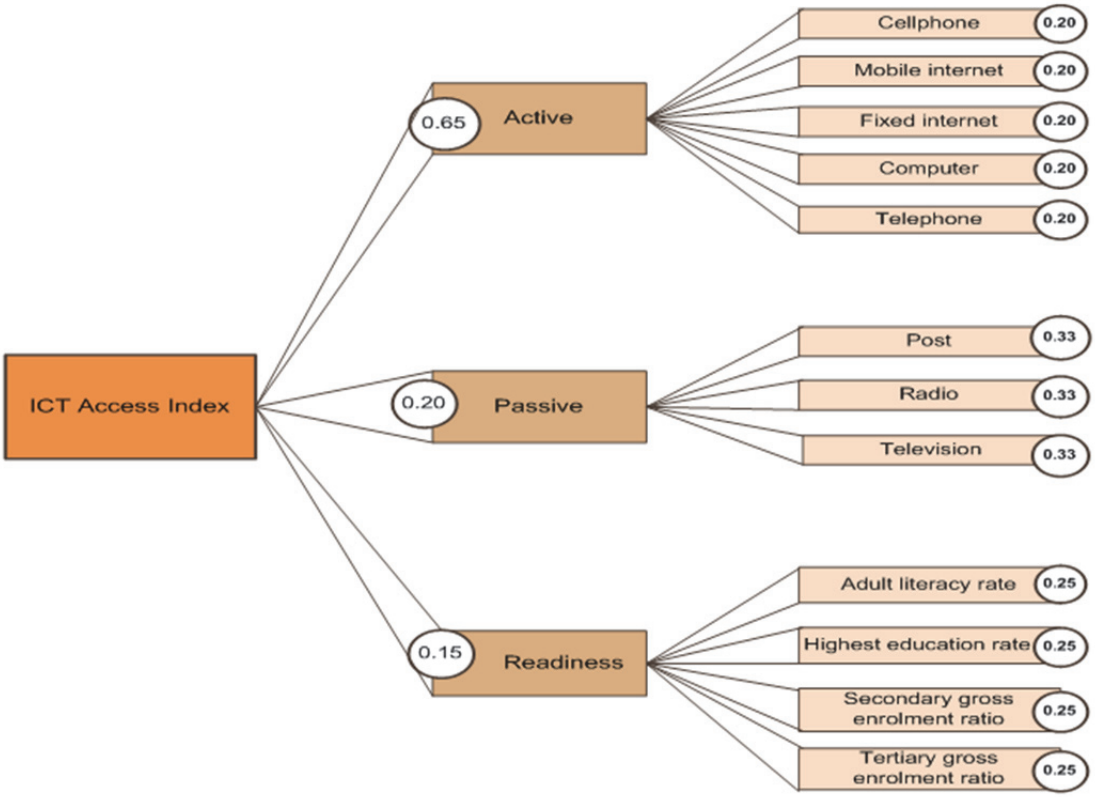
Although numerous ICT indices have been developed over the years (see for instance the ITU's ICT development index (IDI) and the WEF's Networked Readiness Index) each index was developed for a particular purpose to operate at particular levels of disaggregation (mostly national) using a carefully selected set of data. While developing this report a conscious decision was taken to not blindly copy existing indices but to rather learn from existing methodologies to achieve its objective, which was to develop an index that primarily measured access to ICT and, at appropriate levels, considered the extent to which South Africans were ready to optimally use available ICT. The ITU's ICT Development Index (IDI) was considered the most appropriate international index to guide the development of the index. This index is a composite international measure of ICT across countries which was developed by International Telecommunications Union (ITU) in 2008 in response to request to develop ICT index and to publish it regularly. Given our slightly divergent objectives and the fact that many of the variables used as input variables into the IDI was not available from GHS or census data, a revised index, the ICT Access Index (IAI) was developed.

The ICT Access Index (IAI) is a composite index embraced from ITU methodology and developed to measure the level and compare access to Information and communication technology (ICT) across households, provinces and municipalities in South Africa. It combines 12 ICT access indicators into one benchmark measure. The IAI expansion process is grouped in three sub-indexes namely:

1. **Active**: measures the level of households' access to relatively technologically advanced ICT assets;
2. **Passive:** measures the level of households' access to basic broadcasting services and mail;
3. **Readiness:** measures households' relative skill levels and the ability to utilize ICT

These three sub-indexes are divided into 12 indicators in total, according to the following structure (Figure 45):

Figure 45 : Diagram of the ICT access index



10.2 Constructing the provincial index

The report embarked on the creation of a South African dimensional ICT Index to measure the level of ICT in the country aligning with international trends towards measuring ICT. Embracing the ITU methodology, indicators are also adjusted in line with the development of national index that reflect country specific conditions and needs. The choice of indicators included in the sub-indices reflects the conforming phase of the current information society especially in South Africa.

Therefore indicators in each sub-index have changed over the years as technology has continued to advance. The passive sub-index includes technologies such as radio, television and post which are well entrenched in society, and which either don't allow for two-way communication, or very limited two-way communication that is characterised by a significant time lag (sending and receiving post for instance). By comparison, the active sub-index includes technologies that allows for more instantaneous communication, including telephony and access to the internet.

Data collected for all these indicators are from the General Household Survey (GHS) and Census data collected and processed by Stats SA during the period from January 2013 to December 2013 and 2011 respectively. Using census data allows the index to disaggregate information to very low geographic areas which would usually not be possible using survey data.

While similar indicators were in many cases measured by the GHS and the census, questions are not always strictly comparable. This is covered in the section on data limitations.

10.3 Dimensions and indicators

A number of factors were taken into account while creating the IAI. Most notable amongst these were the dimensions and indicators used in the ITU's IDI; the South African context and issues affecting ICT; as well as the availability of data from the GHS and Census. The dimensions, indicators and limits that were established are presented in Table 27.

Although the IAI is loosely based on the IDI, the two indices are also very different. The IDI for instance uses fixed and mobile broadband subscriptions per 100 inhabitants to measure internet access while the IAI only considers the percentage of households with access to the internet. In the case of the IAI, the Secondary Gross Enrolment Ratio was normalised (capped at 100%) for provinces where the GER was over 100%, as in the case of Limpopo.

The outcome of the GHS data analysis is the level of ICT in South Africa at provincial and household level; and of the Census data at provincial, district and municipal level. The data was rescaled on a scale from 0 to 10 in order to compare values of the indicators and the sub-indices. The analysis was done using SAS version 4.3.

Table 27: Dimensions and indicators

Sub-Index	Indicator	Description
Active	Cellphone	% of households with access to a Cellphone
	Computer	% of households with access to a Computer
	Internet at home	% of household with access to internet access at home
	Mobile Internet	% of household with access to mobile internet access
	Telephone	% of household with access to a landline telephone
Passive	Post	% of household with access to postal services
	Radio	% of household with access to a radio
	Television	% of household with access to a Television
Readiness	Adult literacy rate	% of total Adults aged 20+ and able to read and write / total adults
	Highest level of education rate	% of total aged 20+ and completed at least higher diploma / total aged 20+
	Secondary gross enrolment ratio	% of total individuals enrolled in secondary / total aged 14 to 18 years
	Tertiary gross enrolment ratio	% of total individuals enrolled in tertiary / total aged 19 to 24 years

10.4 Constructing the index

For computation of the final index, the Active sub-index was given 65 per cent weight, the Passive sub-index 20 percent and the readiness sub-index (because it is based on proxy indicators) 15 per cent weight. The latter sub-index was also given less weight in the computation of the IDI compared with the other two sub-indices.

The sub-index value was calculated by taking the simple sum (using equal weights) of the indicator values. The process of computing the IAI is presented in Table 27. The final index value was then computed by summing the weighted sub-indices.

Table 28: Calculation of the ICT Access Index

ICT Active	Formula	Weight	
Z1 Percentage of households with a Cellphone	Z1	0.20	
Z2. Percentage of households with Mobile Internet	Z2	0.20	
Z3. Percentage of households with internet access at home	Z3	0.20	0.65
Z4. Percentage of households with a computer	Z4	0.20	
Z5. Percentage of households with a telephone	Z5	0.20	
ICT Passive			
Z6. Percentage of households with Radio	Z6	0.33	
Z7 Percentage of households with a TV	Z7	0.33	0.20
Z8 Percentage of households with a Post	Z8	0.33	
ICT skills / Readiness			
Z9. Adult literacy rate	Z9	0.25	
Z10. Highest level of Education	Z10	0.25	0.15
Z11 Secondary gross enrolment ratio	Z11	0.25	
Z12. Tertiary gross enrolment ratio	Z12	0.25	
Calculation of sub-indexes			
IDI Active sub-index (L)	**y1+y2+y3+y4 +y5**		**0,65**
Y1 Percentage of households with a cellphone	Z1*0.20		
Y2. Percentage of households with mobile Internet	Z2*0.20		
Y3. Percentage of households with internet access at home	Z3*0.20		
Y4. Percentage of households with a computer	Z4*0.20		
Y5. Percentage of households with a telephone	Z4*0.20		
IDI Passive sub-index (M)	**y5+y6+y7**		**0,20**
Y6. Percentage of households with Radio	Z5*0.33		
Y7 Percentage of households with a TV	Z6*0.33		
Y8 Percentage of households with a Post	Z7*0.33		
IDI skills sub-index (N)	**y8+y9+y10+y11**		**0,15**
Y9. Adult literacy rate	Z8*0.25		
Y10. Highest education rate	Z9*0.25		
Y11 Secondary gross enrolment ratio	Z10*0.25		
Y12. Tertiary gross enrolment ratio	Z11*0.25		
IDI ICT Access Index	**((L*0.65)+(M*0.30)+(N*0.15))*10**		

10.5 Composite index of provincial access to ICT

The results of the ICT Access Index (IAI) on provincial level using GHS 2013 data is presented in Table 29. The table shows that, overall, Western Cape was ranked first, followed by Gauteng and Free State. Eastern Cape and Limpopo were the two bottom-ranked provinces. The final ranking reflects the Active sub-index relatively closely due to its relatively weight. It is also notable that the passive sub-index does not materially differ from the final IAI rank. The readiness sub-index, which measures the extent to which households are ready to embrace ICT, reveals that the two top-ranked provinces, Western Cape and Gauteng, were best prepared for ICT while Mpumalanga, Eastern Cape and Limpopo, the three bottom ranked provinces on the IAI, were also was ranked bottom on the readiness index.

Table 29: Composite index of provincial access to ICT, 2013

Province	IAI rank	Active rank	Passive rank	Readiness rank	ICT Access Index (IAI)	Active sub-index	Passive sub-index	Readiness sub-index
WC	1	1	2	2	5,18	4,26	7,84	5,60
GP	2	2	3	1	4,94	3,93	7,50	5,87
FS	3	3	1	3	4,50	3,17	8,06	5,49
NC	4	5	4	6	4,21	3,13	6,93	5,23
KZN	5	6	6	5	4,08	3,05	6,55	5,23
NW	6	7	5	4	4,07	2,99	6,69	5,25
MP	7	4	7	9	4,03	3,17	6,01	5,12
EC	8	8	9	7	3,59	2,69	5,33	5,17
LP	9	9	8	8	3,57	2,61	5,48	5,14
RSA					**4,36**	**3,37**	**6,79**	**5,45**

Source: GHS, 2013

The results of the index provided in Table 28 is visually presented in Figure 46

Figure 46: Composite index of provincial access to ICT, GHS 2013

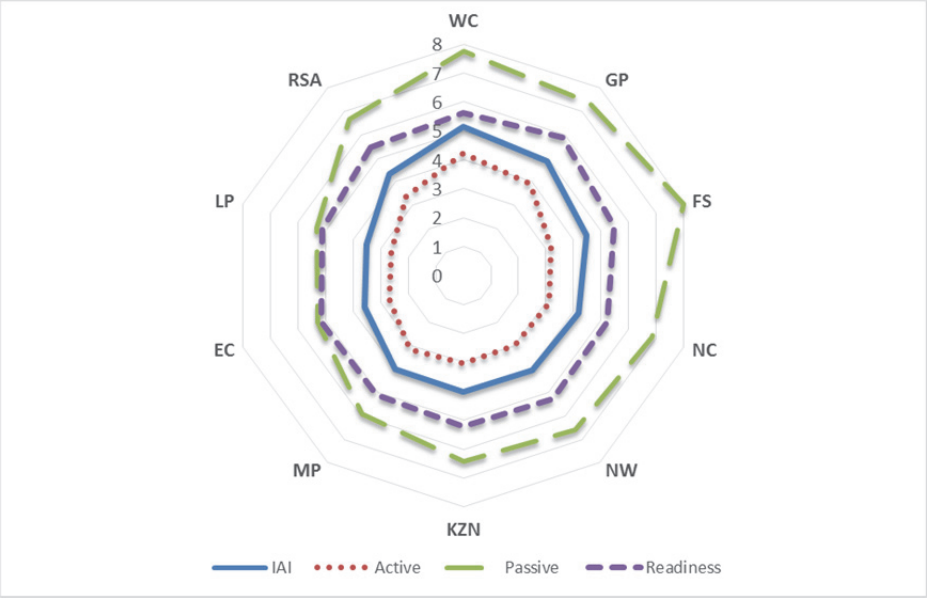


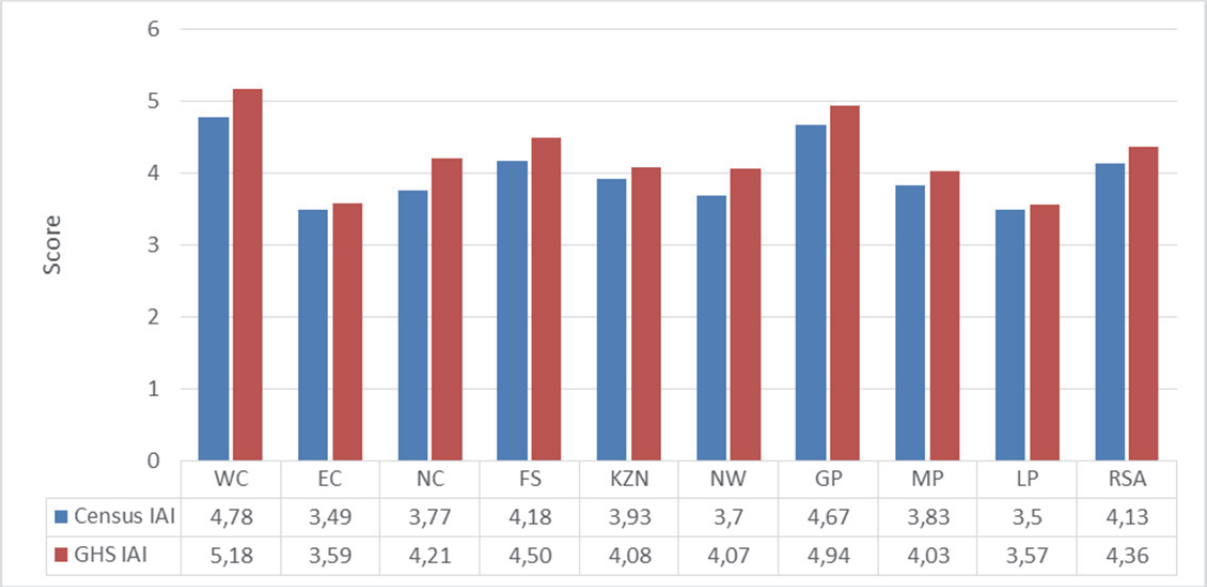
Table 29 and Figure 46 shows that Western Cape is the highest ranked province in the active sub-index with a score of 4,26, followed by Gauteng and Free State with the scores of 3,93 and 3,17 respectively. The provinces that were ranked the lowest in terms of the Active sub-index were North West, Eastern Cape and Limpopo with scores of 2,99; 2,69 and 2,61 respectively.

Free state (8,06), Western Cape (7,84) and Gauteng (7,50) were the top-ranked province in the Passive sub-index while North West (6,69), Limpopo (5,48) and Eastern Cape (5,33) were ranked at the bottom.

Gauteng (5,87) is the highest rated province for the Readiness sub-index followed by Western Cape (5,6) and Free State (5,49) respectively. The Readiness sub-index remained constant in all the provinces and did not go below the score of 5.

Figure 47 compares the results obtained for the provincial index when using census and GHS data. Despite the differences between Census 2011 and GHS 2013 in some questions used to derive the IAI index, the two indexes were found to be comparable. Figure 46 indicates that Western Cape was ranked first using either data source with a score of 4,78 in Census 2011 and 5,18 in GHS 2013. The next ranked province, Gauteng, scored 4,67 using Census 2011 data and 4,94 using GHS 2013 data. Free State was ranked third with scores of 4,18 using Census 2011 data and 4,50 using GHS 2013 data. The provinces with the lowest rankings, using either data source, were Eastern Cape, Limpopo and North West.

Figure 47: Comparison of IAI scores using GHS 2013 and Census 2011 data



	WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
Census IAI	4,78	3,49	3,77	4,18	3,93	3,7	4,67	3,83	3,5	4,13
GHS IAI	5,18	3,59	4,21	4,50	4,08	4,07	4,94	4,03	3,57	4,36

Source: GHS 2013 and Census 2011

Despite the time lag, and some differences in the way questions were asked for census 2011 and GHS 2013 (see the section on data limitations), Figure 48 shows that indicator values still largely corresponded. The figures are also presented in Table 30.

Figure 48: Comparison of IAI indicator values obtained from GHS 2013 and Census 2011 data

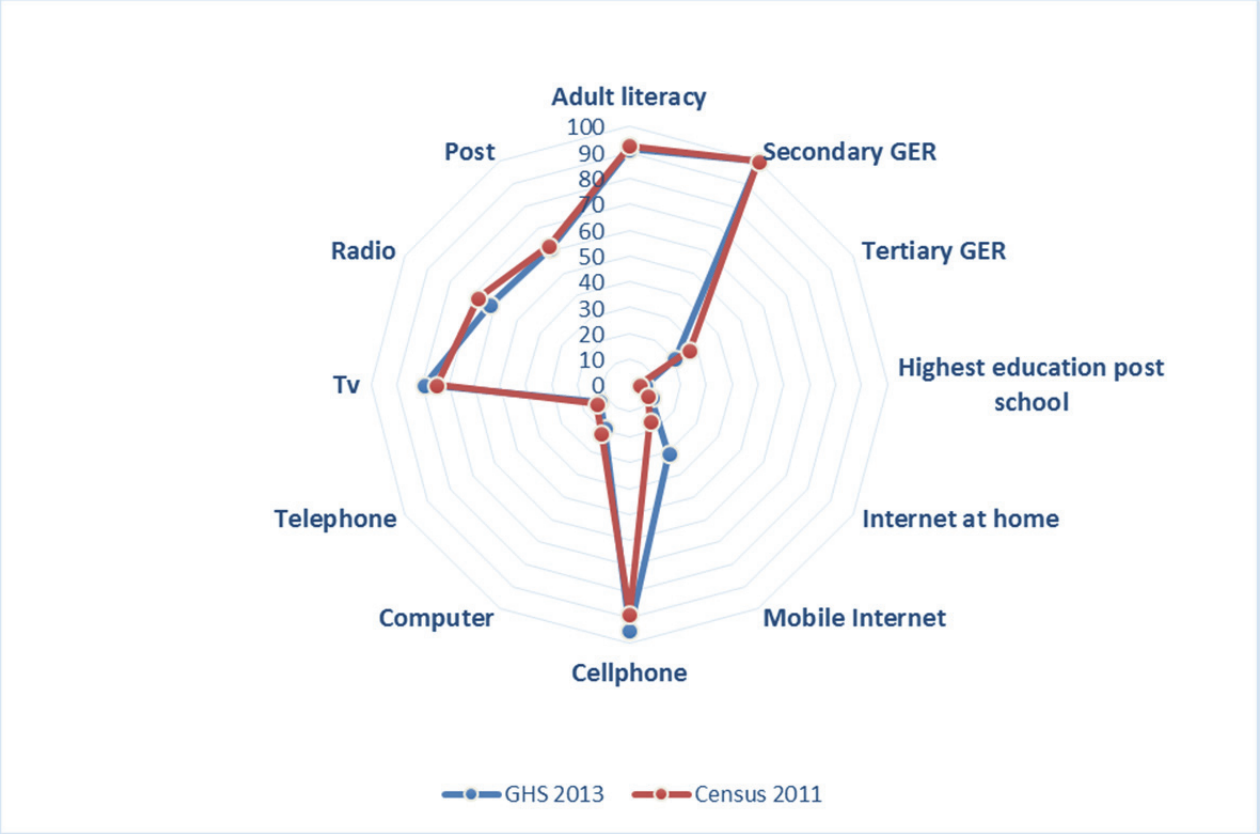


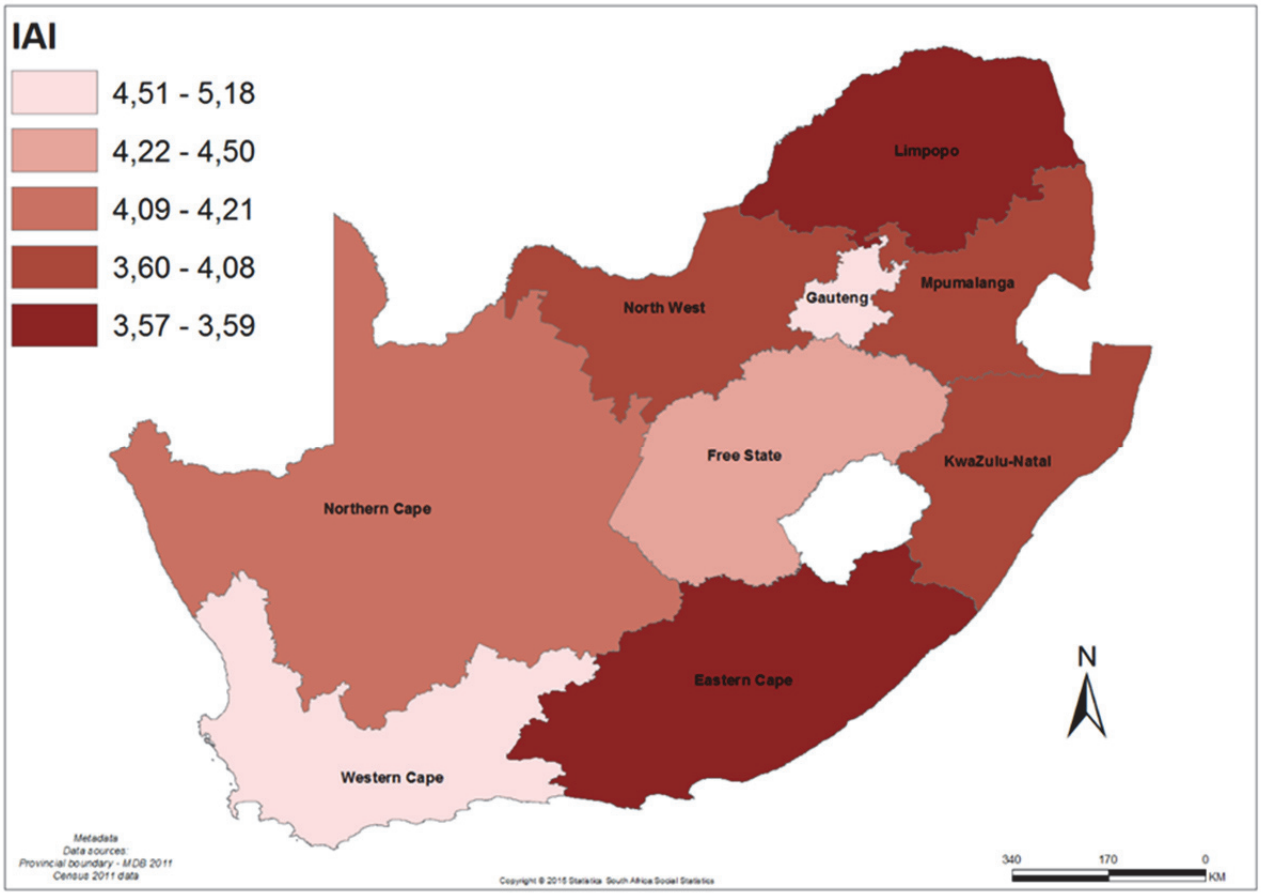
Table 30: Comparison of IAI indicator values from GHS 2013 and Census 2011 data

	Census 2011	GHS 2013
Adult literacy	92,6	91,4
Secondary GER (normalized)	100,0	100,0
Tertiary GER	27,1	20,5
Highest education post school	4,1	6,3
Internet at home	8,6	10,0
Mobile Internet	16,3	30,8
Mobile phone	88,9	94,8
Computer	21,4	19,4
Telephone	14,5	13,1
Television	74,5	80,2
Radio	67,5	62,1
Post	62,2	61,5

Source: GHS 2013 and Census 2011

The results of the IAI is visually presented in Map 11, below. The map confirms that Gauteng and Western Cape are the top-ranked provinces in terms of access to ICT, but that much work still needs to be done in Eastern Cape and Limpopo.

