## Gender Series Volume X:

Gender Disparities in Access to and Use of ICT in South Africa, 2016-2022.

# Gender Series Volume X: <br> Gender Disparities in Access to and Use of ICT in South Africa, 2016-2022 

# Gender Series Volume X: Gender Disparities in Access to and Use of ICT in South Africa, 2016-2022 / Statistics South Africa 

Published by Statistics South Africa, Private Bag X44, Pretoria 0001
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Stats SA Library Cataloguing-in-Publication (CIP) Data
Gender Series Volume X: Gender Disparities in Access to and Use of ICT in South Africa, 2016-2022 / Statistics South Africa. Pretoria: Statistics South Africa, 2023

Report no. 03-10-27
90 pp
ISBN: 978-0-621-51534-3

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## Abbreviations and acronyms

AI Artificial Intelligence
CESM Classification of Educational Subject Matter
DBE Department of Basic Education
DSTV Digital Satellite Television
DTPS Department of Telecommunications and Postal Services
ECD Early Childhood Development
GHS General Household Survey
GPR Gender Parity Ratio
IAI ICT Access Index
ICT Information and Communication Technology
IDI ICT Development Index
ITU International Telecommunications Union
NEA Not Economically Active
NDP National Development Plan
PC4IR Presidential Commission on the Fourth Industrial Revolution
PDFDL Professional Development Framework for Digital Learning
QLFS Quarterly Labour Force Survey
SDG Sustainable Development Goals
STEAMIE Science, technology, engineering, arts, mathematics, innovation and entrepreneurship
TVET Technical and Vocational Education and Training
UN United Nations
UNISA University of South Africa
HEMIS Higher Education Information Management System

Definitions

## Adults:

Educational attainment:
Employed persons:

Gender digital divide:
Gender equality:

Gender gap:

Gender Parity Ratio (GPR):

Head of the household:

ICT:

ICT Access Index:

## Labour force:

Not economically active:

Older persons:
Quintile:

## The active sub-index:

Persons aged 35-59 years
Refers to the highest level of education an individual has completed.
Those aged 15-64 years who, during the reference week, did any work for at least an hour, or had a job or business but were not at work (temporarily absent).

The gap between men's and women's ability to access and use ICT.
Refers to the equal rights, responsibilities and opportunities of women and men, and girls and boys. Equality does not mean that women and men will become the same, but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. ${ }^{1}$

The inequalities between men and women in terms of access to information and communication technology.

Is calculated as the proportion of the number of females by the number of males. Although these ratios are usually designed to measure the relative access to education of males and females, the ratios can be generally applied to calculate gender disparities or gaps on different socioeconomic indicators. ${ }^{2}$

A person recognised as such by the household and in most cases the key decision-maker, or the person who owns or rents the dwelling, or the person who is the main breadwinner.

A diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players, and storage devices) and telephony (fixed or mobile, satellite, vision/video-conferencing, etc

South African dimensional ICT Index to measure the level of ICT in the country

Comprises all persons of working age that are either employed or unemployed.

Persons aged 15-64 years who are neither employed nor unemployed in the reference week.

Individuals aged 60 years and older.
An income quintile is a method to measure the average (per capita monthly) household income, ranking them from poorest to wealthiest, and then grouping them into five income quintiles (1 being poorest and 5 being wealthiest), each quintile containing approximately $20 \%$ of households

Includes technologies that allow for more instantaneous communication, including telephony and access to the internet.

[^0]| The passive sub-index: | Includes technologies such as radio, television and post which are well <br> entrenched in society, and which either don't allow for two-way <br> communication, or very limited two-way communication that is characterised <br> by a significant time lag (sending and receiving post for instance). |
| :--- | :--- |
| Unemployed persons: | Persons of working age who were not employed in the reference period, <