Map 11: Provincial ICT index



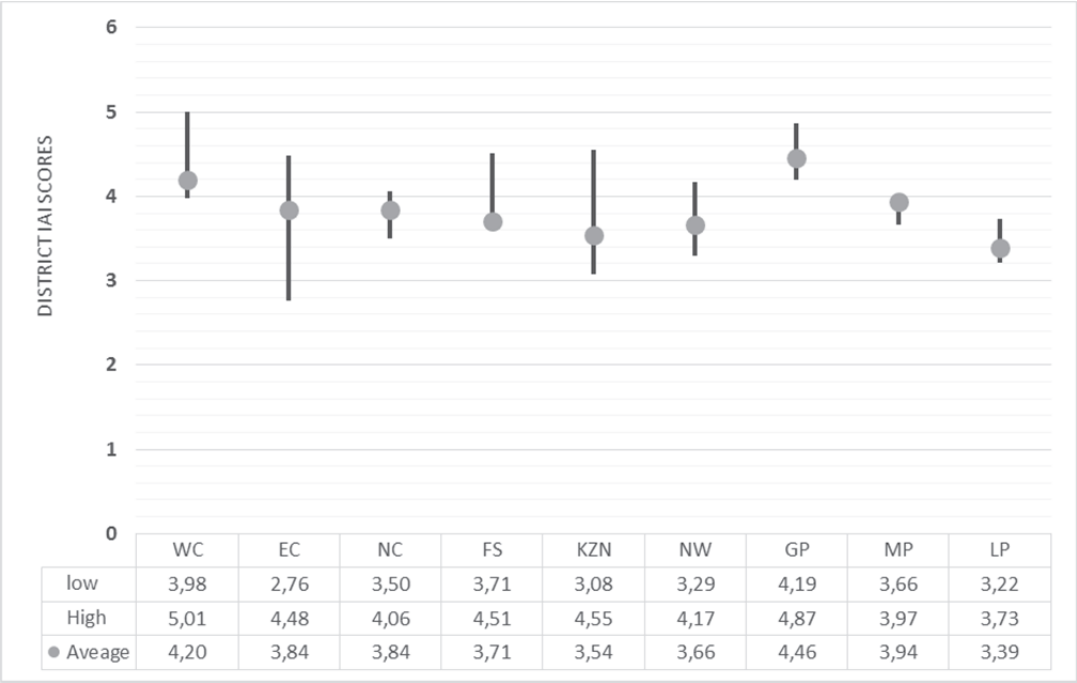
10.6 Composite index of district municipal access to ICT

The composite index scores and rankings for South Africa's eight metropolitan and 44 district municipalities are provided in Annexure 2.

Figure 49 shows that Eastern Cape had the highest dispersion of IAI among its district municipalities followed by Kwazulu-Natal and Western Cape. The reason for the high dispersion among the district municipalities might be due to the fact that some provinces contains metros, this report has shown that the metros are among the highest ranked district municipalities in IAI. The provinces with the lowest dispersion of IAI in their district municipalities are Northern Cape, Mpumalanga and Limpopo, these provinces do not contain metros.

The district municipalities with the highest average in IAI scores were in Western Cape (4,20), Gauteng (4,46) and Mpumalanga (3,94). The average of these provinces fall below the midpoint of the sticks in the graph, this indicates that the metros in these provinces were actually ranked higher in IAI than the rest of the district municipalities. The district municipalities with the lowest average in IAI scores were in Limpopo (3,39), KwaZulu-Natal (3,54) and North West (3,66) respectively.

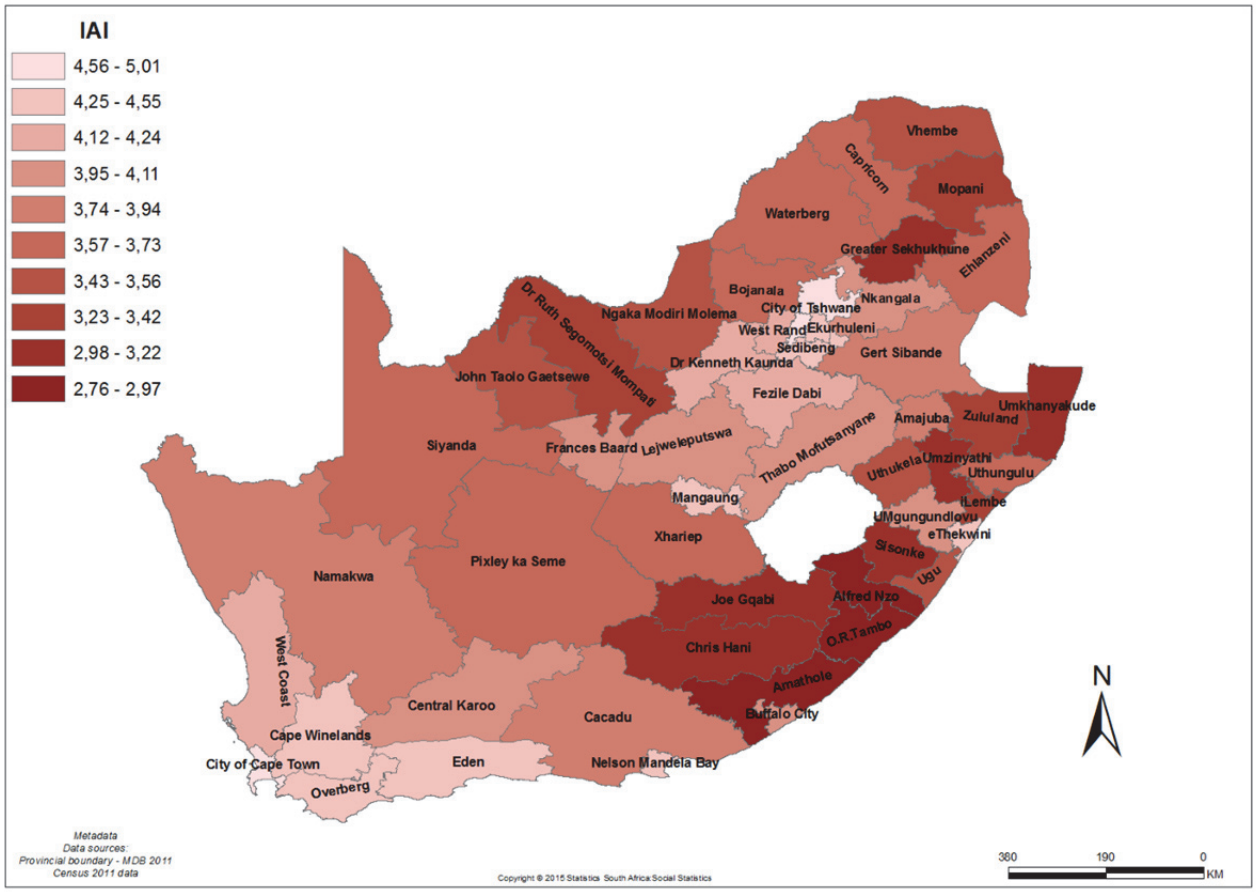
Figure 49: Provincial Index distribution by district using Census 2011 data



	WC	EC	NC	FS	KZN	NW	GP	MP	LP
low	3,98	2,76	3,50	3,71	3,08	3,29	4,19	3,66	3,22
High	5,01	4,48	4,06	4,51	4,55	4,17	4,87	3,97	3,73
Aveage	4,20	3,84	3,84	3,71	3,54	3,66	4,46	3,94	3,39

Map 12 shows that most of the lowest ranked districts primarily seem to be located in Eastern Cape and KwaZulu-Natal. The map also shows that index scores were generally much higher for metropolitan municipalities.

Map 12: District municipality ICT index, 2011



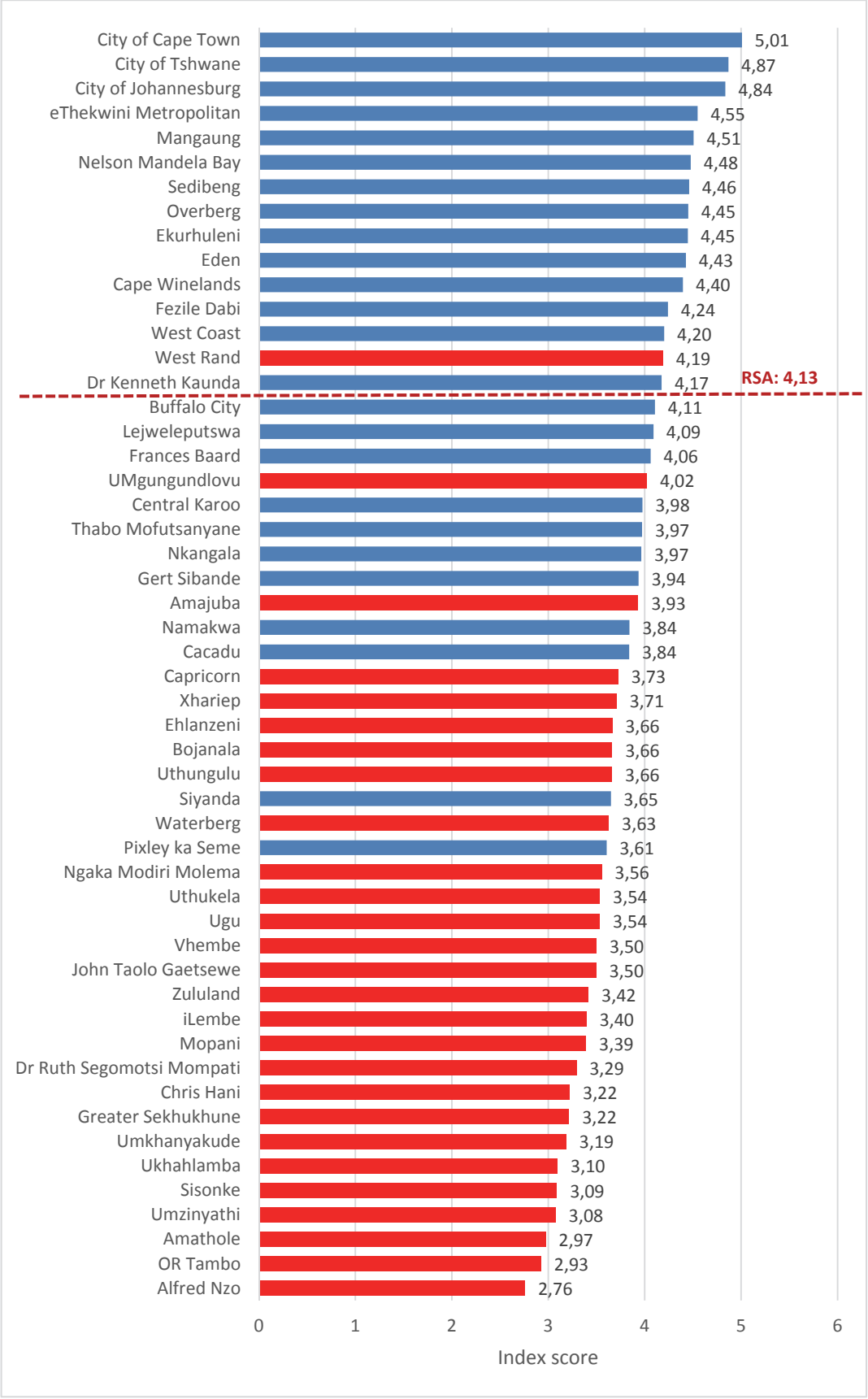
Source: Census 2011

Figure 50 presents the ICT access index scores for the various district municipalities. The 27 poorest district municipalities in the country which have been identified as special cases in need of developmental assistance are coloured in red. The figure shows that the six districts with the best IAI scores were all metropolitan municipalities. The highest index score was awarded to Cape Town (5,01), followed by Tshwane (4,87) and Johannesburg (4,84). By contrast, the lowest index scores were found in Alfred Nzo (2,76), OR Tambo (2,93) and Amathole (2,97).

The figure also shows that 26 out of the 27 poorest municipalities fell below the IAI average score of 4,13 for South Africa, with only West Rand (4,19) district municipality scoring above that. It is important to note that Siyanda (3,65) and Pixley ka seme (3,61) are amongst the cluster of the poorest district municipalities even though they are not part of the 27 poorest district municipalities mentioned in the SONA 2014.

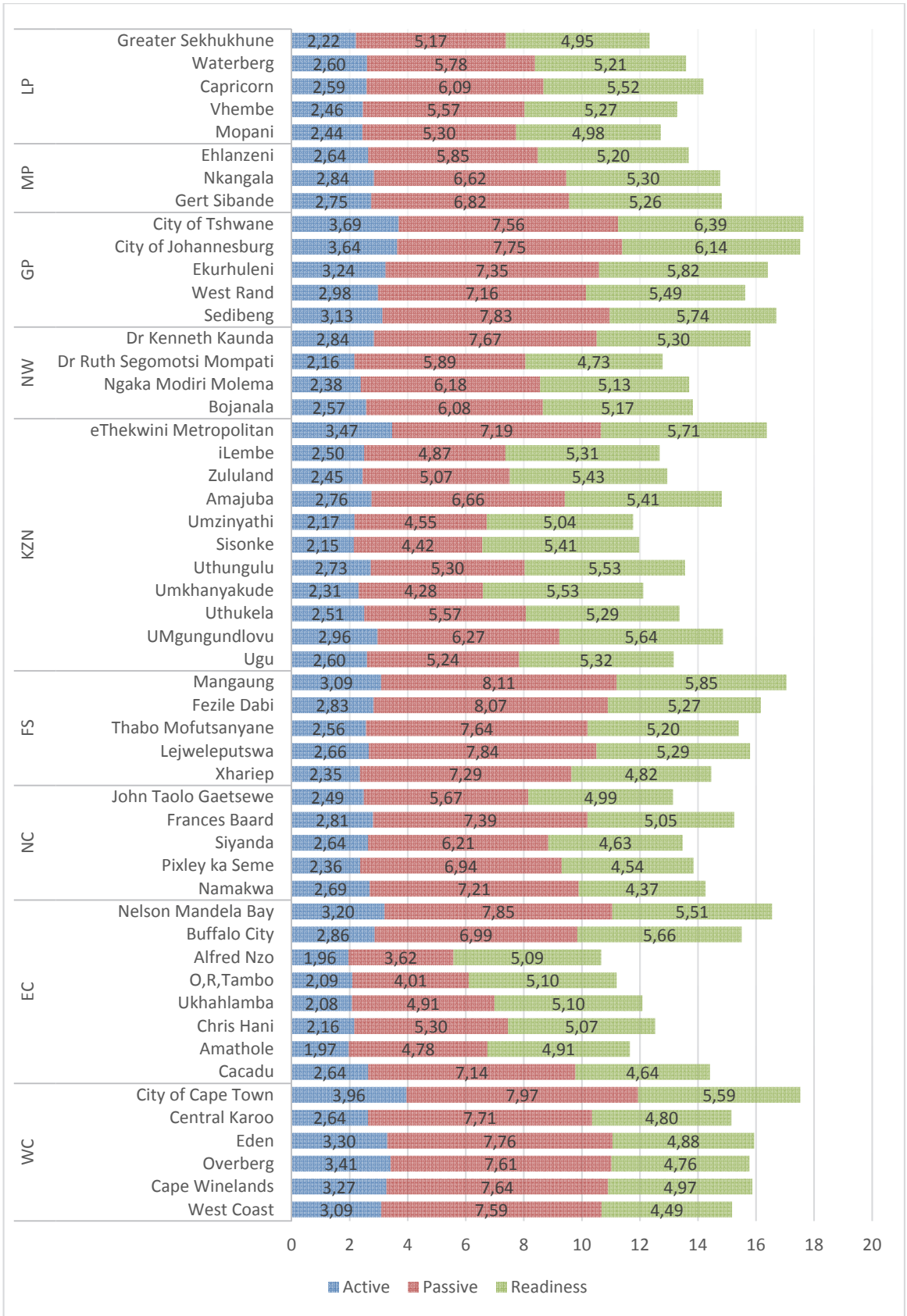
The scores provided in Figure 50 is further broken down into the composite weighted scores for sub-indices in Figure 51. The figure allows one to gauge the relative contribution of each sub-index to the total score.

Figure 50: Index of access to ICT by districts municipalities, 2011



Source: Census 2011

Figure 51: Composite index of access to ICT for district municipalities, 2011



Source: Census 2011

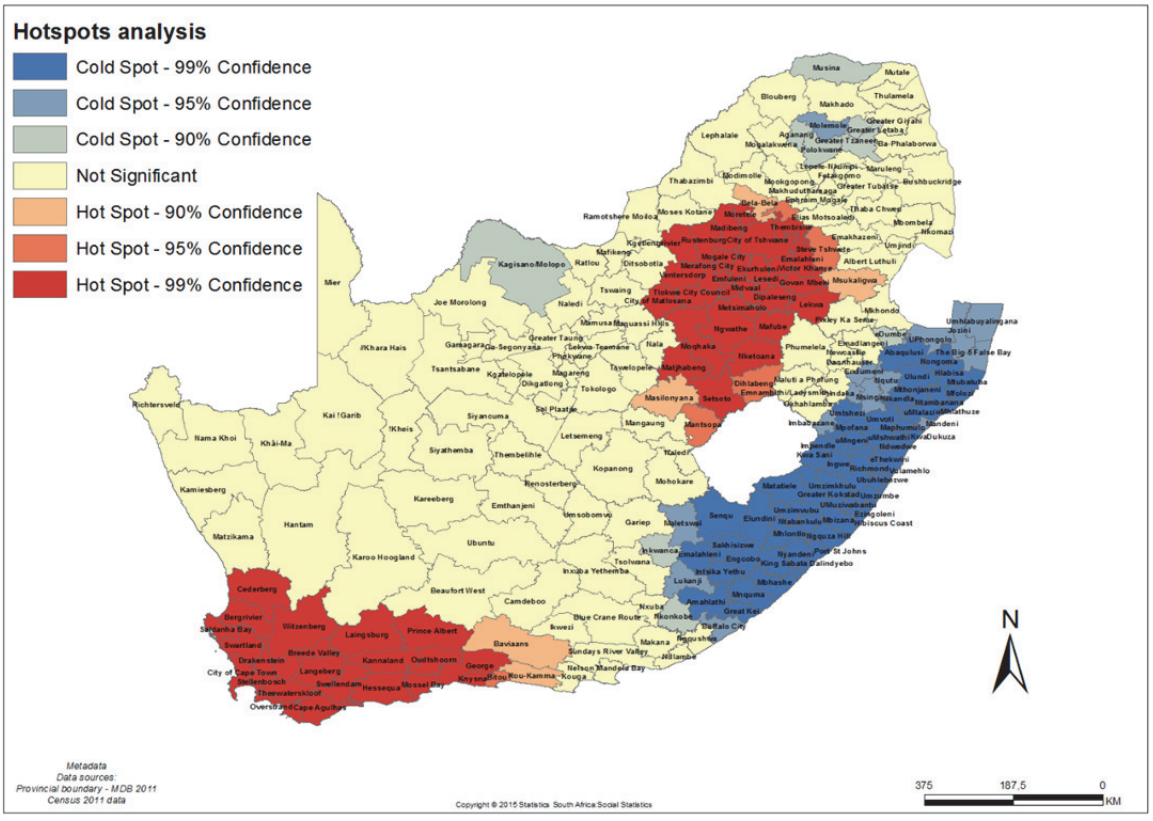
10.7 Composite index of municipal access to ICT

The hot spot zones for ICT usage are presented in Map 13. The map was created by running spatial autocorrelation based on feature locations and attribute values using the Global Moran's I statistic. Once clustered data were identified, cluster and outlier analysis were done using the Anselin Local Moran's I statistic to given set of weighted features to identify statistical hot spot, cold spots and spatial outliers. Getis-Ord Gi statistic analysis was done to support the findings to weighted features to identify statistical significant hot spots and cold spots.

The map shows that ICT scores were substantially higher in Gauteng and Western Cape than in most other municipalities. High scores were also allocated to Emalahleni , Goven Mbeki and Lekwa, dipaleseng in Mpumalanga; Moretele, Madibeng, Rusternburg,Kgetlengrivier,Ventersdorp, Tlokwe ,matlosana in North West, Fezile Dabi DC, Setsoto, Nketoana, and Matjhabeng in Free State.

The blue areas indicate the districts in which there was a relative lack of ICT access. In addition to most of the districts along the wastern seaboard in Eastern Cape and KwaZulu-Natal, Molemole in Limpopo and Kagisano/Molopo in North West was identified as 'cold spots'.

Map 13: Hot Spot analysis for ICT per Municipality, 2011



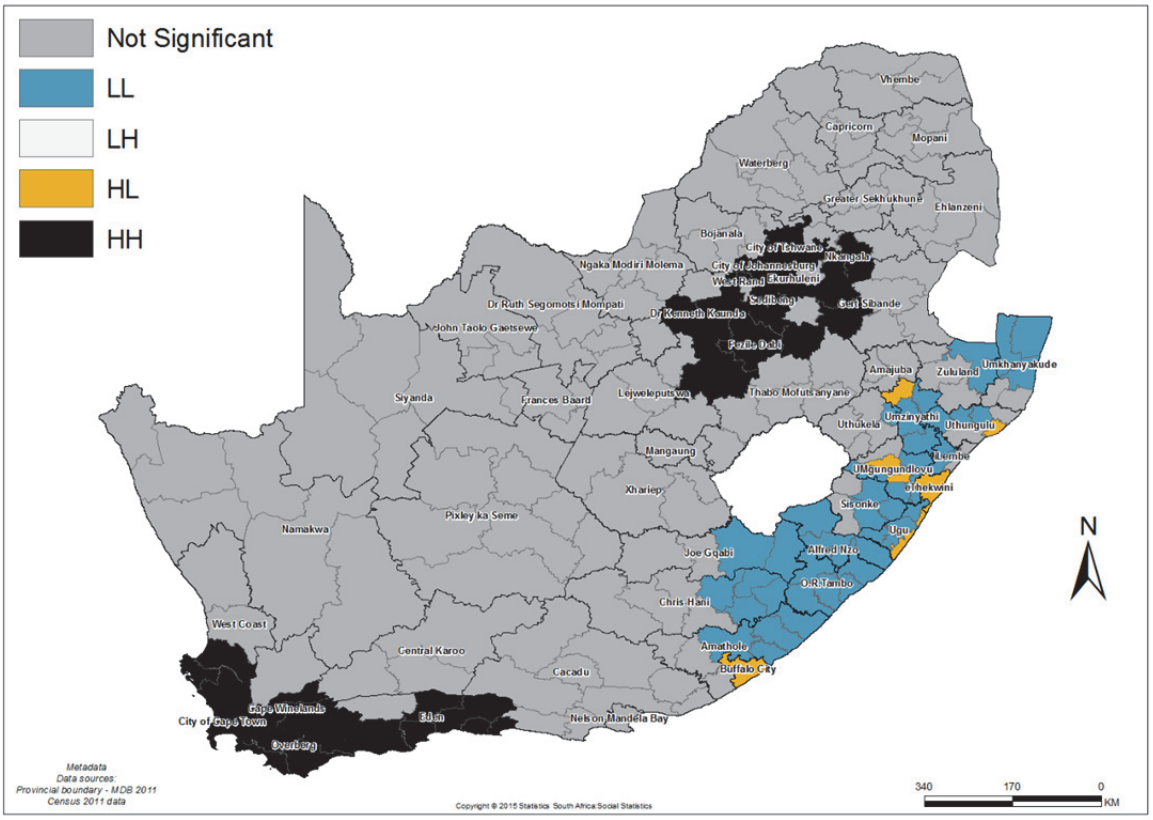
Source: Census 2011

Map 14 shows the spatial distribution of ICT use within municipalities per district. High ICT access areas are observed in Gauteng and Western Cape. The Eastern part of the country, KwaZulu-Natal and Eastern Cape shows high usage mostly in metros while the surrounding municipalities have a very low use of ICT.

Maps 15 to 23 provides a visual representation of the distribution of municipalities by ICT Access Score across all nine provinces. All maps were derived from Census 2011 data.

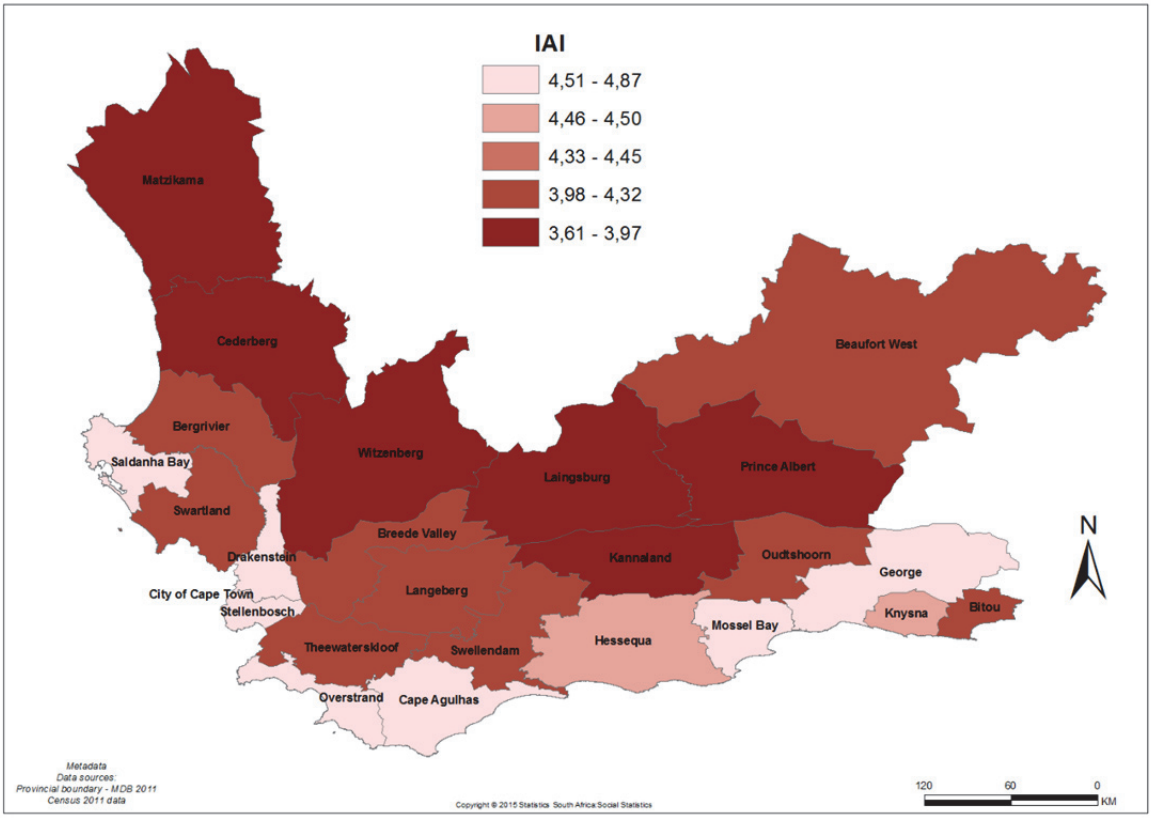
Map 14 shows the spatial distribution of the IAI index in South Africa. In Gauteng and Eastern Cape, districts with high access to ICT (highlighted by the colour black) were clustered next to each other. The districts that had high ICT access in a cluster of low ICT access were observed in Buffalo City, Ugu, eThekwini, uMgungundlovu, UMzinyathi and UThungulu district municipalities. These were coloured yellow. There are only two provinces in which municipalities were surrounded by district municipalities with low ICT access, namely, Eastern Cape and KwaZulu-Natal.

Map 14: Cluster and outlier analysis of municipalities per district

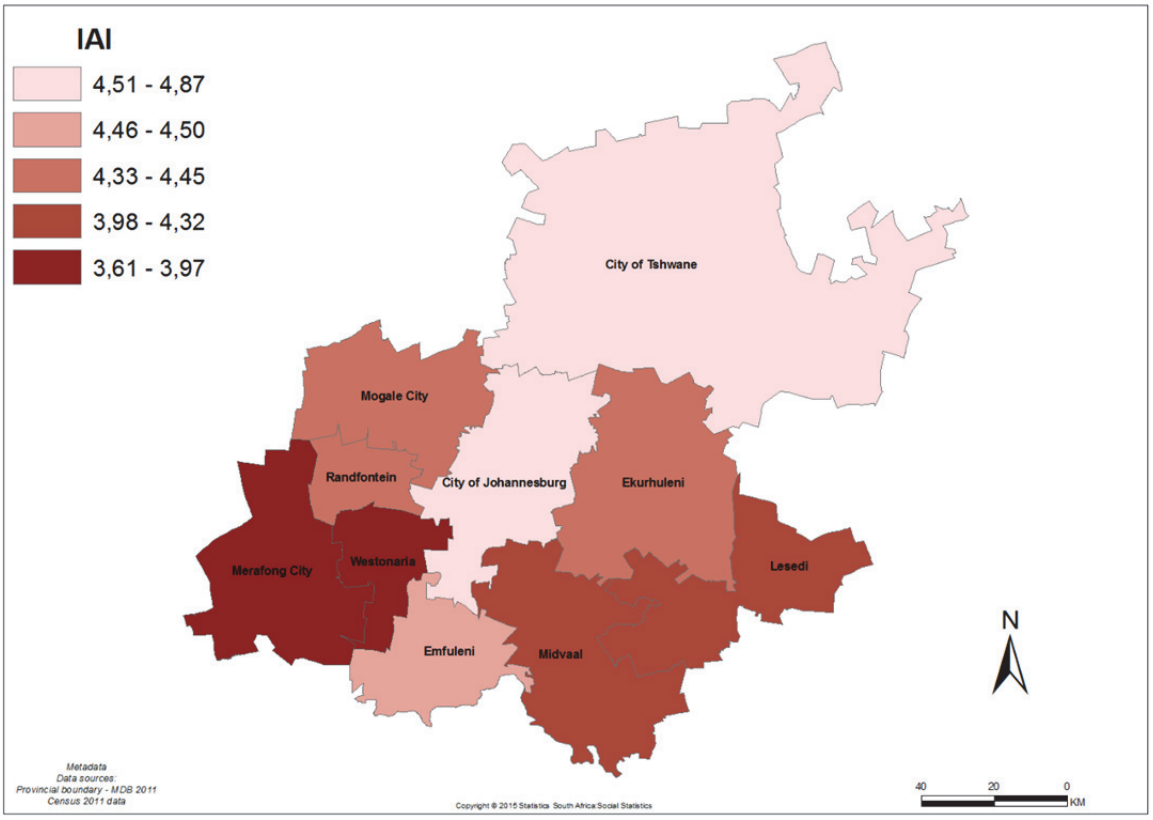


Source: Census 2011

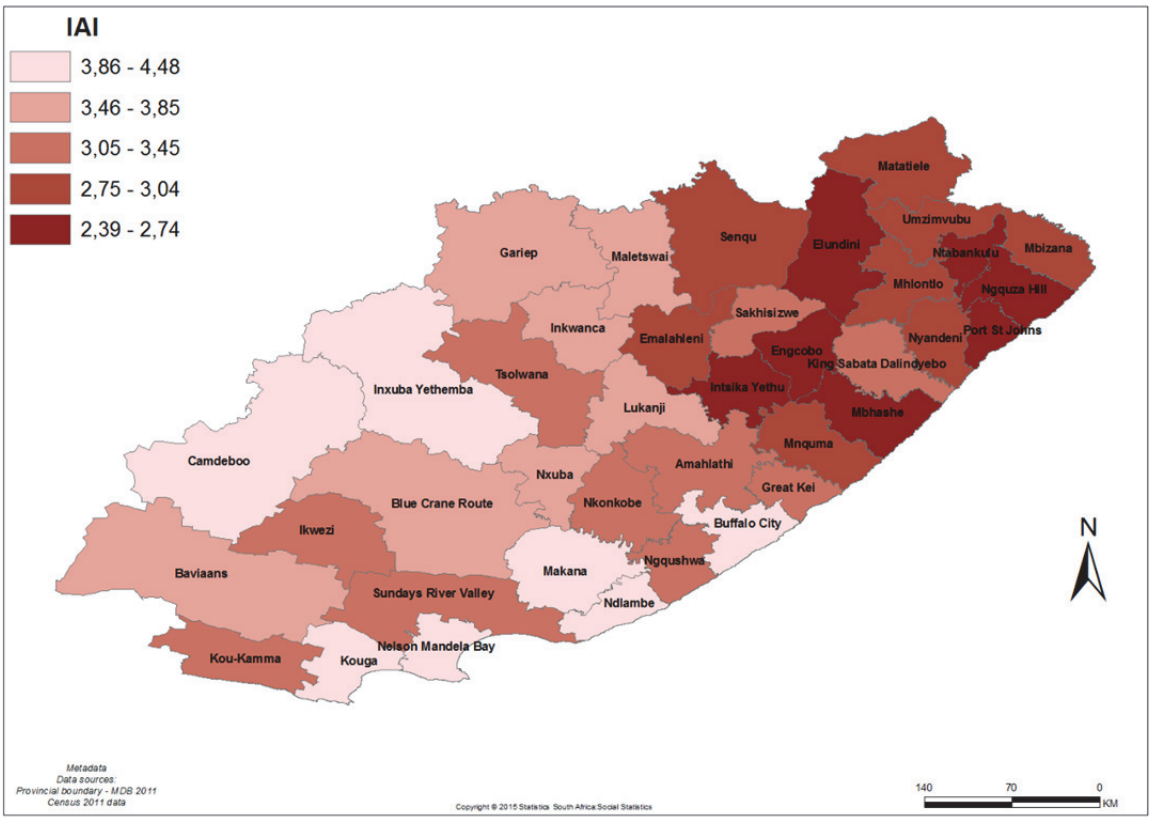
Map 15: Composite index of municipal access to ICT in Western Cape



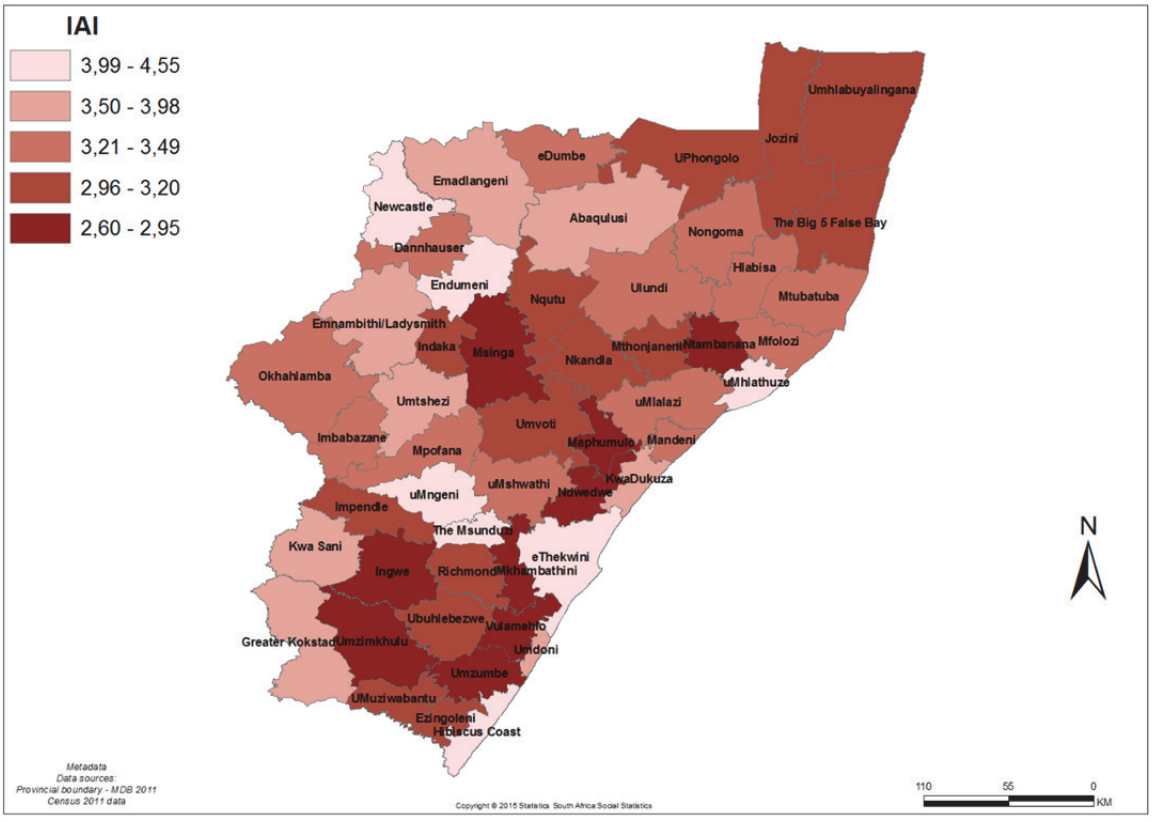
Map 16: Composite index of municipal access to ICT in Gauteng



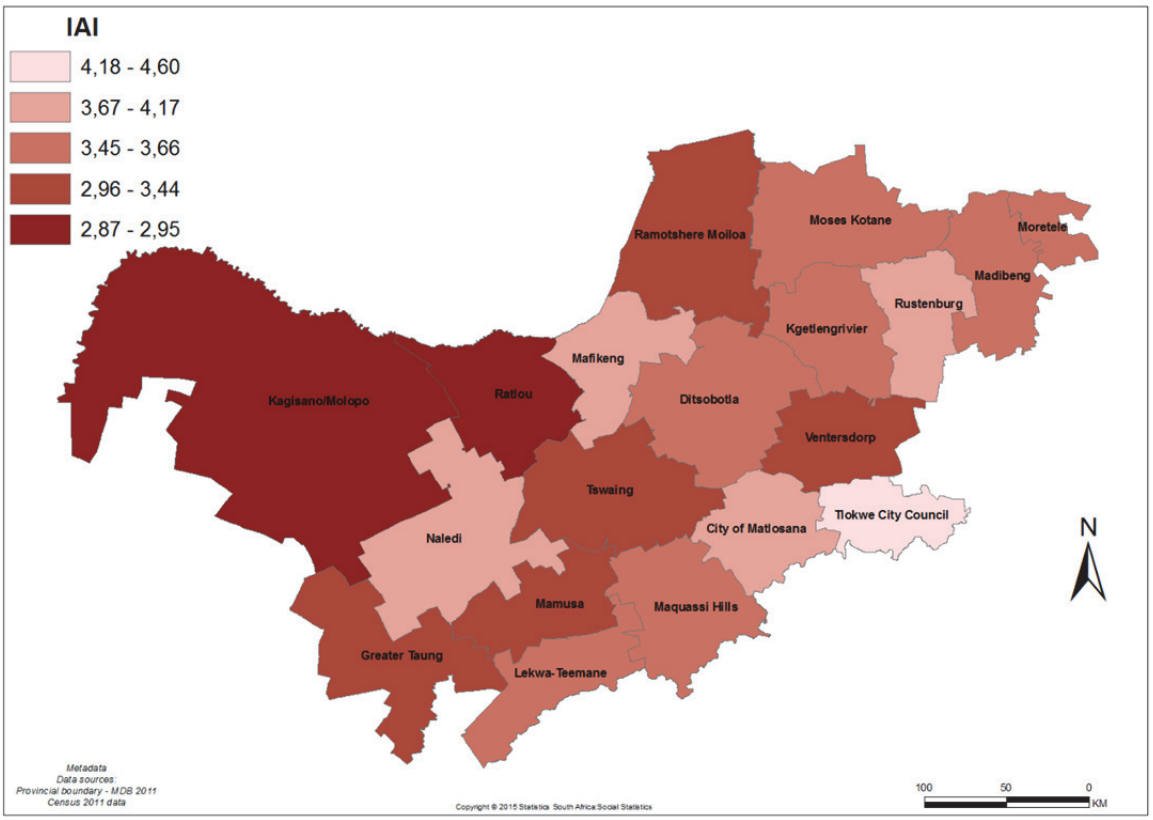
Map 17: Composite index of municipal access to ICT in Eastern Cape



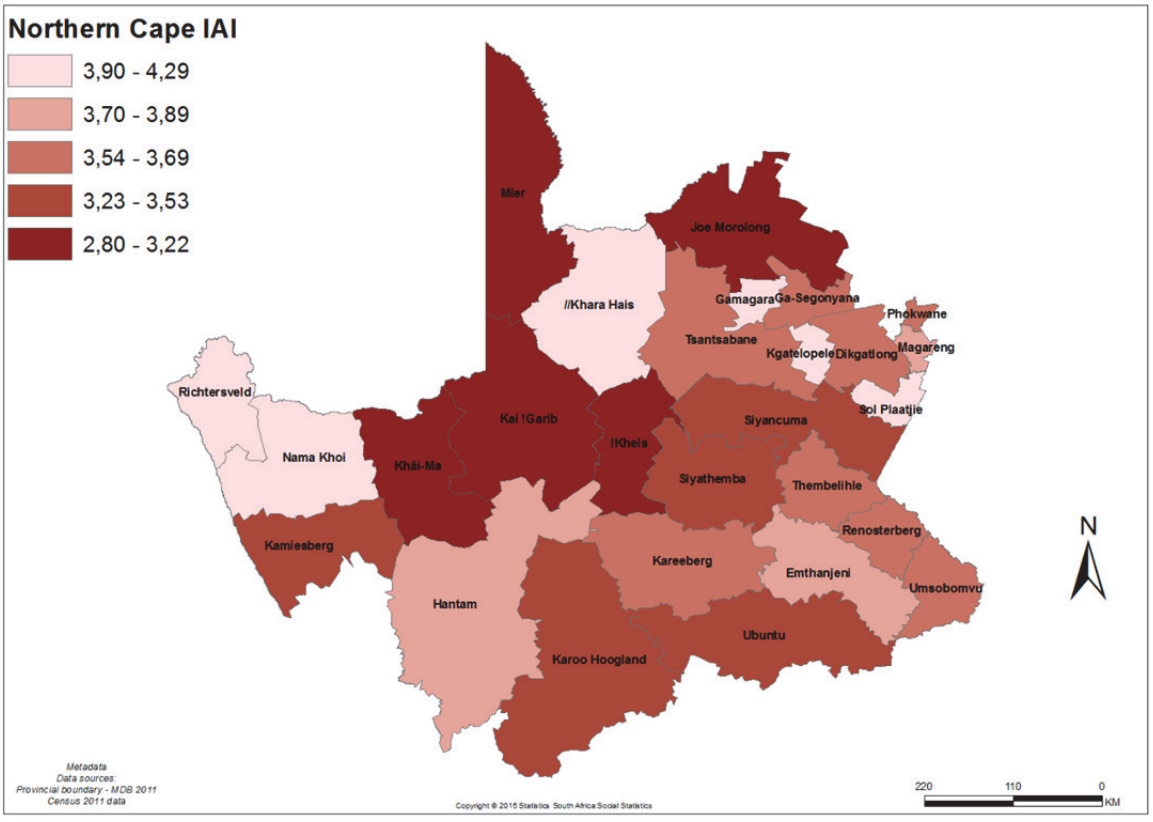
Map 18: Composite index of municipal access to ICT in KwaZulu-Natal



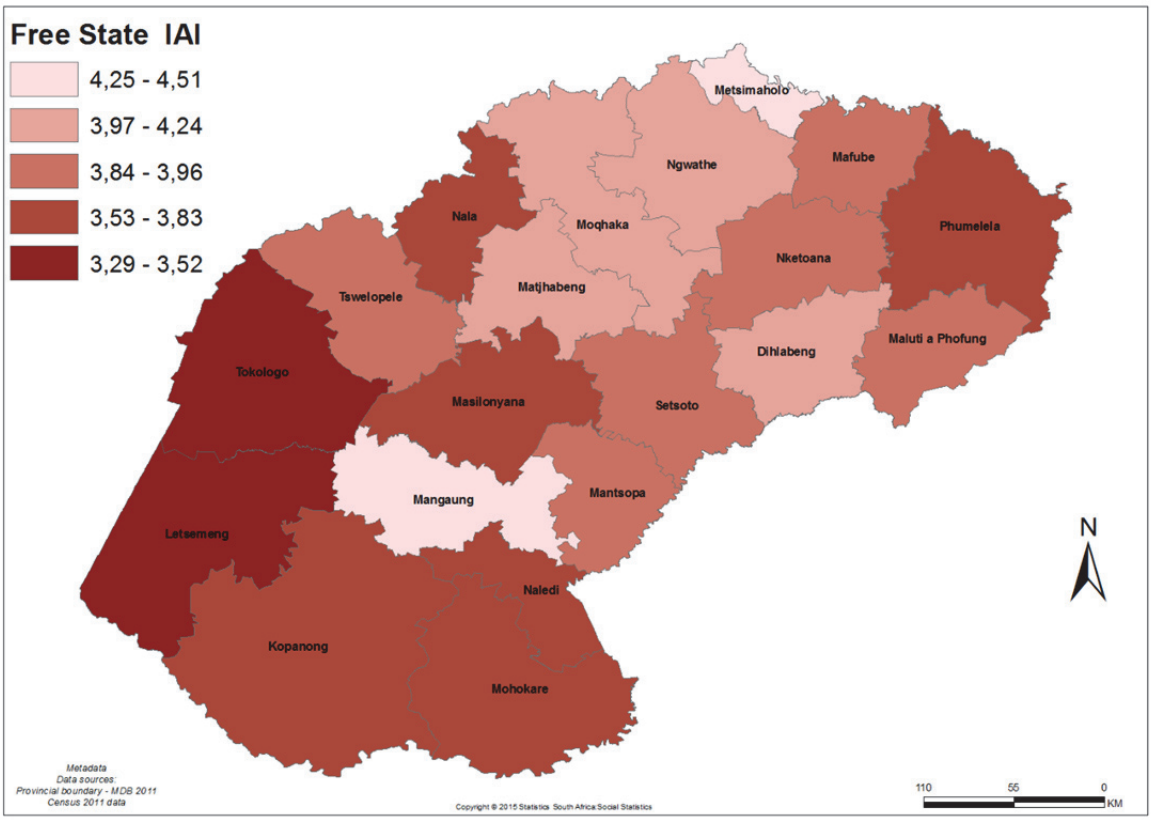
Map 19: Composite index of municipal access to ICT in North West



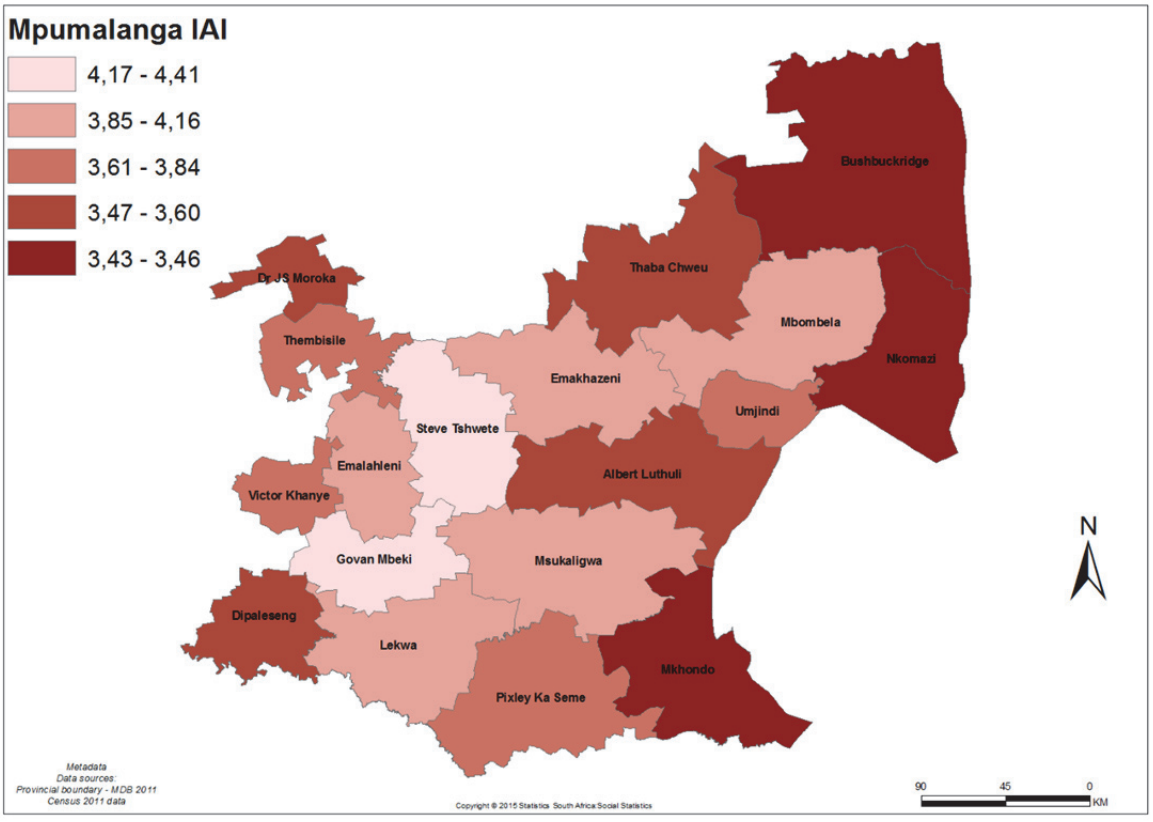
Map 20: Composite index of municipal access to ICT in Northern Cape



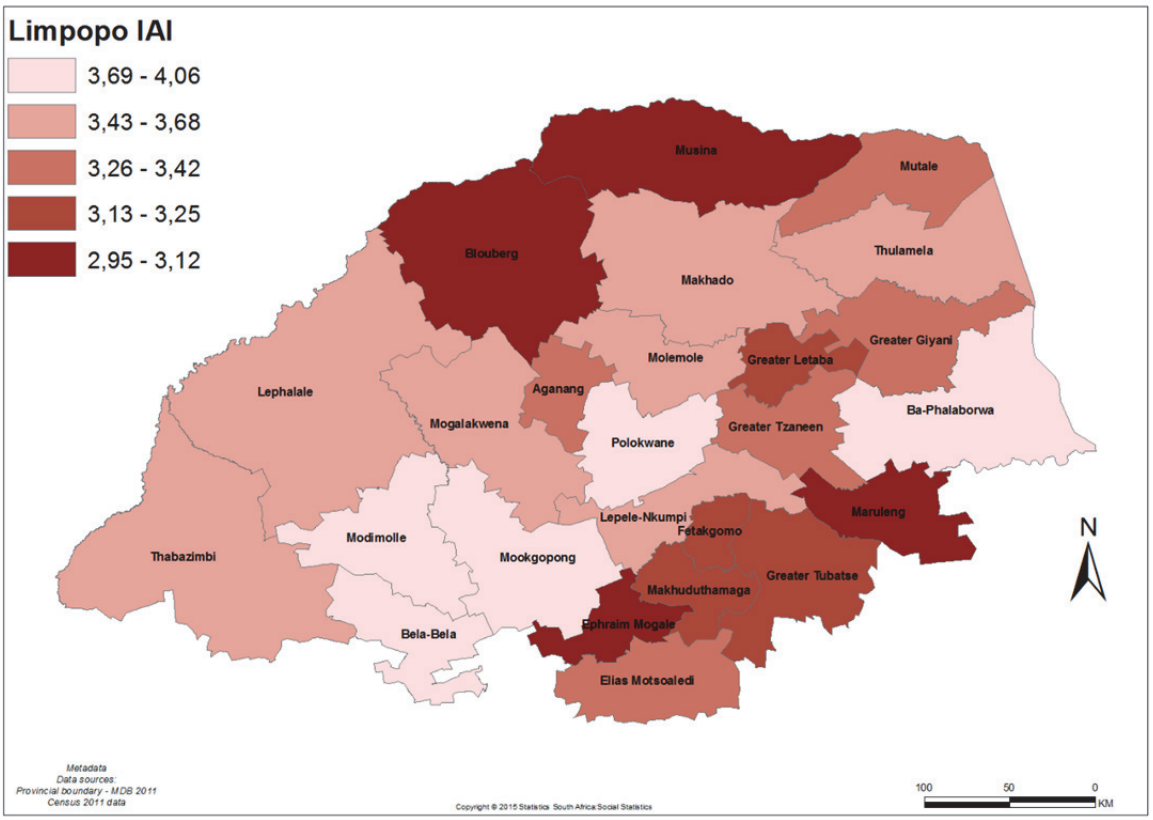
Map 21: Composite index of municipal access to ICT in Free State



Map 22: Composite index of municipal access to ICT in Mpumalanga



Map 23: Composite index of municipal access to ICT in Limpopo



10.8 Composite index of household access to ICT

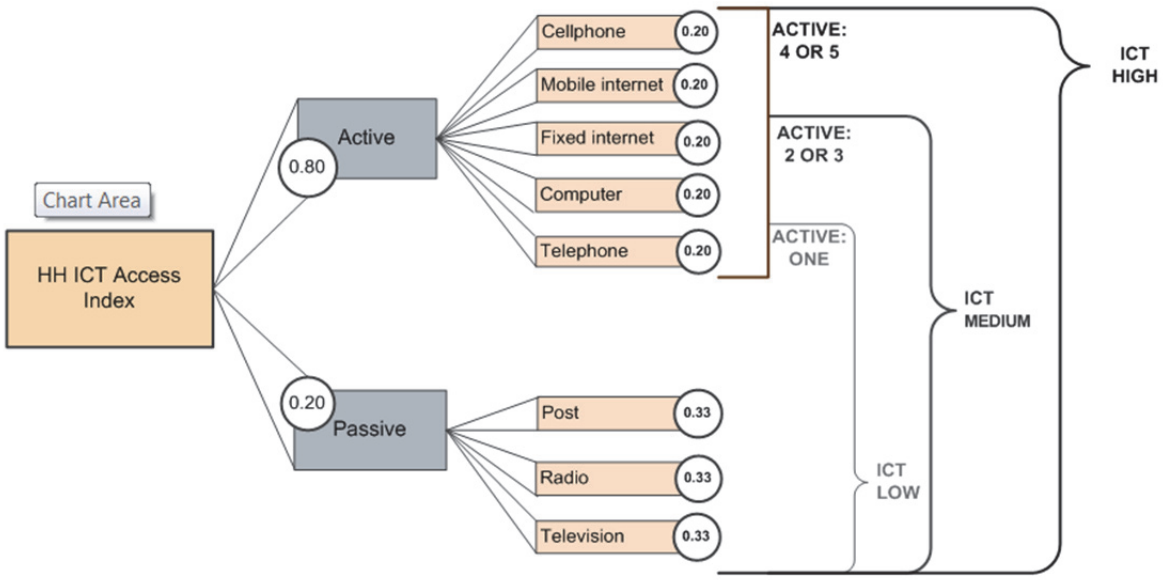
The Household ICT Access Index (IAI) can be used to create a comprehensive picture of the type of household that have access to ICT. It also provides comparisons by population group, settlement types as well as other key household characteristics. Making it valuable tool to identify the most household in need of ICT- enabling policy makers to target resources and design policies more efficiently.

Due to data limitations, the aggregate data required to construct the readiness sub-index is not available on household level but only for aggregate units such as provinces or districts, the readiness index is not used in this section. As a consequence the weighting is also adjusted, as can be seen in Figure 51, below.

The level of ICT is measured by the proportion of weighted access the households have. This is set out below and visually presented in Figure 52.

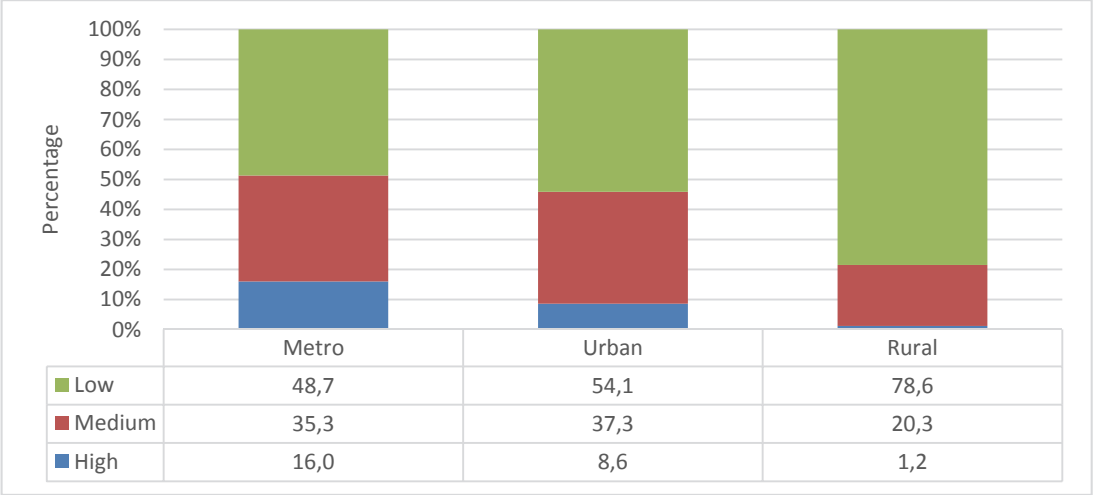
- Households were classified as **ICT LOW** if it has an index score of less than 3,86 household, and if it has access to at least 3 Passive indicators and to 1 Active indicator;
- Households were classified as **ICT MEDIUM** if they registered an index score equal to or greater than 3,86 and less than 7,06, and if it had access to 3 Passive indicators and to 2 or 3 Active indicators;
- Households were classified as **ICT HIGH** if it registered an index score of greater than 7,06; and if it had access to 3 Passive and to 4 or 5 Active indicators.

Figure 52: Household ICT index diagram



The results of the analysis (Figure 53) shows that a much larger percentage of household ranked as high were found in metropolitan areas that urban (8,6%) or rural areas (1,2%). By comparison, more than three-quarters (78,6%) of households in rural areas fell into the lowest classification compared to 54,1% in urban and 48,7% in metropolitan areas.

Figure 53: Composite index of household access to ICT by settlement type, 2013



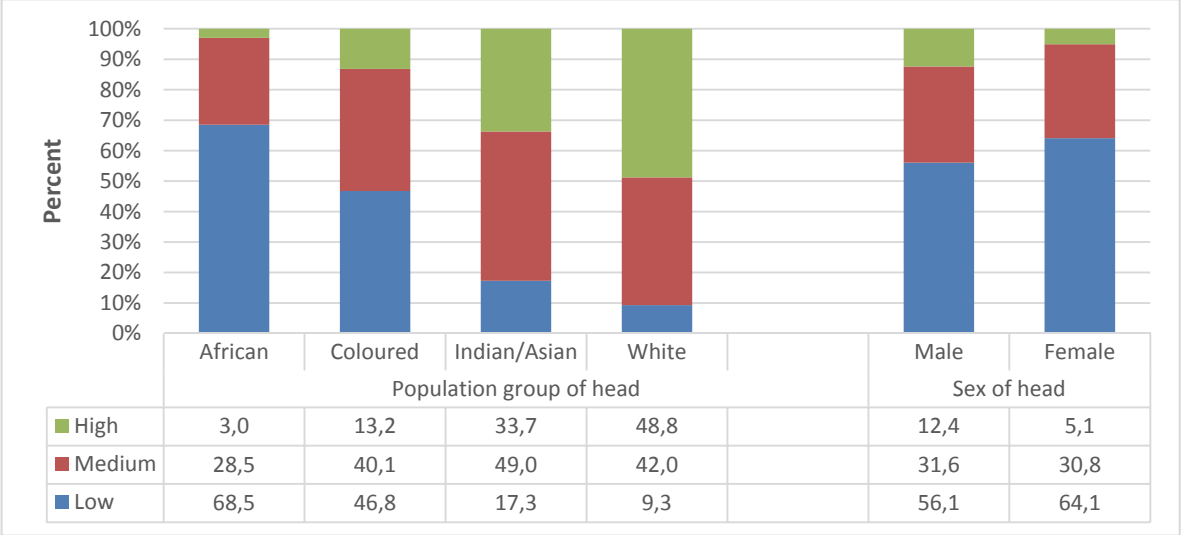
	Metro	Urban	Rural
Low	48,7	54,1	78,6
Medium	35,3	37,3	20,3
High	16,0	8,6	1,2

Source: GHS 2013

It is notable from Figure 54 that a larger percentage of female-headed than male-headed households were classified with low access (64,1% compared to 56,1%) and that 12,4% of male-headed households were classified as high compared to only 5,1% for female-headed households.

Figure 54 also shows that only 9,3% of white-headed households had low access compared to 46,8% for coloured- and 68,5% for black-African-headed households. Inversely, almost half (48,8%) of white-headed households were classified as having high ICT access compared to only 3% of Black African-headed households.

Figure 54: Figure 46: Composite index of household access to ICT by population group of the household head

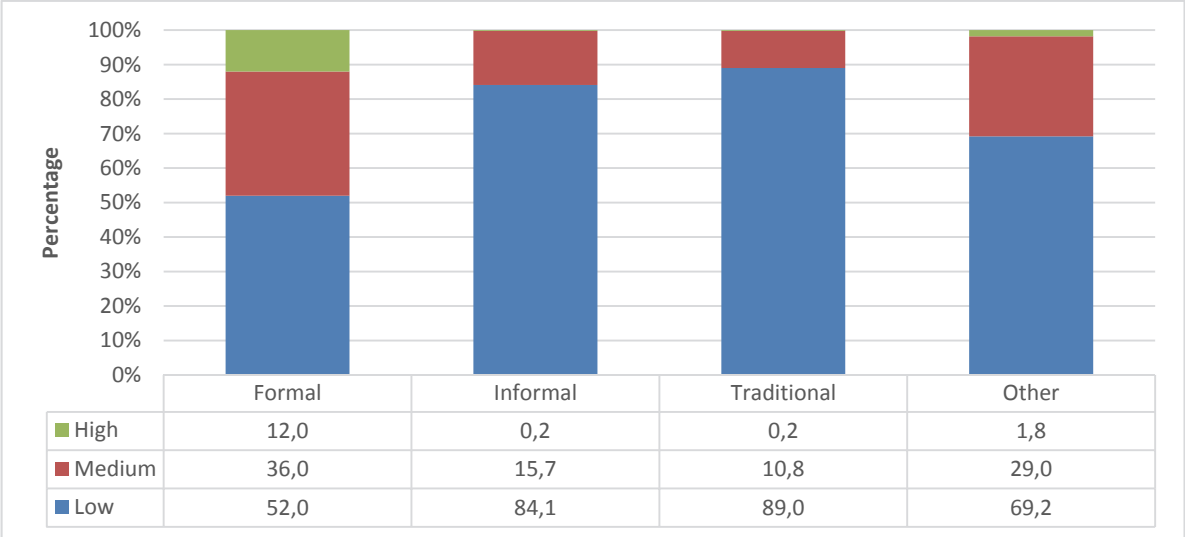


	African	Coloured	Indian/Asian	White	Male	Female
	Population group of head				Sex of head	
High	3,0	13,2	33,7	48,8	12,4	5,1
Medium	28,5	40,1	49,0	42,0	31,6	30,8
Low	68,5	46,8	17,3	9,3	56,1	64,1

Source: GHS 2013

Households with high ICT access were found almost exclusively in formal dwellings. Figure 55 shows that only 0,2% of households that lived in informal or traditional dwellings could be classified as having high ICT access. Being classified with low ICT access was most common for households that resided in traditional dwellings.

Figure 55: Composite index of household access to ICT by dwelling type, 2013

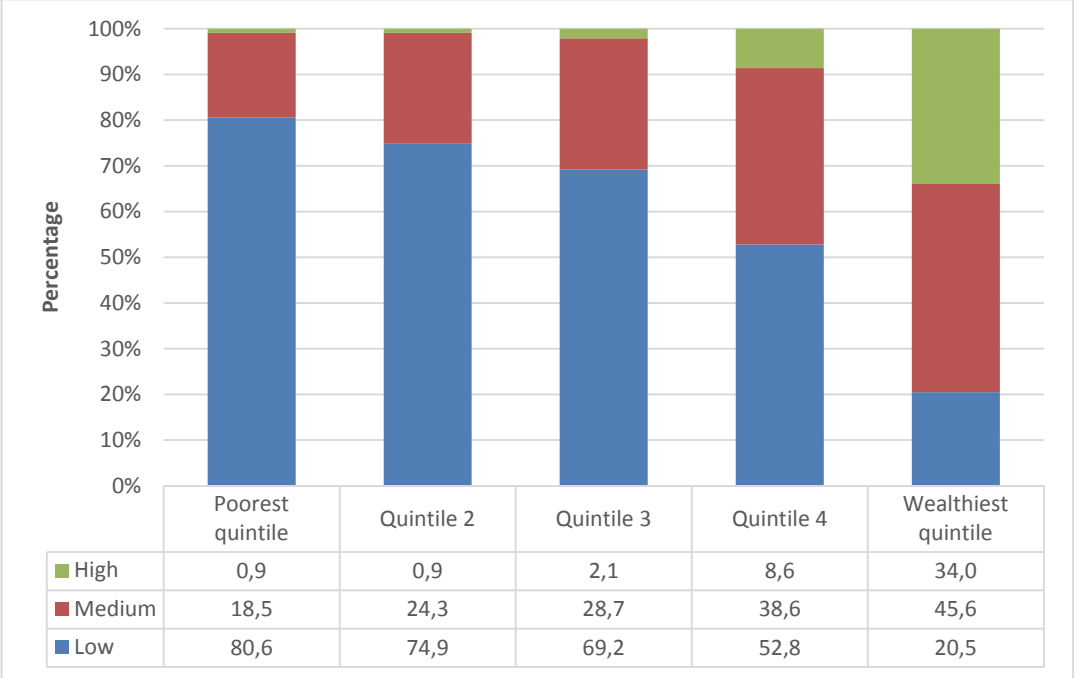


	Formal	Informal	Traditional	Other
High	12,0	0,2	0,2	1,8
Medium	36,0	15,7	10,8	29,0
Low	52,0	84,1	89,0	69,2

Source: GHS 2013

The findings outlined in Figure 55 is, of course, closely linked to household income. This is presented in Figure 56, below. The figure shows that the percentage of households that were classified as having high ICT access increased with household income. Whereas only 0,9% of households in the poorest income quintile could be classified as enjoying high ICT access, 2,1% of households in quintile 3, 8,6% of households in quintile 4 and finally, 34,0% of households in the wealthiest income quintile could be classified as having high ICT access. Inversely, the percentage of households that could be classified as having low access declined with household income.

Figure 56: Composite index of household access to ICT by per capita household income, 2013

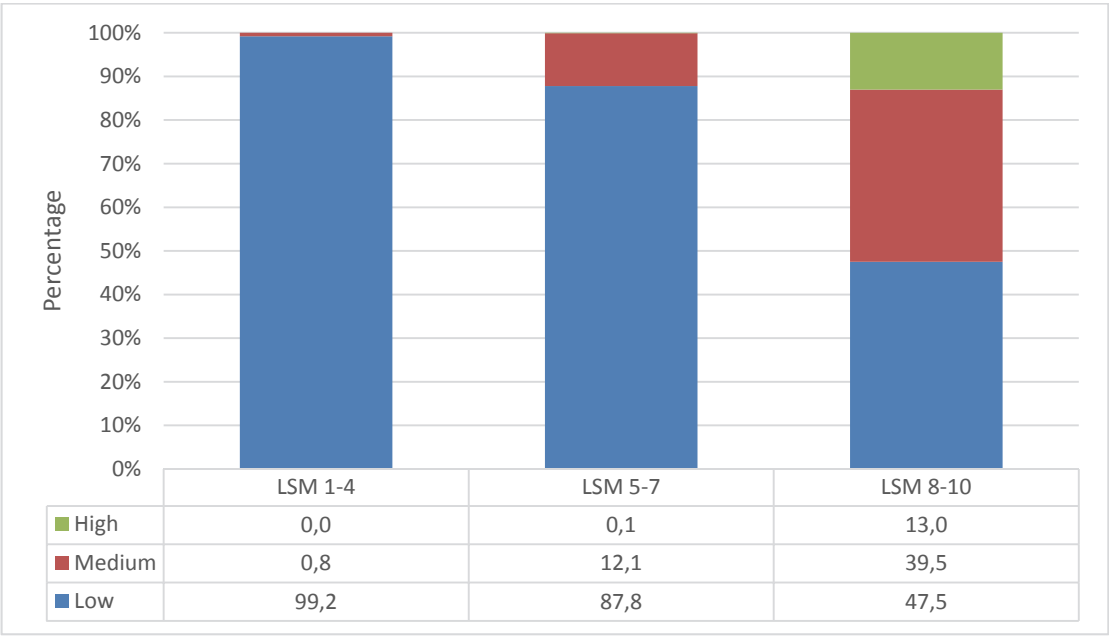


	Poorest quintile	Quintile 2	Quintile 3	Quintile 4	Wealthiest quintile
High	0,9	0,9	2,1	8,6	34,0
Medium	18,5	24,3	28,7	38,6	45,6
Low	80,6	74,9	69,2	52,8	20,5

Source: GHS 2013

Figure 57 confirms that access to ICT is linked with household income. The percentage of households with poor or medium access to ICT drops in each successive LSM category while the percentage of households with a high classification reaches 13% in LSM 8-10, compared to 0,1% and 0% in the other two LSM categories.

Figure 57: Figure 46: Composite index of household access to ICT by LSM, 2013



	LSM 1-4	LSM 5-7	LSM 8-10
High	0,0	0,1	13,0
Medium	0,8	12,1	39,5
Low	99,2	87,8	47,5

Source: GHS 2013

11. Summary and conclusions

The National Development Plan (2012) envisions that "ICT will continue to reduce spatial exclusion, enabling seamless participation by the majority in the global ICT system, not simply as users but as content developers and application innovators" (NDP, 2012: 190). In so doing, ICT will increasingly form the bedrock "a dynamic and connected vibrant information society and a knowledge economy that is more inclusive, equitable and prosperous". While numerous studies and international case studies have indeed underlined the importance of ICT for development, rapid technological advances risks exacerbating existing inequalities, entrenching widening digital divides in society based on socio-economic status and geographic location.

In order to maximize the opportunities to exploit ICT this report assessed the state of ICT access and use in South Africa by evaluating household access to a variety of ICT indicators and creating composite indicators of ICT access in different geographic areas. Differential household access was also explored using the socio-economic and geographic characteristics of households as well through inferential analysis.

Access to telephones

The study confirms that while access to fixed telephones have been declining consistently since 2002, access to mobile telephony has increased exponentially. Users have increasingly been drawn to greater flexibility, affordability and ease of use offered by mobile technology, as well as the promise of future innovations to rival fixed line services. Many new users would seemingly not even consider procuring fixed line technology while many existing users of fixed lines substituted it for mobile alternatives. Landlines tended to be concentrated in wealthier households living in formal dwellings and the distribution of households that had access to landlines is heavily skewed towards larger, more densely populated and infrastructure rich urban centres and metros, particularly those in Gauteng and Western Cape. An analysis of Census 2011 data for instance revealed that 30% of all fixed telephone users could be found in two metros, namely Cape Town and eThewini, while 52% of households in 38 largely rural districts only comprised 25% of all users. In contrast to the skewed distribution of fixed lines, access to mobile phones was distributed much more equitably, both by geographical location as well as socio-economic status. The percentage of households without access to any telephones have, particularly due to the introduction of affordable mobile technology, declined from 54% in 2002 to only 5% in 2013. Although most of these households were located in metros, a larger percentage of rural households had no access in both 2002 and 2013.

Internet access

There has been a significant growth in the number of South African households that have a functioning internet connection. The cost of, and slow pace at which fixed broadband services (ADSL) have been deployed have, however, made mobile broadband access the primary driver of this growth. The GHS found, in 2013, that 30,8% of households accessed the internet using mobile devices compared to 10% which accessed it at home and 16% who accessed it at work. The distribution of households that accessed internet at home, which incorporates fixed offerings, were very distorted by geography and socio-economic status. Largely dependent on access to fixed lines, the wealthiest households and those living in formal dwellings and in metropolitan areas were much more likely to access the internet at home than their poorer peers in informal or traditional dwellings and rural areas. Although mobile technology offers improved parity, internet access was, however, still skewed by geographical location (lower in rural areas) and socio-economic status (positively associate with household income and living standard). Census 2011 data shows that 50% of households that had any access to the internet could be found in five metropolitan areas that, together, comprised approximately 37% of households and 34% of the population. Mobile access was the dominant form of access is all but three Western Cape districts, namely Cape Town, Eden and West Coast.

Although household access to the internet has, and continues to increase, 59,1% of South African households still lacked access in 2013. Poor households, rural households, and household in Limpopo and Eastern Cape were least likely to access the internet. In addition to the affordability, the report found that a perceived lack of skills and confidence to use the internet was a major inhibitor across all areas, but particularly in rural areas where just under half (48,3%) of households that did not have access to the internet blamed it on a lack of knowledge, skills or confidence. About a third of households across all settlement types also questioned the need for access.

Access to a computer

Although households are increasingly using mobile access devices to access the internet, computers remain critical. In addition to still being an important mode of access, computers are crucial productivity tools. The report shows that the percentage of households with access to a computer increased from 12,5% in 2005 to 19,5% in 2013 according to the GHS, or 21,4% in 2011 according to Census 2011. Ownership is highly correlated with household income and households living in Western Cape or Gauteng, those that were classified at LSM 8-10, or those that fell into the wealthiest income quintile enjoyed the highest ownership rates. Almost two-thirds (63,6%) of households with heads who had post-school qualifications owned computers compared to 29,2% with heads that completed secondary school, and even less with heads with poorer education. In contrast to the relatively high ownership observed in Cape Town (38%) and Tshwane (37,3%), a total of 12 districts recorded penetration of less than 10% while 39% households recorded ownership rates of less than the national average of 21,4%.

Access to postal services

The postal service remains the most basic and common means by which messages and goods are distributed. Over the years postal services have increasingly been substituted by electronic means of communication, like mobile telephones and the internet. The GHS found that the percentage of households that did not receive any mail have increased relatively consistently from 9,0% in 2002 to 20,8% in 2013. While the total percentage of households that reportedly received their mail through either post boxes or home delivery remained relatively constant on a year-to-year basis between 2002 and 2013, there was a consistent decline in the percentage of households that received their mail at a post box or private bag (from 23,6% in 2002 to 14,0% in 2013). At the same time the households that primarily received mail at home increased from 37,7% to 47,5%. The increased service to individual dwellings is almost certainly linked to the improved provision of addresses and address infrastructure mandated by international agreements such as at the 2012 Doha conference of the Universal Postal Union (UPU). The declining percentage of households that had access to postal services hides the fact that the number of households that used postal services increased by approximately 2,6 million households between 2002 and 2013 to 9,2 million. Households with postal services are still under-represented in rural areas and provinces with large rural populations, and also much less common for households that lived in informal or traditional dwellings, or those in the lower income quintiles.

Access to televisions and radios

Despite technological changes that will increasingly allow households to access a variety of media on a every growing diversity of connected devices, the majority of South African households in South Africa still access audio-visual news and entertainment via their television and radio sets. Between 2001 and 2011 the percentage of households that owned televisions increased from 57,1% to 74,5% while the percentage that owned a radio decreased from 75,1% to 67,5% over the same time. The declined in ownership of radios is most likely the consequence of technological innovation as households are increasing accessing radio content via other devices such as phones, satellite decoders/televisions and entertainment centres. Although ownership of radios and televisions were relatively equally spread across households, provinces and districts, the reports show that it was still tended to be most common in the wealthiest households.

Composite indicators of ICT access in South Africa

Since the ICT environment in South Africa is so diverse and continuously in flux, it is vital to have the means to compare multiple indicators across a variety of administrative units over space and time in order to gauge progress. In order to compare access to ICT across geographic areas and to track development over time, an Index to measure access to ICT was developed that is loosely based on the ITU's ICT Development Index. The index ranked Western Cape and Gauteng first and second in terms of access to ICT while Limpopo and Eastern Cape were respectively ranked last and second to last. Large differences are borne out by the index in terms of district access to ICT. While metropolitan areas like Cape Town (5,01), Tshwane (4,87) and Johannesburg (4,84) recorded high index scores, low index scores in districts like Alfred Nzo (2,76), O.R.Tambo (2,93) and Amathole (2,97) confirmed the relatively poor access to ICT enjoyed by households in many rural areas. Hot spot analysis confirms that access to ICT is concentrated in Western Cape and Gauteng, as well as the North-Eastern part of Free State, while it is much lower along the eastern seaboard in Eastern Cape and KwaZulu-Natal. Household level analysis shows that households with 'high' access to ICT were most common in metropolitan areas, among white headed households, households that lived in formal dwellings, and households that were classified as being part of the wealthiest income quintiles.

12. Policy recommendations

The following recommendations can be made following this report.

A need for reliable and comparable statistics exist at national, provincial and sub-provincial levels and regular surveys should be conducted to measure and monitor access to, and quality of services between regions, user groups and technologies. This survey would need to understand user needs, affordability and emerging trends and explore the growing role of ICT in development. Appropriate questions, or expanded modules should also be added to existing Stats SA surveys such as the GHS and LCS. Questions asked in surveys and the census or community surveys should furthermore be aligned to ensure improved comparability of data.

Although fixed line internet connections are increasingly being substituted by mobile and other technology, the declining penetration of fixed line technology is worrying as it might affect the roll-out of arguably more stable ADSL internet lines. Fixed-line penetration should be tracked by using survey instruments.

Government should ensure that individuals and households in with existing handicaps, including the poor and those in peri-urban and rural areas, are assisted to access and use ICT in order to close the digital divide. This should benefit recipients, repressed areas and the country as a whole by facilitating greater access to the information economy and ultimately driving economic growth and socio-economic development.

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14. Variable categorisation

Logistic regressions is used to predict an outcome variable that is categorical from predictor variables that are continuous and/or categorical. Logistic regression is used because having a categorical outcome variable violates the assumption of linearity in normal regression. The only "real" limitation for logistic regression is that the outcome variable must be discrete. Logistic regression deals with this problem by using a logarithmic transformation on the outcome variable which allow us to model a nonlinear association in a linear way. It expresses the linear regression equation in logarithmic terms. Tables 27 and 28, below, summarises the way in which variables were analysed for purposes of the logistic regression models.

Table 31: Categorisation of variables used in logistic regression models

Description	Variable	Variable values
Province	1	Western Cape
	2	Eastern Cape
	3	Northern Cape
	4	Free State
	5	KwaZulu-Natal
	6	North West
	7	Gauteng
	8	Mpumalanga
	9	Limpopo
Geographical location	01	metro
	01,02	Urban
	04,05	Rural
Households dwelling type	01,03,04,05,06,07,10	Formal dwelling
	02	Traditional dwelling
	08,09	Informal dwelling
Households Income quintile	1	Poorest quintile
	2	Quintile 2
	3	Quintile 3
	4	Quintile 4
	5	Wealthiest quintile
Age of the head of the household	15 - 34	15 - 34
	35 - 59	35 - 59
	60+	60+
Population group of the head of the household	1	Black African
	2	Coloured
	3	Indian / Asian
	4	White
Sex of the head of the household	1	Male
	2	Female

Table 32: Categorisation of dependent variables used in logistic regression models

Description	Variable	Variable values
Lack of access to mobile and fixed phones	0	Lack of access to fixed or mobile phone
	1	Access to fixes or mobile phone
Access to internet at home	0	Access to internet at home
	1	Lack of access to internet at home
Access to mobile internet	0	Access to mobile internet
	1	Lack of access to mobile internet
Lack of access to internet	0	No access to internet anywhere
	1	Access to internet anywhere
Access to mail	0	Lack of access to mail anywhere
	1	Access to mail
Access to mail at home or through post box	0	Access to mail at home or through post box
	1	Access through other means

15. Annexure

Annexure 1: Percentage of households with Internet access by mode of access and district, Census 2011

District	Mobile internet	Internet at home	Internet at work	Internet elsewhere	No internet
City of Tshwane	18,6	14,6	9,5	8,6	48,7
City of Johannesburg	18,2	14,4	8,6	8,5	50,3
City of Cape Town	16,2	18,7	6,7	7,5	50,8
Ekurhuleni	17,2	9,8	7,1	8,7	57,2
eThekwini Metropolitan	19,2	11,8	4,9	5,7	58,4
Sedibeng	18,6	7,7	4,9	8,5	60,4
Mangaung	19,1	8,6	5,2	5,3	61,8
UMgungundlovu	16,4	8,2	4,1	6,5	64,9
West Rand	16,1	7,6	5,4	5,7	65,2
Uthungulu	19,7	5,8	3,5	5,6	65,3
Overberg	14,5	14,3	3,0	2,8	65,5
Nelson Mandela Bay	13,7	11,0	4,7	5,1	65,5
Cape Winelands	15,0	11,8	4,3	3,1	65,8
Nkangala	17,9	5,8	3,6	6,5	66,2
Eden	12,1	14,6	3,7	3,3	66,3
Buffalo City	14,7	7,8	5,5	5,1	66,9
Fezile Dabi	16,2	6,3	3,1	6,8	67,6
Gert Sibande	17,7	5,6	3,4	4,9	68,4
Frances Baard	17,4	6,7	3,7	3,1	69,2
Dr Kenneth Kaunda	14,8	7,0	3,6	4,3	70,3
West Coast	11,4	11,5	4,1	2,4	70,5
Ehlanzeni	18,3	4,3	3,0	3,7	70,7
Zululand	20,2	3,2	1,9	3,7	71,0
Amajuba	15,8	5,4	2,0	5,6	71,1
Uthukela	18,6	3,8	2,0	4,1	71,6
Capricorn	15,5	4,2	3,3	5,4	71,7
Ugu	14,8	6,4	2,5	4,3	72,1
Thabo Mofutsanyane	15,6	4,5	2,4	5,0	72,6
iLembe	16,0	4,8	2,5	4,0	72,7
Lejweleputswa	15,4	4,8	2,7	4,4	72,8

District	Mobile internet	Internet at home	Internet at work	Internet elsewhere	No internet
Bojanala	15,9	4,1	3,2	3,6	73,3
Waterberg	15,0	4,4	3,5	3,6	73,5
Cacadu	11,6	8,1	3,2	3,1	74,1
Siyanda	13,5	6,2	3,8	2,1	74,4
Ngaka Modiri Molema	14,8	3,5	3,8	3,5	74,4
Umkhanyakude	18,7	2,1	1,8	2,6	74,9
John Taolo Gaetsewe	15,3	4,3	3,4	2,0	75,0
Xhariep	13,3	4,2	2,4	5,0	75,1
Mopani	15,8	2,9	1,7	3,7	75,9
Namakwa	12,7	5,8	3,4	1,8	76,3
Central Karoo	12,6	5,1	2,7	3,3	76,3
Vhembe	15,8	2,4	1,5	3,9	76,3
Pixley ka Seme	12,1	4,7	3,0	1,6	78,6
Chris Hani	12,5	2,7	1,9	3,5	79,4
Dr Ruth Segomotsi Mompati	11,8	2,6	2,1	3,8	79,7
Sisonke	12,4	2,6	1,8	3,0	80,2
Umzinyathi	13,8	2,5	1,6	1,9	80,3
OR Tambo	13,5	1,8	1,7	2,6	80,5
Greater Sekhukhune	12,0	2,1	1,5	3,7	80,7
Ukhahlamba	11,7	2,4	1,5	2,3	82,2
Amathole	11,5	1,6	1,4	2,4	83,2
Alfred Nzo	11,6	1,1	1,2	2,6	83,5

Annexure 2 : Composite index of district municipal access to ICT, Census 2011

Index rank by District	IAI rank	Active rank	Passive rank	Readiness rank	ICT Index	Active	Passive	Readiness
City of Cape Town	1	1	3	9	5,01	3,96	7,97	5,59
City of Tshwane	2	2	15	1	4,87	3,69	7,56	6,39
City of Johannesburg	3	3	8	2	4,84	3,64	7,75	6,14
eThekwini Metropolitan	4	4	20	6	4,55	3,47	7,19	5,71
Mangaung	5	12	1	3	4,51	3,09	8,11	5,85
Nelson Mandela Bay	6	9	4	13	4,48	3,20	7,85	5,51
Sedibeng	7	10	6	5	4,46	3,13	7,83	5,74
Overberg	8	5	13	46	4,45	3,41	7,61	4,76
Ekurhuleni	9	8	17	4	4,45	3,24	7,35	5,82
Eden	10	6	7	43	4,43	3,30	7,76	4,88
Cape Winelands	11	7	12	40	4,40	3,27	7,64	4,97
Fezile Dabi	12	18	2	24	4,24	2,83	8,07	5,27
West Coast	13	11	14	51	4,20	3,09	7,59	4,49
West Rand	14	13	21	14	4,19	2,98	7,16	5,49
Dr Kenneth Kaunda	15	17	10	20	4,17	2,84	7,67	5,30
Buffalo City	16	15	23	7	4,11	2,86	6,99	5,66
Lejweleputswa	17	24	5	23	4,09	2,66	7,84	5,29
Frances Baard	18	19	16	36	4,06	2,81	7,39	5,05
UMgungundlovu	19	14	28	8	4,02	2,96	6,27	5,64
Central Karoo	20	27	9	45	3,98	2,64	7,71	4,80
Thabo Mofutsanyane	21	33	11	28	3,97	2,56	7,64	5,20
Nkangala	22	16	27	21	3,97	2,84	6,62	5,30
Gert Sibande	23	21	25	26	3,94	2,75	6,82	5,26
Amajuba	24	20	26	17	3,93	2,76	6,66	5,41
Namakwa	25	23	19	52	3,84	2,69	7,21	4,37
Cacadu	26	25	22	48	3,84	2,64	7,14	4,64
Capricorn	27	31	31	12	3,73	2,59	6,09	5,52
Xhariep	28	42	18	44	3,71	2,35	7,29	4,82
Ehlanzeni	29	26	34	29	3,66	2,64	5,85	5,20
Bojanala	30	32	32	30	3,66	2,57	6,08	5,17
Uthungulu	31	22	39	11	3,66	2,73	5,30	5,53
Siyanda	32	28	29	49	3,65	2,64	6,21	4,63
Waterberg	33	29	35	27	3,63	2,60	5,78	5,21
Pixley ka Seme	34	41	24	50	3,61	2,36	6,94	4,54
Ngaka Modiri Molema	35	40	30	31	3,56	2,38	6,18	5,13
Uthukela	36	34	38	22	3,54	2,51	5,57	5,29
Ugu	37	30	42	18	3,54	2,60	5,24	5,32
Vhembe	38	37	37	25	3,50	2,46	5,57	5,27
John Taolo Gaetsewe	39	36	36	38	3,50	2,49	5,67	4,99
Zululand	40	38	44	15	3,42	2,45	5,07	5,43
iLembe	41	35	46	19	3,40	2,50	4,87	5,31
Mopani	42	39	41	39	3,39	2,44	5,30	4,98

Index rank by District	IAI rank	Active rank	Passive rank	Readiness rank	ICT Index	Active	Passive	Readiness
Dr Ruth Segomotsi Mompati	43	46	33	47	3,29	2,16	5,89	4,73
Chris Hani	44	47	40	35	3,22	2,16	5,30	5,07
Greater Sekhukhune	45	44	43	41	3,22	2,22	5,17	4,95
Umkhanyakude	46	43	50	10	3,19	2,31	4,28	5,53
Ukhahlamba	47	50	45	32	3,10	2,08	4,91	5,10
Sisonke	48	48	49	16	3,09	2,15	4,42	5,41
Umzinyathi	49	45	48	37	3,08	2,17	4,55	5,04
Amathole	50	51	47	42	2,97	1,97	4,78	4,91
OR Tambo	51	49	51	33	2,93	2,09	4,01	5,10
Alfred Nzo	52	52	52	34	2,76	1,96	3,62	5,09

Annexure 3: Composite index of local municipal access to ICT, 2011

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
CPT	City of Cape Town	1	1	13	17	5,01	3,96	7,97	5,59
TSH	City of Tshwane	2	4	43	1	4,87	3,69	7,56	6,39
JHB	City of Johannesburg	3	5	26	2	4,84	3,64	7,75	6,14
WC032	Overstrand	4	2	28	69	4,80	3,79	7,74	5,25
WC043	Mossel Bay	5	6	1	52	4,79	3,59	8,28	5,33
WC024	Stellenbosch	6	3	49	27	4,76	3,74	7,51	5,49
WC023	Drakenstein	7	7	6	137	4,68	3,56	8,11	4,98
WC014	Saldanha Bay	8	9	11	144	4,63	3,51	8,03	4,96
WC033	Cape Agulhas	9	8	2	210	4,62	3,55	8,22	4,44
NW402	Tlokwe City Council	10	15	33	3	4,60	3,31	7,68	6,09
ETH	eThekwini	11	11	69	11	4,55	3,47	7,19	5,71
WC044	George	12	13	23	141	4,51	3,37	7,84	4,97
MAN	Mangaung	13	34	7	5	4,51	3,09	8,11	5,85
FS204	Metsimaholo	14	26	9	18	4,51	3,16	8,07	5,58
GT421	Emfuleni	15	30	14	7	4,50	3,13	7,97	5,83
WC042	Hessequa	16	14	3	196	4,48	3,32	8,18	4,59
NMA	Nelson Mandela Bay	17	23	22	24	4,48	3,20	7,85	5,51
WC048	Knysna	18	12	55	126	4,48	3,46	7,35	5,04
EKU	Ekurhuleni	19	20	54	8	4,45	3,24	7,35	5,82
GT482	Randfontein	20	27	24	23	4,43	3,15	7,79	5,51
GT481	Mogale City	21	21	53	14	4,42	3,22	7,41	5,64
KZN222	uMngeni	22	10	93	56	4,42	3,49	6,77	5,31
MP313	Steve Tshwete	23	25	38	19	4,41	3,17	7,58	5,57
MP307	Govan Mbeki	24	32	45	21	4,37	3,12	7,53	5,55
KZN225	The Msunduzi	25	24	79	6	4,36	3,20	7,01	5,84
GT422	Midvaal	26	17	85	57	4,32	3,29	6,92	5,31
KZN282	uMhlathuze	27	16	108	9	4,29	3,30	6,43	5,73
WC034	Swellendam	28	18	41	219	4,29	3,28	7,57	4,30

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
NC091	Sol Plaatjie	29	36	36	86	4,29	3,05	7,63	5,19
WC015	Swartland	30	28	19	220	4,27	3,15	7,88	4,28
GT423	Lesedi	31	40	32	79	4,26	2,98	7,69	5,20
FS184	Matjhabeng	32	59	10	35	4,24	2,80	8,05	5,42
WC047	Bitou	33	22	66	187	4,24	3,22	7,23	4,67
EC104	Makana	34	49	17	105	4,23	2,89	7,92	5,10
FS192	Dihlabeng	35	55	12	106	4,22	2,86	7,98	5,10
WC013	Bergrivier	36	31	30	221	4,22	3,12	7,72	4,27
FS201	Moqhaka	37	60	4	111	4,21	2,80	8,15	5,09
NC062	Nama Khoi	38	46	20	180	4,18	2,91	7,88	4,72
NW403	City of Matlosana	39	61	16	97	4,17	2,80	7,93	5,13
WC026	Langeberg	40	42	25	195	4,17	2,96	7,77	4,61
WC025	Breede Valley	41	39	47	175	4,17	3,00	7,52	4,77
MP305	Lekwa	42	51	39	92	4,16	2,88	7,57	5,16
NC086	Kgatelopele	43	38	75	116	4,15	3,03	7,09	5,07
WC031	Theewaterskloof	44	37	61	185	4,13	3,04	7,28	4,68
NC453	Gamagara	45	19	109	165	4,13	3,26	6,39	4,85
BUF	Buffalo City	46	54	81	13	4,11	2,86	6,99	5,66
KZN252	Newcastle	47	50	84	26	4,09	2,89	6,95	5,50
KZN241	Endumeni	48	47	67	129	4,09	2,91	7,22	5,03
FS203	Ngwathe	49	89	5	99	4,09	2,61	8,13	5,12
MP312	Emalahleni-MP	50	35	104	40	4,09	3,06	6,47	5,38
KZN216	Hibiscus Coast	51	29	126	39	4,07	3,14	6,13	5,39
EC108	Kouga	52	41	72	177	4,06	2,96	7,14	4,73
LIM354	Polokwane	53	45	111	4	4,06	2,92	6,38	5,90
WC045	Oudtshoorn	54	58	46	190	4,03	2,82	7,52	4,65
EC131	Inxuba Yethemba	55	93	8	171	4,03	2,59	8,11	4,82
EC101	Camdeboo	56	72	21	204	4,02	2,73	7,87	4,53
NC061	Richtersveld	57	43	70	209	4,02	2,95	7,18	4,47
NC083	//Khara Hais	58	57	68	145	4,02	2,83	7,21	4,95

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
WC053	Beaufort West	59	95	18	114	4,02	2,58	7,90	5,08
EC105	Ndlambe	60	65	58	162	4,00	2,77	7,34	4,86
MP322	Mbombela	61	44	113	37	3,99	2,94	6,38	5,40
KZN212	Umdoni	62	33	153	29	3,98	3,11	5,67	5,48
GT484	Merafong City	63	70	83	58	3,97	2,74	6,95	5,31
FS194	Maluti a Phofung	64	100	37	50	3,96	2,53	7,59	5,35
MP302	Msukaligwa	65	68	87	84	3,94	2,74	6,91	5,19
MP314	Emakhazeni	66	52	114	83	3,92	2,88	6,36	5,20
FS196	Mantsopa	67	125	15	98	3,92	2,41	7,94	5,13
NW383	Mafikeng	68	81	96	12	3,92	2,65	6,69	5,71
WC051	Laingsburg	69	62	63	222	3,90	2,79	7,26	4,24
NC065	Hantam	70	79	51	214	3,89	2,68	7,47	4,36
FS183	Tswelopele	71	107	40	128	3,88	2,48	7,57	5,03
FS193	Nketoana	72	102	44	151	3,88	2,51	7,55	4,90
FS205	Mafube	73	116	27	152	3,88	2,45	7,74	4,90
FS191	Setsoto	74	126	35	93	3,87	2,41	7,64	5,15
WC052	Prince Albert	75	71	59	227	3,86	2,74	7,33	4,13
NC093	Magareng	76	96	48	179	3,86	2,54	7,52	4,72
EC134	Lukanji	77	108	71	45	3,85	2,48	7,17	5,35
EC143	Maletswai	78	101	65	119	3,85	2,52	7,24	5,07
MP304	Pixley Ka Seme	79	88	86	127	3,84	2,62	6,91	5,04
MP311	Victor Khanye	80	86	101	46	3,83	2,63	6,61	5,35
FS164	Naledi-FS	81	147	29	115	3,83	2,35	7,73	5,08
NC073	Emthanjeni	82	117	34	188	3,82	2,45	7,64	4,66
FS181	Masilonyana	83	133	31	155	3,82	2,38	7,69	4,88
FS185	Nala	84	141	42	103	3,81	2,37	7,56	5,10
LIM366	Bela-Bela	85	67	122	89	3,81	2,75	6,24	5,17
KZN232	Emnambithi/Ladysmith	86	74	120	54	3,81	2,71	6,25	5,31
NW373	Rustenburg	87	73	123	66	3,80	2,72	6,21	5,26
WC012	Cederberg	88	90	88	170	3,79	2,61	6,86	4,82

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
WC041	Kannaland	89	91	60	224	3,78	2,60	7,31	4,18
NW392	Naledi-NW	90	78	99	191	3,78	2,69	6,68	4,65
KZN234	Umtshezi	91	66	142	49	3,77	2,76	5,86	5,35
LIM334	Ba-Phalaborwa	92	64	136	123	3,77	2,78	5,99	5,05
KZN292	KwaDukuza	93	53	160	61	3,76	2,87	5,51	5,29
FS162	Kopanong	94	122	56	168	3,76	2,41	7,35	4,83
FS195	Phumelela	95	97	92	140	3,76	2,54	6,83	4,98
LIM365	Modimolle	96	76	139	63	3,74	2,70	5,99	5,28
KZN433	Greater Kokstad	97	83	127	55	3,74	2,65	6,13	5,31
MP323	Umjindi	98	63	148	85	3,74	2,79	5,74	5,19
WC011	Matzikama	99	80	89	223	3,74	2,67	6,86	4,19
LIM364	Mookgopong	100	69	138	130	3,73	2,74	5,99	5,03
WC022	Witzenberg	101	92	90	206	3,73	2,59	6,85	4,52
FS163	Mohokare	102	161	52	149	3,72	2,30	7,42	4,91
MP315	Thembisile	103	87	121	132	3,71	2,62	6,25	5,02
NC085	Tsantsabane	104	77	117	201	3,69	2,69	6,28	4,58
KZN263	Abaqulusi	105	82	151	22	3,69	2,65	5,68	5,52
LIM361	Thabazimbi	106	56	170	80	3,68	2,85	5,24	5,20
EC133	Inkwanca	107	168	64	134	3,68	2,28	7,24	4,99
EC144	Gariep	108	153	50	212	3,67	2,33	7,50	4,37
NC452	Ga-Segonyane	109	98	119	109	3,66	2,54	6,26	5,09
NW396	Lekwa-Teemane	110	123	76	205	3,66	2,41	7,07	4,53
NC094	Phokwane	111	142	80	172	3,66	2,36	7,01	4,82
NW404	Maquassi Hills	112	148	78	164	3,66	2,35	7,01	4,86
EC107	Baviaans	113	143	74	200	3,64	2,36	7,11	4,58
KZN432	Kwa Sani	114	48	179	146	3,64	2,90	5,04	4,95
KZN253	Emadlangeni	115	85	154	60	3,63	2,63	5,66	5,30
GT483	Westonaria	116	110	128	76	3,61	2,47	6,12	5,21
NW372	Madibeng	117	94	144	112	3,60	2,59	5,80	5,08
MP321	Thaba Chweu	118	75	165	82	3,60	2,71	5,32	5,20

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
EC102	Blue Crane Route	119	149	62	225	3,60	2,34	7,28	4,17
MP316	Dr JS Moroka	120	132	106	124	3,60	2,39	6,44	5,05
NC072	Umsobomvu	121	160	77	193	3,60	2,31	7,02	4,63
NC092	Dikgatlong	122	136	97	181	3,59	2,38	6,69	4,72
NC075	Renosterberg	123	103	118	184	3,59	2,51	6,26	4,70
NC076	Thembelihle	124	104	112	208	3,57	2,50	6,38	4,48
NW384	Ditsobotla	125	120	107	178	3,57	2,42	6,43	4,73
LIM367	Mogalakwena	126	119	129	117	3,56	2,44	6,10	5,07
NC074	Kareeberg	127	146	73	232	3,56	2,35	7,14	4,02
LIM343	Thulamela	128	106	157	51	3,55	2,49	5,62	5,34
LIM355	Lepele-Nkumpi	129	140	134	67	3,54	2,37	6,04	5,26
MP301	Albert Luthuli	130	127	130	131	3,53	2,41	6,08	5,02
NC078	Siyancuma	131	157	95	203	3,53	2,32	6,72	4,54
NW371	Moretele	132	165	110	102	3,53	2,28	6,38	5,11
LIM344	Makhado	133	118	147	75	3,52	2,45	5,74	5,21
FS161	Letsemeng	134	156	94	215	3,52	2,33	6,76	4,35
NW375	Moses Kotane	135	144	125	120	3,52	2,36	6,13	5,06
NC077	Siyathemba	136	169	82	218	3,52	2,27	6,97	4,30
MP306	Dipaleseng	137	109	141	160	3,52	2,48	5,89	4,87
NW374	Kgetlengrivier	138	115	132	192	3,50	2,46	6,04	4,64
EC128	Nxuba	139	193	57	213	3,50	2,12	7,35	4,37
NC066	Karoo Hoogland	140	124	100	233	3,49	2,41	6,63	3,99
KZN266	Ulundi	141	111	166	31	3,49	2,47	5,32	5,46
LIM353	Molemole	142	145	133	133	3,49	2,35	6,04	5,01
LIM362	Lephalale	143	84	181	87	3,48	2,64	4,93	5,19
NC071	Ubuntu	144	173	103	176	3,48	2,25	6,52	4,76
MP303	Mkhondo	145	137	150	94	3,46	2,38	5,70	5,14
EC103	Ikwezi	146	175	102	198	3,45	2,24	6,56	4,59
NW393	Mamusa	147	181	98	207	3,44	2,20	6,68	4,50
MP324	Nkomazi	148	121	163	72	3,44	2,42	5,40	5,23

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
KZN223	Mpofana	149	105	172	78	3,43	2,50	5,13	5,21
MP325	Bushbuckridge	150	130	152	159	3,43	2,40	5,68	4,87
KZN275	Mtubatuba	151	99	194	15	3,42	2,53	4,65	5,64
LIM352	Aganang	152	191	115	121	3,42	2,15	6,34	5,06
LIM333	Greater Tzaneen	153	129	162	113	3,42	2,41	5,47	5,08
KZN281	Mfolozi	154	112	174	70	3,42	2,47	5,10	5,25
KZN291	Mandeni	155	113	178	88	3,39	2,47	5,05	5,19
KZN254	Dannhauser	156	172	145	104	3,38	2,25	5,78	5,10
NW401	Ventersdorp	157	182	105	211	3,38	2,20	6,45	4,40
LIM472	Elias Motsoaledi	158	154	158	157	3,37	2,33	5,61	4,88
NC064	Kamiesberg	159	164	91	234	3,37	2,29	6,85	3,39
NW385	Ramotshere Moiloa	160	183	140	100	3,36	2,18	5,90	5,12
KZN235	Okhahlamba	161	131	184	38	3,34	2,39	4,89	5,40
LIM331	Greater Giyani	162	114	180	147	3,34	2,46	4,98	4,95
EC109	Kou-Kamma	163	170	131	216	3,33	2,27	6,04	4,32
KZN261	eDumbe	164	163	177	34	3,32	2,30	5,06	5,43
LIM342	Mutale	165	151	171	107	3,32	2,34	5,18	5,10
EC127	Nkonkobe	166	201	135	96	3,32	2,07	6,00	5,13
NW382	Tswaing	167	167	149	202	3,31	2,28	5,71	4,56
KZN274	Hlabisa	168	139	200	10	3,30	2,37	4,51	5,72
FS182	Tokologo	169	187	116	226	3,29	2,16	6,33	4,14
EC138	Sakhisizwe	170	178	168	68	3,28	2,22	5,28	5,25
KZN284	uMlalazi	171	135	199	30	3,28	2,38	4,54	5,47
KZN236	Imbabazane	172	171	175	53	3,28	2,25	5,07	5,32
KZN265	Nongoma	173	138	197	44	3,27	2,38	4,60	5,36
EC132	Tsolwana	174	184	169	62	3,25	2,17	5,24	5,29
LIM332	Greater Letaba	175	155	176	173	3,25	2,33	5,06	4,82
EC157	King Sabata Dalindyebo	176	152	190	81	3,23	2,33	4,68	5,20
KZN221	uMshwathi	177	159	198	42	3,23	2,31	4,60	5,37
EC123	Great Kei	178	196	146	186	3,22	2,10	5,77	4,67

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
NC084	!Kheis	179	194	124	231	3,22	2,11	6,20	4,03
LIM474	Fetakgomo	180	207	155	139	3,21	2,04	5,65	4,98
KZN214	Umuziwabantu	181	190	182	32	3,20	2,15	4,93	5,45
LIM475	Greater Tubatse	182	158	195	122	3,19	2,32	4,65	5,05
NW394	Greater Taung	183	214	143	158	3,19	1,99	5,83	4,87
LIM473	Makhuduthamaga	184	195	164	150	3,18	2,11	5,37	4,90
EC126	Ngqushwa	185	215	156	125	3,17	1,98	5,64	5,05
KZN215	Ezingoleni	186	204	161	166	3,16	2,06	5,49	4,85
KZN224	Impendle	187	186	196	16	3,16	2,16	4,61	5,60
KZN262	Uphongolo	188	166	203	59	3,16	2,28	4,42	5,30
NC082	Kai !Garib	189	134	185	217	3,15	2,38	4,79	4,32
KZN273	The Big 5 False Bay	190	128	219	28	3,14	2,41	3,78	5,49
NC067	Khâi-Ma	191	174	167	228	3,14	2,25	5,31	4,12
EC124	Amahlathi	192	212	159	174	3,14	2,00	5,60	4,80
KZN227	Richmond	193	176	201	74	3,13	2,23	4,49	5,21
EC106	Sundays River Valley	194	209	137	229	3,13	2,03	5,99	4,10
KZN242	Nqutu	195	185	186	118	3,12	2,17	4,78	5,07
LIM335	Maruleng	196	177	189	156	3,12	2,22	4,73	4,88
LIM341	Musina	197	150	204	194	3,09	2,34	4,41	4,61
KZN272	Jozini	198	180	207	25	3,09	2,21	4,14	5,51
KZN233	Indaka	199	192	187	136	3,08	2,12	4,77	4,99
LIM471	Ephraim Mogale	200	197	183	154	3,08	2,09	4,92	4,88
EC142	Senqu	201	203	191	110	3,04	2,06	4,67	5,09
KZN245	Umvoti	202	179	208	101	3,03	2,21	4,13	5,12
KZN271	Umhlabuyalingana	203	189	212	48	3,02	2,15	4,08	5,35
NC451	Joe Morolong	204	200	192	183	2,99	2,08	4,67	4,70
KZN285	Mthonjaneni	205	198	210	43	2,99	2,09	4,11	5,37
KZN434	Ubuhlebezwe	206	202	209	33	2,98	2,07	4,11	5,45
KZN286	Nkandla	207	188	217	47	2,98	2,16	3,88	5,35
LIM351	Blouberg	208	219	188	169	2,95	1,98	4,73	4,82

Municipal ID	Municipality	IAI Rank	Active rank	Passive rank	Readiness rank	ICT index score	Active score	Passive score	Readiness score
NW381	Ratlou	209	229	173	199	2,95	1,91	5,13	4,58
EC136	Emalahleni-EC	210	222	193	143	2,95	1,96	4,66	4,96
KZN283	Ntambanana	211	199	206	142	2,95	2,09	4,23	4,96
KZN435	Umzimkhulu	212	211	211	71	2,90	2,00	4,09	5,24
EC441	Matatiele	213	213	213	65	2,89	2,00	4,04	5,27
EC122	Mnquma	214	226	205	77	2,89	1,92	4,28	5,21
KZN431	Ingwe	215	220	218	20	2,88	1,96	3,84	5,55
NW397	Kagisano/Molopo	216	217	202	189	2,87	1,98	4,45	4,65
EC156	Mhlontlo	217	205	220	90	2,86	2,06	3,75	5,16
KZN226	Mkhambathini	218	206	216	138	2,86	2,05	3,91	4,98
KZN294	Maphumulo	219	225	215	36	2,86	1,94	3,93	5,41
KZN293	Ndwedwe	220	208	222	73	2,85	2,03	3,72	5,21
EC442	Umzimvubu	221	216	224	64	2,82	1,98	3,68	5,28
KZN213	Umzumbe	222	228	214	108	2,82	1,92	4,02	5,09
NC081	Mier	223	162	229	230	2,80	2,30	3,49	4,09
KZN211	Vulamehlo	224	224	227	41	2,79	1,95	3,58	5,37
EC155	Nyandeni	225	223	223	91	2,78	1,96	3,70	5,16
EC443	Mbizana	226	210	228	135	2,76	2,01	3,55	4,99
EC141	Elundini	227	230	221	95	2,74	1,89	3,74	5,14
EC153	Ngquza Hill	228	221	225	163	2,74	1,96	3,68	4,86
EC137	Engcobo	229	218	233	167	2,69	1,98	3,37	4,84
EC135	Intsika Yethu	230	231	226	153	2,65	1,84	3,63	4,89
EC121	Mbhashe	231	227	231	197	2,62	1,92	3,40	4,59
EC154	Port St Johns	232	232	232	148	2,61	1,84	3,38	4,94
KZN244	Msinga	233	233	230	161	2,60	1,81	3,48	4,86
EC444	Ntabankulu	234	234	234	182	2,39	1,73	2,79	4,71

Annexure 4: Indicator values used to construct a index of provincial access to ICT, 2013

Province	Cellphone	Telephone	Mobile Internet	Internet at home	Computer	TV	Radio	Post	Adult literacy	At least a post-school qualification	Secondary GER (Normalized)	Tertiary GER
WC	92,1	30,0	35,8	21,2	34,0	89,5	63,8	84,3	96,8	8,7	90,67	27,8
EC	89,3	7,3	24,5	4,8	8,4	72,5	48,1	41,0	89,6	3,6	100,00	13,8
NC	86,2	11,0	32,6	6,6	20,2	79,2	58,1	72,6	87,5	3,8	97,74	20,0
FS	94,0	8,0	34,4	6,9	15,4	85,6	73,0	85,7	92,0	5,3	100,00	22,5
KZN	95,3	14,3	25,5	5,7	11,6	72,7	77,9	48,0	88,7	4,2	100,00	16,3
NW	94,0	4,5	31,0	4,5	15,5	78,3	63,6	60,6	86,9	3,8	99,45	19,8
GP	97,9	16,7	38,5	15,7	27,6	85,1	64,2	78,0	95,7	10,4	100,00	28,8
MP	96,8	6,2	32,1	6,8	16,6	81,4	54,9	45,8	86,7	3,4	100,00	14,7
LP	95,7	3,0	16,6	3,0	12,4	74,6	61,8	29,5	86,7	3,6	100,00	15,2
RSA	**94,8**	**13,1**	**30,9**	**10,0**	**19,4**	**80,2**	**62,1**	**61,5**	**91,4**	**6,3**	**100,00**	**20,5**

Annexure 5: Indicator values used to construct a index of district municipal access to ICT, 2011

District ID	District	Cellphone (%)	Landline (%)	Mobile Internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
BUF	Buffalo City	86,5	14,7	14,7	7,8	19,4	74,9	68,5	68,4	94,6	39,5	100,0	27,3
CPT	City of Cape Town	91,1	34,0	16,2	18,7	38,0	87,2	70,2	84,2	98,2	45,0	89,7	28,8
DC1	West Coast	81,5	24,1	11,4	11,5	26,0	80,8	65,0	84,3	93,2	30,2	70,7	13,0
DC10	Cacadu	78,4	16,3	11,6	8,1	17,7	74,9	64,7	76,7	89,1	27,8	80,2	12,9
DC12	Amathole	78,0	3,2	11,5	1,6	4,3	55,4	60,6	28,7	85,2	19,1	93,2	16,3
DC13	Chris Hani	80,9	5,4	12,5	2,7	6,5	59,9	60,7	40,0	85,9	21,6	95,1	20,0
DC14	Ukhahlamba	79,5	4,3	11,7	2,4	6,1	52,4	60,3	36,2	85,7	19,8	99,2	17,4
DC15	O,R,Tambo	81,5	3,0	13,5	1,8	4,8	51,5	52,0	18,2	85,0	21,9	93,3	23,6
DC16	Xhariep	79,7	9,2	13,3	4,2	11,3	72,1	69,6	79,0	84,5	23,4	98,1	8,4
DC18	Lejweleputswa	87,1	10,1	15,4	4,8	15,6	79,4	73,0	85,3	92,4	32,1	100,0	17,1
DC19	Thabo Mofutsanyane	87,3	7,6	15,6	4,5	13,1	74,2	76,4	81,0	90,8	32,4	100,0	15,1
DC2	Cape Winelands	84,4	23,7	15,0	11,8	28,5	82,9	65,9	82,6	94,2	33,4	79,4	21,0
DC20	Fezile Dabi	88,5	12,1	16,2	6,3	18,2	79,8	76,8	87,9	92,6	34,7	100,0	15,7
DC21	Ugu	82,8	13,0	14,8	6,4	12,9	60,5	62,7	35,7	87,8	30,7	100,0	23,2
DC22	UMgungundlovu	86,8	17,5	16,4	8,2	19,1	72,1	69,0	48,8	92,4	40,0	95,4	34,0
DC23	Uthukela	86,2	7,5	18,6	3,8	9,3	63,5	68,5	36,7	89,0	32,4	100,0	21,5
DC24	Umzinyathi	81,4	5,2	13,8	2,5	5,7	45,0	66,4	26,7	82,4	26,3	98,2	20,0
DC25	Amajuba	90,3	11,7	15,8	5,4	14,5	75,3	72,1	54,4	93,0	38,6	100,0	21,6
DC26	Zululand	87,1	4,4	20,2	3,2	7,5	58,2	67,8	27,7	88,5	32,1	100,0	27,5
DC27	Umkhanyakude	86,1	3,3	18,7	2,1	5,3	42,8	67,4	19,5	85,3	30,3	100,0	34,6
DC28	Uthungulu	88,8	8,7	19,7	5,8	13,4	60,3	65,0	35,5	89,2	38,0	100,0	29,6
DC29	iLembe	84,3	9,4	16,0	4,8	10,6	58,1	62,2	27,2	87,9	32,6	100,0	23,0
DC3	Overberg	87,6	26,7	14,5	14,3	27,5	82,4	64,5	83,7	94,9	33,2	75,5	15,2
DC30	Gert Sibande	89,9	7,6	17,7	5,6	16,4	75,3	71,1	60,3	88,1	36,5	100,0	19,8
DC31	Nkangala	92,2	7,2	17,9	5,8	18,9	75,8	71,9	53,0	90,0	39,0	100,0	19,7
DC32	Ehlanzeni	90,6	4,9	18,3	4,3	13,9	73,8	65,1	38,3	87,5	37,9	100,0	17,9
DC33	Mopani	88,7	3,4	15,8	2,9	11,2	70,0	60,3	30,2	82,6	28,2	100,0	14,6

District ID	District	Cellphone (%)	Landline (%)	Mobile Internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
DC34	Vhembe	89,7	2,7	15,8	2,4	12,2	72,4	64,7	31,6	85,1	31,1	100,0	22,7
DC35	Capricorn	88,7	5,2	15,5	4,2	15,7	72,2	64,0	48,3	89,2	37,5	100,0	27,6
DC36	Waterberg	89,0	6,5	15,0	4,4	15,2	71,9	60,3	43,1	89,2	30,3	100,0	16,6
DC37	Bojanala	89,6	4,5	15,9	4,1	14,5	72,4	63,9	48,0	93,3	34,8	95,6	16,0
DC38	Ngaka Modiri Molema	83,0	5,5	14,8	3,5	12,4	68,4	65,5	53,5	83,3	28,6	96,5	22,8
DC39	Dr Ruth Segomotsi Mompati	81,8	3,8	11,8	2,6	8,2	64,3	59,5	54,6	79,4	22,0	94,2	14,2
DC4	Eden	84,4	25,9	12,1	14,6	28,0	82,3	70,9	82,0	94,5	37,2	81,0	15,7
DC40	Dr Kenneth Kaunda	87,7	12,1	14,8	7,0	20,2	79,2	68,8	84,5	89,6	35,9	93,8	25,2
DC42	Sedibeng	91,4	13,1	18,6	7,7	25,7	81,1	72,7	83,5	95,5	44,1	98,9	31,1
DC43	Sisonke	82,0	4,2	12,4	2,6	6,1	52,1	58,3	23,6	90,5	24,4	98,9	25,8
DC44	Alfred Nzo	80,1	2,0	11,6	1,1	3,0	41,1	55,0	13,5	87,6	17,6	92,7	22,1
DC45	John Taolo Gaetsewe	86,6	4,8	15,3	4,3	13,5	69,0	61,0	41,8	86,3	28,9	98,3	13,2
DC47	Greater Sekhukhune	86,2	2,1	12,0	2,1	8,4	68,2	59,4	29,0	84,1	27,0	100,0	12,4
DC48	West Rand	91,7	12,7	16,1	7,6	20,7	74,5	66,1	76,4	95,4	39,8	98,7	22,0
DC5	Central Karoo	76,1	21,3	12,6	5,1	16,7	77,5	72,1	84,2	86,8	27,0	82,8	20,4
DC6	Namakwa	73,9	22,9	12,7	5,8	18,9	74,2	69,4	74,8	90,9	24,1	72,8	9,3
DC7	Pixley ka Seme	73,7	13,2	12,1	4,7	14,4	69,6	61,6	79,2	82,2	26,5	87,6	9,7
DC8	Siyanda	80,3	13,3	13,5	6,2	18,5	68,8	50,1	69,2	88,2	27,2	85,9	9,1
DC9	Frances Baard	83,4	14,4	17,4	6,7	18,6	76,7	66,4	80,8	89,2	35,0	93,8	16,4
EKU	Ekurhuleni	93,5	15,4	17,2	9,8	25,9	77,3	67,2	78,3	97,1	49,5	100,0	30,7
ETH	eThekwini Metropolitan	90,9	26,7	19,2	11,8	24,7	78,6	72,0	67,5	96,9	48,9	93,3	34,0
JHB	City of Johannesburg	94,4	21,3	18,2	14,4	33,7	83,9	71,3	79,6	98,2	53,0	98,2	40,6
MAN	Mangaung	89,6	11,7	19,1	8,6	25,4	80,6	79,6	85,7	95,1	42,6	99,8	33,9
NMA	Nelson Mandela Bay	85,7	23,5	13,7	11,0	26,2	84,1	67,9	85,9	96,4	42,0	94,4	24,9
TSH	City of Tshwane	95,0	19,0	18,6	14,6	37,3	81,8	70,7	76,5	96,9	55,7	98,5	50,5

Annexure 6: Indicator values used to construct a index of district municipal access to ICT, 2011

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
NC084	!Kheis	69,5	7,8	15,8	3,5	9,0	58,9	55,7	73,2	81,0	17,7	74,7	4,7
NC083	//Khara Hais	82,2	16,3	11,6	8,0	23,2	77,6	56,7	84,1	92,5	33,0	91,2	11,8
KZN263	Abaqulusi	89,1	7,3	19,2	5,2	11,7	62,9	73,2	36,0	90,8	33,7	99,3	29,2
LIM352	Aganang	87,6	1,1	10,5	1,1	7,1	78,8	63,7	49,6	85,9	28,5	118,3	14,7
MP301	Albert Luthuli	89,1	3,4	15,6	2,5	9,7	71,8	71,0	41,3	84,0	33,6	113,8	15,4
EC124	Amahlathi	79,1	4,0	10,6	1,7	4,5	64,7	65,8	39,1	86,8	18,2	95,3	8,7
LIM334	Ba-Phalaborwa	92,8	7,0	18,5	4,4	16,6	72,7	62,2	46,8	86,9	33,7	113,2	12,9
EC107	Baviaans	75,7	18,1	9,2	3,2	11,9	75,7	58,1	81,6	88,6	24,7	83,8	9,0
WC053	Beaufort West	76,8	20,1	12,0	4,0	16,1	80,7	73,1	85,6	87,6	28,4	89,1	24,7
LIM366	Bela-Bela	89,1	9,5	14,0	6,4	18,6	75,0	62,6	51,7	92,0	33,2	97,5	14,2
WC013	Bergrivier	82,2	27,5	10,0	11,5	25,1	82,8	68,2	83,0	92,5	28,9	68,1	7,7
WC047	Bitou	87,5	20,7	14,8	14,1	23,9	77,8	63,9	77,6	97,1	39,1	77,8	7,0
LIM351	Blouberg	80,7	1,3	10,0	1,1	5,8	66,8	52,9	23,7	76,0	20,2	125,8	15,5
EC102	Blue Crane Route	70,0	13,9	14,6	6,0	12,5	74,3	66,9	79,5	85,2	25,9	70,7	8,1
WC025	Breede Valley	82,5	21,0	15,7	7,9	22,9	81,6	64,9	81,4	93,8	32,2	81,3	12,8
BUF	Buffalo City	86,5	14,7	14,7	7,8	19,4	74,9	68,5	68,4	94,6	39,5	103,5	27,3
MP325	Bushbuckridge	90,6	2,4	16,5	1,8	8,8	77,7	60,8	33,5	84,8	32,9	117,4	8,4
EC101	Camdeboo	78,1	19,3	10,3	8,5	20,0	81,4	70,1	86,9	88,7	26,8	81,1	8,5
WC033	Cape Agulhas	88,9	31,2	11,5	15,2	30,6	88,7	72,8	87,6	94,5	33,2	69,1	8,8
WC012	Cederberg	73,4	21,5	7,3	8,5	19,8	71,4	62,8	73,7	90,6	22,7	63,7	37,0
CPT	City of Cape Town	91,1	34,0	16,2	18,7	38,0	87,2	70,2	84,2	98,2	45,0	89,7	28,8
JHB	City of Johannesburg	94,4	21,3	18,2	14,4	33,7	83,9	71,3	79,6	98,2	53,0	98,2	40,6
NW403	City of Matlosana	89,4	12,4	13,6	6,2	18,2	81,4	69,3	89,6	91,7	36,5	93,1	17,6
TSH	City of Tshwane	95,0	19,0	18,6	14,6	37,3	81,8	70,7	76,5	96,9	55,7	98,5	50,5
KZN254	Dannhauser	87,3	5,1	12,6	1,7	6,0	70,4	71,2	33,5	89,8	27,7	112,0	13,7
FS192	Dihlabeng	87,6	12,0	17,2	7,8	18,4	76,0	79,4	86,6	90,2	36,3	101,2	10,5
NC092	Dikgatlong	76,8	5,6	23,0	2,9	10,8	67,0	58,6	77,1	83,8	24,0	91,6	12,7
MP306	Dipaleseng	86,8	6,1	16,6	2,9	11,5	74,5	67,8	36,3	86,6	28,2	104,2	7,1

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
NW384	Ditsobotla	81,2	7,9	15,6	3,9	12,4	67,3	63,5	64,2	81,0	26,9	92,3	13,8
MP316	Dr JS Moroka	88,3	2,6	15,2	1,4	12,0	80,4	72,7	42,1	85,4	31,4	115,9	15,2
WC023	Drakenstein	86,2	28,7	17,0	13,4	32,6	87,3	70,3	88,2	96,2	37,3	81,2	17,6
KZN261	eDumbe	83,9	3,8	18,8	3,2	5,3	56,4	72,8	24,1	87,5	24,6	103,2	28,6
EKU	Ekurhuleni	93,5	15,4	17,2	9,8	25,9	77,3	67,2	78,3	97,1	49,5	100,2	30,7
LIM472	Elias Motsoaledi	88,4	2,7	13,4	2,2	9,8	74,1	64,2	31,8	80,8	26,2	121,7	13,0
EC141	Elundini	78,1	2,1	9,6	1,5	3,1	36,5	57,3	19,5	86,9	16,6	94,8	22,4
KZN253	Emadlangeni	87,2	9,1	15,4	5,6	14,3	57,6	75,1	38,7	88,0	25,1	97,7	24,7
MP314	Emakhazeni	92,0	8,0	20,0	6,3	17,6	70,0	75,2	47,6	89,1	32,7	105,7	16,8
EC136	Emalahleni-EC	78,9	3,0	11,3	1,8	3,0	56,7	58,2	26,3	79,9	14,9	96,3	21,2
MP312	Emalahleni-MP	93,5	9,9	18,5	8,5	22,6	69,4	68,1	58,6	94,4	43,9	96,9	20,5
GT421	Emfuleni	91,5	12,9	19,7	7,1	25,2	81,7	73,4	86,6	96,2	44,5	101,4	33,0
KZN232	Emnambithi/Ladysmith	88,7	10,3	17,8	5,2	13,5	71,5	72,0	46,0	93,1	39,7	101,2	17,5
NC073	Emthanjeni	75,7	13,7	10,5	4,9	17,8	76,5	68,5	86,7	87,2	29,7	87,6	9,4
KZN241	Endumeni	89,2	16,4	16,1	7,4	16,5	72,0	74,7	72,0	94,1	41,2	87,7	16,8
EC137	Engcobo	81,9	1,7	12,0	0,8	2,4	39,1	50,5	12,7	83,0	15,3	83,3	26,0
LIM471	Ephraim Mogale	83,4	2,4	9,5	1,9	7,6	68,9	52,7	27,4	82,9	23,8	119,1	11,1
ETH	eThekwini	90,9	26,7	19,2	11,8	24,7	78,6	72,0	67,5	96,9	48,9	93,3	34,0
KZN215	Ezingoleni	81,3	4,1	11,7	2,0	4,1	63,7	66,6	36,0	83,1	20,5	104,1	10,0
LIM474	Fetakgomo	82,0	1,7	9,1	2,0	7,4	72,5	64,1	34,7	82,4	28,3	134,4	14,9
NC453	Gamagara	92,2	11,1	22,6	9,5	27,6	72,1	60,3	61,1	90,9	37,7	82,5	18,5
EC144	Gariep	76,2	13,9	8,1	6,2	12,2	75,2	66,3	85,9	80,7	24,0	85,4	6,6
NC452	Ga-Segonyane	89,0	5,0	13,8	4,6	14,6	74,8	66,9	47,9	90,1	33,4	104,9	11,7
WC044	George	84,1	25,3	14,1	15,0	30,3	82,2	70,4	85,1	94,8	39,2	83,4	16,6
MP307	Govan Mbeki	92,4	11,6	19,7	8,3	24,1	80,4	68,4	79,3	93,2	43,4	100,5	25,1
EC123	Great Kei	73,6	8,1	10,4	4,5	8,3	64,7	63,3	46,8	79,3	19,4	91,8	14,1
LIM331	Greater Giyani	90,3	2,8	16,8	2,7	10,6	70,8	56,5	23,5	79,6	27,7	121,7	16,2
KZN433	Greater Kokstad	86,7	8,7	15,5	7,2	14,3	66,8	59,1	59,8	95,8	39,2	94,7	18,6
LIM332	Greater Letaba	86,4	2,1	18,0	1,8	8,3	70,3	59,5	23,6	76,7	23,5	121,0	14,3

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
NW394	Greater Taung	80,2	2,3	9,9	1,5	5,5	64,8	62,3	49,6	81,9	20,1	101,5	11,9
LIM475	Greater Tubatse	89,0	2,1	12,7	2,6	9,4	59,5	56,7	24,6	88,7	29,3	124,0	12,0
LIM333	Greater Tzaneen	87,8	3,5	14,3	3,1	11,5	69,3	63,7	32,8	85,1	29,7	120,6	15,8
NC065	Hantam	69,8	24,6	16,7	5,4	17,6	70,1	72,0	84,3	84,8	22,2	75,0	12,2
WC042	Hessequa	82,9	31,5	11,4	13,2	26,8	86,5	80,9	80,4	92,5	32,4	77,2	9,8
KZN216	Hibiscus Coast	87,1	20,5	17,6	10,7	20,9	71,9	67,7	46,1	92,1	38,7	99,1	21,1
KZN274	Hlabisa	88,3	3,1	22,1	1,6	3,6	45,1	68,2	23,4	86,6	30,3	105,4	41,4
EC103	Ikwezi	72,1	14,8	11,3	4,9	8,9	70,5	58,1	70,2	87,0	20,0	74,9	19,9
KZN236	Imbabazane	84,9	2,7	19,3	2,3	3,6	56,6	63,2	33,7	88,4	29,1	101,3	23,8
KZN224	Impendle	84,6	3,1	16,4	0,4	3,6	60,9	63,7	15,0	88,8	24,5	95,1	39,5
KZN233	Indaka	81,3	4,3	14,9	2,1	3,5	52,6	66,9	25,2	83,9	21,6	106,3	15,2
KZN431	Ingwe	79,1	3,4	10,9	1,0	3,8	39,9	59,2	17,4	86,4	19,5	103,8	34,8
EC133	Inkwanca	77,9	8,4	14,5	3,7	9,4	70,9	69,1	79,5	82,2	21,3	107,0	16,3
EC135	Intsika Yethu	78,7	1,3	8,8	0,8	2,3	43,4	53,2	13,5	84,4	14,6	94,5	15,3
EC131	Inxuba Yethemba	78,3	14,8	13,9	6,4	16,0	81,8	75,7	88,3	86,1	28,1	87,9	15,7
NC451	Joe Morolong	81,3	1,7	13,8	1,5	5,8	61,0	54,5	26,0	78,8	18,3	96,7	11,6
KZN272	Jozini	85,8	1,9	17,8	1,2	3,8	39,4	68,9	17,3	84,5	30,2	103,6	34,5
NW397	Kagisano/Molopo	79,3	1,9	10,1	2,2	5,5	53,5	49,5	31,8	73,8	18,5	91,3	20,1
NC082	Kai !Garib	76,1	13,9	11,6	3,6	13,8	58,7	34,0	52,6	85,3	19,2	80,5	5,8
NC064	Kamiesberg	63,2	31,0	3,9	2,8	13,8	70,9	68,2	68,3	88,7	19,6	39,3	7,2
WC041	Kannaland	77,2	20,1	8,4	7,5	16,9	78,4	62,8	80,3	90,8	21,7	60,1	15,1
NC074	Kareeberg	69,3	18,0	13,0	4,0	13,3	70,5	64,6	81,2	78,2	22,7	67,3	13,1
NC066	Karoo Hoogland	60,7	26,3	10,1	7,0	16,6	57,6	66,2	77,2	79,5	22,9	69,5	6,9
NC086	Kgatelopele	85,8	12,1	22,8	9,1	21,6	75,2	63,4	76,3	87,0	33,2	101,4	13,5
NW374	Kgetlengrivier	82,3	6,3	13,0	4,5	17,0	67,9	64,3	50,9	86,9	28,5	75,5	20,9
NC067	Khâi-Ma	69,0	14,7	13,7	3,4	11,7	62,2	45,6	53,0	92,0	21,4	63,1	8,4
EC157	King Sabata Dalindyebo	84,7	4,7	15,8	2,9	8,6	59,0	56,3	26,4	87,9	28,6	92,5	24,5
WC048	Knysna	87,5	27,4	10,1	18,3	29,8	79,7	69,3	73,8	97,0	39,9	86,7	12,6
FS162	Kopanong	79,1	11,9	12,8	4,7	12,2	72,5	71,2	79,1	83,9	25,2	99,0	8,2

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
EC108	Kouga	82,5	20,9	11,2	10,5	23,1	76,1	64,2	76,1	91,6	32,7	82,1	12,0
EC109	Kou-Kamma	74,3	12,7	8,7	4,5	13,5	70,1	51,2	61,9	90,6	23,7	73,9	6,6
KZN432	Kwa Sani	88,7	13,3	19,4	8,7	14,8	55,9	60,0	37,0	91,6	28,9	77,9	25,6
KZN292	KwaDukuza	86,5	16,2	15,9	8,1	17,0	71,5	61,9	33,6	90,4	37,1	95,3	22,8
WC051	Laingsburg	71,2	27,3	11,6	8,2	21,4	71,4	70,9	77,9	83,6	23,1	70,0	12,8
WC026	Langeberg	80,1	22,5	11,5	9,2	24,7	83,0	65,7	86,8	90,5	27,0	76,4	15,1
MP305	Lekwa	91,5	9,2	18,8	7,1	17,6	81,8	71,4	76,3	88,0	34,0	101,5	15,5
NW396	Lekwa-Teemane	85,7	6,9	13,0	3,5	11,5	71,4	59,8	83,1	83,3	25,1	85,9	10,7
LIM355	Lepele-Nkumpi	86,1	4,9	13,3	2,8	11,6	74,4	62,1	46,4	86,7	32,9	120,0	21,0
LIM362	Lephalale	89,5	4,4	16,9	4,5	17,0	62,9	55,9	30,6	91,3	30,5	112,4	13,9
GT423	Lesedi	90,4	12,0	14,9	8,1	23,8	82,3	70,9	79,9	91,1	38,4	96,3	17,0
FS161	Letsemeng	77,7	8,1	14,2	4,1	12,4	74,4	57,2	73,3	80,0	22,4	85,1	7,7
EC134	Lukanji	83,6	9,1	14,9	5,1	11,5	78,1	68,5	70,8	91,3	32,1	103,7	19,3
NW372	Madibeng	89,4	4,7	15,6	4,2	15,3	71,1	61,7	43,0	92,3	34,0	95,7	13,1
NW383	Mafikeng	87,7	6,1	17,0	4,5	17,2	73,9	68,8	60,0	89,5	38,5	100,4	34,5
FS205	Mafube	84,2	7,5	15,5	3,8	11,6	76,7	71,8	86,1	85,3	31,1	106,7	9,3
NC093	Magareng	84,1	9,2	18,6	2,7	12,4	74,4	69,9	83,5	83,1	26,4	94,1	10,7
EC104	Makana	83,8	16,4	13,8	9,0	21,5	79,7	72,0	88,3	91,5	32,2	84,8	22,5
LIM344	Makhado	89,7	3,2	14,4	2,7	12,6	74,2	67,2	32,5	84,3	30,6	123,7	21,6
LIM473	Makhuduthamaga	83,6	1,5	12,2	1,4	6,7	71,8	60,0	31,0	82,5	25,8	123,4	12,2
EC143	Maletswai	79,9	9,5	17,1	5,1	14,5	73,3	67,1	79,0	86,7	30,0	101,8	13,5
FS194	Maluti a Phofung	89,5	5,3	16,4	3,5	11,9	75,2	77,5	77,2	92,2	34,0	105,2	19,8
NW393	Mamusa	83,0	3,7	11,8	2,5	9,0	69,8	62,7	70,0	74,2	20,0	91,1	13,0
KZN291	Mandeni	88,9	5,8	17,9	2,9	8,1	62,4	65,1	25,6	92,5	36,1	102,8	14,0
MAN	Mangaung	89,6	11,7	19,1	8,6	25,4	80,6	79,6	85,7	95,1	42,6	99,8	33,9
FS196	Mantsopa	83,4	7,9	11,4	4,8	13,1	75,2	76,3	89,2	92,8	31,2	100,6	9,3
KZN294	Maphumulo	78,6	2,5	11,1	1,1	3,8	35,1	61,4	22,6	80,1	25,1	105,8	35,3
NW404	Maquassi Hills	81,1	9,3	13,4	4,2	9,3	71,7	60,8	80,0	78,9	23,5	98,0	15,8
LIM335	Maruleng	87,3	2,1	10,0	3,0	8,8	66,2	53,5	23,6	84,3	24,3	125,3	9,0

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FS181	Masilonyana	81,5	7,8	15,5	2,8	11,6	76,1	72,2	84,8	90,4	25,2	92,4	11,2
EC441	Matatiele	80,0	2,8	11,6	1,6	3,8	43,6	60,0	18,7	91,7	18,1	94,2	23,3
FS184	Matjhabeng	89,5	10,9	16,5	5,5	17,7	81,5	74,7	87,6	94,9	35,3	106,2	19,2
WC011	Matzikama	70,4	22,5	11,1	9,5	20,2	71,2	60,9	75,8	91,6	26,6	67,6	6,3
EC121	Mbhashe	78,2	1,8	12,6	0,9	2,5	39,2	51,6	12,1	79,0	15,1	87,0	16,3
EC443	Mbizana	83,7	2,1	10,7	1,3	2,7	48,6	49,8	9,1	83,4	17,3	93,0	22,2
MP322	Mbombela	91,9	7,8	20,5	6,5	20,1	78,2	71,1	44,0	90,8	45,0	106,2	21,4
GT484	Merafong City	90,9	9,7	14,5	6,1	15,9	71,1	63,8	75,8	94,6	31,1	97,5	18,5
FS204	Metsimaholo	93,0	13,6	19,1	8,5	24,0	78,7	77,8	87,9	95,5	40,1	107,8	24,1
KZN281	Mfolozi	90,1	4,4	21,0	2,4	5,8	61,2	64,8	28,6	89,7	33,0	106,6	19,6
EC156	Mhlontlo	82,5	2,6	13,7	1,3	2,9	49,2	50,7	13,7	87,1	17,7	100,5	18,0
GT422	Midvaal	91,3	15,7	14,1	12,1	31,4	75,3	69,9	64,6	95,5	46,4	82,3	28,7
NC081	Mier	73,6	7,1	16,7	3,6	13,8	50,6	17,9	37,1	86,5	23,5	67,4	7,5
KZN226	Mkhambathini	78,8	4,5	10,8	2,7	5,8	47,0	51,8	19,5	81,8	25,3	97,3	19,1
MP303	Mkhondo	85,7	3,9	15,9	3,4	9,9	64,0	70,4	38,3	83,9	30,5	95,4	24,9
EC122	Mnquma	78,3	1,9	10,5	1,2	4,3	49,0	59,7	21,1	87,0	20,9	96,8	22,2
LIM365	Modimolle	89,9	10,9	12,4	5,4	16,2	71,7	61,3	48,4	88,0	29,7	98,5	22,2
LIM367	Mogalakwena	88,2	5,1	13,4	3,0	12,0	77,3	61,6	45,9	85,7	29,6	119,1	14,7
GT481	Mogale City	92,7	16,3	16,8	9,7	25,6	78,7	68,9	76,9	96,2	46,1	99,0	25,5
FS163	Mohokare	81,3	8,5	10,8	3,9	10,6	70,2	73,6	81,1	85,5	22,1	103,6	8,5
LIM353	Molemole	87,5	3,3	13,2	3,0	10,7	78,7	64,0	40,3	82,8	26,9	113,0	15,3
LIM364	Mookgopong	84,5	11,3	19,8	5,7	15,8	70,7	61,7	49,1	89,7	29,9	99,6	9,4
FS201	Moqhaka	87,6	13,3	15,0	5,9	18,1	81,2	77,9	87,8	93,9	32,8	96,0	11,4
NW371	Moretele	86,0	1,7	12,5	1,7	12,4	79,4	67,6	46,4	90,7	32,0	108,5	12,7
NW375	Moses Kotane	87,0	2,9	16,2	2,1	9,8	73,3	65,6	46,9	92,2	31,9	97,3	11,6
WC043	Mossel Bay	89,6	30,4	11,0	17,5	31,0	87,1	77,0	86,7	95,9	43,6	87,8	24,4
KZN223	Mpofana	88,1	7,4	13,8	4,1	11,4	60,8	71,0	23,7	88,2	33,0	85,8	32,5
KZN244	Msinga	74,7	2,7	10,0	0,8	2,4	28,0	62,9	14,5	72,4	20,3	97,2	24,3
MP302	Msukaligwa	90,3	6,9	17,7	5,9	16,5	73,9	75,7	59,8	88,8	38,1	98,9	17,6

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KZN285	Mthonjaneni	80,2	3,9	15,3	1,6	3,6	45,9	56,7	21,8	82,3	27,2	102,1	31,5
KZN275	Mtubatuba	88,2	6,4	19,4	3,9	8,8	54,4	65,3	21,2	88,9	34,4	103,6	35,0
LIM341	Musina	83,4	4,6	11,2	4,4	13,2	60,4	50,0	23,3	89,9	26,3	77,1	15,8
LIM342	Mutale	88,7	1,1	16,8	1,8	8,4	66,7	64,1	26,1	83,1	26,4	121,3	18,9
FS185	Nala	83,6	7,6	11,4	4,4	11,3	75,8	67,2	85,9	89,8	26,8	98,2	14,7
FS164	Naledi-FS	81,8	6,5	16,5	3,5	8,9	70,8	78,8	84,5	92,3	23,3	108,0	9,5
NW392	Naledi-NW	85,8	8,6	18,6	5,3	16,2	69,7	64,8	68,0	82,2	30,9	85,1	15,2
NC062	Nama Khoi	81,3	22,4	13,1	6,4	22,5	82,8	77,6	78,5	95,8	26,5	80,7	10,9
EC105	Ndlambe	81,2	16,6	12,6	10,9	17,5	74,1	66,2	82,0	86,9	29,1	88,9	15,3
KZN293	Ndwedwe	76,9	2,6	17,3	1,7	3,1	36,2	59,6	17,1	82,3	24,6	111,4	25,7
NMA	Nelson Mandela Bay	85,7	23,5	13,7	11,0	26,2	84,1	67,9	85,9	96,4	42,0	94,4	24,9
KZN252	Newcastle	91,3	13,6	16,6	6,3	16,6	77,8	72,1	60,6	94,2	42,5	110,6	23,4
EC126	Ngqushwa	78,0	3,7	12,0	1,9	3,7	71,5	67,3	32,2	85,7	19,4	104,1	15,0
EC153	Ngquza Hill	80,2	1,8	12,3	1,1	2,6	47,2	51,1	13,2	81,7	18,3	88,4	22,9
FS203	Ngwathe	86,0	10,7	14,2	5,3	14,2	80,9	76,5	88,9	90,1	31,8	105,6	12,6
KZN286	Nkandla	85,0	1,7	17,2	1,4	2,6	38,6	61,4	17,6	83,5	26,4	93,4	36,2
FS193	Nketoana	85,0	7,7	17,5	3,9	11,6	70,6	76,0	82,3	85,2	27,1	101,1	8,7
MP324	Nkomazi	89,2	2,3	17,8	2,6	9,1	66,3	62,5	34,7	83,1	32,3	109,4	24,5
EC127	Nkonkobe	78,5	4,9	12,9	2,0	5,5	70,7	67,1	43,9	90,8	22,0	97,5	14,6
KZN265	Nongoma	86,3	2,9	23,0	2,3	4,4	54,0	66,4	18,9	88,2	31,9	107,8	25,2
KZN242	Nqutu	87,0	1,8	15,6	1,2	2,9	50,3	70,9	23,7	87,1	24,5	102,5	14,8
EC444	Ntabankulu	73,6	0,8	10,0	0,2	1,8	26,4	49,3	9,0	80,3	13,7	89,0	18,2
KZN283	Ntambanana	85,7	2,8	11,2	1,6	3,1	49,9	59,8	18,6	84,3	25,1	103,8	13,7
EC128	Nxuba	74,1	8,4	9,9	4,0	9,6	74,5	64,7	83,6	89,5	22,1	77,4	6,0
EC155	Nyandeni	80,0	1,6	12,0	1,2	3,0	50,6	49,0	12,5	84,8	19,7	95,9	24,4
KZN235	Okhahlamba	86,7	3,3	20,9	2,8	5,8	57,7	64,2	26,4	84,7	25,8	109,8	30,2
WC045	Oudtshoorn	76,3	21,3	10,2	9,4	23,6	80,1	66,3	81,6	91,4	29,9	76,9	15,5
WC032	Overstrand	91,1	33,7	10,8	20,4	33,7	82,5	66,5	85,5	97,6	43,4	83,0	21,9
NC094	Phokwane	79,5	8,9	13,8	4,2	11,8	72,1	67,1	73,2	78,6	28,0	98,0	14,3

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FS195	Phumelela	88,2	10,4	12,8	3,8	11,7	67,9	66,8	72,2	87,8	25,0	102,5	9,5
MP304	Pixley Ka Seme	88,7	8,0	17,0	4,2	13,2	75,9	75,9	57,7	83,7	30,5	108,2	15,8
LIM354	Polokwane	91,9	7,2	18,8	6,2	21,8	70,3	67,3	55,8	94,3	45,8	111,5	36,1
EC154	Port St Johns	75,3	2,4	10,8	1,0	2,3	38,8	46,9	16,6	78,7	15,2	90,8	27,0
WC052	Prince Albert	76,9	21,7	15,8	6,9	15,5	70,1	69,0	83,2	85,7	24,7	67,0	9,6
NW385	Ramotshere Moiloa	80,3	3,7	12,3	2,6	10,1	64,8	66,1	47,9	83,7	26,2	102,5	19,5
GT482	Randfontein	91,4	14,7	18,7	8,1	24,7	83,1	71,2	81,6	96,1	43,3	101,0	21,0
NW381	Ratlou	78,4	2,0	9,2	1,5	4,3	61,8	59,5	34,2	74,9	14,4	90,8	16,8
NC075	Renosterberg	73,8	16,9	11,8	6,3	16,7	63,7	48,7	77,2	81,4	32,3	95,6	9,0
KZN227	Richmond	81,8	5,1	13,3	3,0	8,6	58,5	54,6	23,1	84,3	25,2	101,3	23,0
NC061	Richtersveld	83,1	19,0	14,1	8,5	22,6	83,5	63,9	70,2	94,9	25,9	78,3	3,1
NW373	Rustenburg	92,3	5,5	17,1	5,2	16,0	71,7	63,9	52,7	95,8	38,1	90,9	21,1
EC138	Sakhisizwe	83,8	5,2	14,3	1,9	5,6	63,0	63,7	33,2	89,9	22,0	100,8	18,2
WC014	Saldanha Bay	90,7	25,3	14,8	13,4	31,3	86,4	68,0	89,0	97,5	36,9	83,3	14,4
EC142	Senqu	81,7	2,3	13,0	1,6	4,8	55,7	59,5	26,4	85,6	18,2	106,0	16,5
FS191	Setsoto	82,8	8,3	13,7	4,0	11,6	73,3	73,3	85,0	90,7	29,4	104,1	13,0
NC078	Siyancuma	76,3	11,8	11,3	3,7	13,0	67,3	60,3	76,0	78,8	22,9	89,3	11,5
NC077	Siyathemba	72,0	10,1	12,4	5,2	13,9	71,1	57,1	83,2	81,2	25,4	80,9	7,5
NC091	Sol Plaatjie	85,8	18,3	17,3	8,5	22,7	80,2	67,4	83,5	93,3	39,4	93,1	18,1
WC024	Stellenbosch	89,2	25,6	16,1	18,4	38,0	83,4	68,4	75,8	96,0	40,1	77,8	37,7
MP313	Steve Tshwete	93,5	12,1	18,7	9,2	25,2	81,5	75,8	72,5	94,2	48,6	97,1	27,9
EC106	Sundays River Valley	69,5	8,2	9,6	3,9	10,2	66,1	61,0	54,4	85,9	18,2	71,1	5,4
WC015	Swartland	83,0	23,3	11,1	12,4	27,8	84,7	63,7	90,5	91,6	30,2	66,8	9,2
WC034	Swellendam	84,1	23,2	21,7	10,8	24,4	80,0	63,4	85,8	91,5	29,4	64,7	11,8
MP321	Thaba Chweu	89,7	7,4	15,2	6,5	16,5	63,3	59,4	38,6	92,1	38,6	90,5	22,9
LIM361	Thabazimbi	91,7	6,4	18,2	6,4	19,7	63,5	59,1	36,3	94,7	30,5	83,3	28,1
KZN273	The Big 5 False Bay	86,6	2,9	22,7	2,3	5,9	36,6	66,8	11,3	86,2	27,0	98,9	33,0
KZN225	The Msunduzi	89,2	21,5	17,3	9,2	22,9	80,2	73,0	59,3	95,5	45,5	96,7	37,0
WC031	Theewaterskloof	85,0	19,7	16,5	9,2	21,5	80,9	60,1	79,7	94,0	26,4	76,8	13,9

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
NC076	Thembelihle	72,4	14,4	13,0	6,4	18,8	61,5	57,6	74,2	82,0	29,9	85,6	8,2
MP315	Thembisile	93,0	2,6	18,4	2,4	14,6	78,9	77,0	33,5	83,8	31,5	112,1	15,7
LIM343	Thulamela	90,8	2,3	17,5	2,0	12,2	73,2	64,5	32,7	85,5	32,8	122,2	25,0
NW402	Tlokwe City Council	89,6	14,8	17,6	11,2	32,3	80,3	73,1	79,5	92,4	44,3	99,3	45,2
FS182	Tokologo	76,3	7,9	11,6	2,4	9,8	64,7	65,3	61,9	76,1	22,4	76,6	11,3
NC085	Tsantsabane	85,7	9,0	14,6	6,7	18,6	69,3	58,3	62,8	87,1	29,4	83,3	11,0
EC132	Tsolwana	80,8	5,8	14,3	1,9	5,9	68,8	58,9	31,2	84,4	19,4	109,1	25,8
NW382	Tswaing	80,1	5,9	15,6	2,8	9,6	65,1	63,6	44,4	76,7	20,8	91,2	12,7
FS183	Tswelopele	84,8	11,2	12,8	3,4	12,0	79,2	72,1	78,2	86,2	26,9	102,4	13,2
KZN434	Ubuhlebezwe	79,8	4,6	10,4	2,2	6,3	47,1	57,5	20,0	86,0	23,9	105,8	30,9
NC071	Ubuntu	70,2	14,4	14,0	3,3	10,7	66,7	57,1	74,0	78,7	22,9	98,4	11,3
KZN266	Ulundi	87,7	3,7	22,8	2,5	7,0	60,7	65,6	34,9	88,3	35,0	105,6	29,0
KZN212	Umdoni	84,7	23,6	16,1	10,5	20,6	66,4	64,4	40,9	91,4	37,6	99,8	25,3
KZN271	Umhlabuyalingana	83,5	2,1	16,7	1,3	4,0	35,3	67,6	20,9	81,2	26,5	108,9	31,7
KZN282	uMhlathuze	93,4	14,6	22,5	10,1	24,4	75,3	69,8	49,7	94,8	51,0	98,2	31,8
MP323	Umjindi	88,4	6,8	21,3	6,3	16,5	66,3	66,8	40,7	90,8	37,7	99,9	14,7
KZN284	uMlalazi	84,1	5,8	18,4	3,9	6,9	47,9	60,9	28,9	84,1	29,0	103,8	33,6
KZN222	uMngeni	88,4	26,8	13,6	16,7	29,1	71,8	71,1	62,1	93,5	43,2	76,8	35,8
KZN221	uMshwathi	78,5	6,7	19,9	3,2	7,0	54,3	62,2	22,8	85,2	25,8	101,3	28,5
NC072	Umsobomvu	74,1	11,9	12,7	4,9	11,8	70,3	66,4	76,0	84,4	27,2	90,7	8,4
KZN234	Umtshezi	84,9	14,1	20,3	4,4	14,1	66,7	71,9	39,0	88,6	35,1	99,3	23,9
KZN214	Umuziwabantu	84,2	4,7	11,4	2,5	4,8	61,3	57,3	30,7	86,0	21,2	100,7	30,6
KZN245	Umvoti	79,2	6,0	15,4	3,1	7,0	45,6	60,8	18,9	81,4	26,7	98,4	23,7
KZN435	Umzimkhulu	82,0	1,6	12,4	1,1	2,8	54,5	57,9	11,6	92,9	20,1	94,8	21,2
EC442	Umzimvubu	79,9	1,8	13,4	1,0	3,0	38,3	58,1	15,0	92,9	19,7	93,1	23,5
KZN213	Umzumbe	76,3	3,3	11,7	0,9	3,8	41,6	56,4	23,9	82,4	22,5	110,5	20,8
KZN262	Uphongolo	86,1	3,2	16,2	2,0	6,7	53,9	61,3	18,6	85,4	30,3	104,3	25,6
NW401	Ventersdorp	77,0	4,9	16,0	3,1	8,9	66,8	61,3	67,5	78,4	19,8	79,6	16,8
MP311	Victor Khanye	89,6	5,9	16,5	4,8	14,8	74,7	58,4	67,2	88,4	34,2	102,2	23,5

Municipal ID	Municipality	Cellphone (%)	Landline (%)	Mobile internet (%)	Internet at home (%)	Computer (%)	Television (%)	Radio (%)	Post (%)	Adult literacy (%)	Completed post-school qualifications (%)	Secondary GER (normalized)	Tertiary GER
KZN211	Vulamehlo	74,6	3,4	14,2	1,5	3,6	38,3	55,8	14,4	82,0	24,5	101,0	32,3
GT483	Westonaria	90,8	5,1	13,9	3,6	10,3	58,6	56,4	70,3	93,3	30,4	96,5	17,2
WC022	Witzenberg	80,2	15,1	10,9	6,4	16,8	74,0	54,2	79,2	90,9	22,7	77,1	10,8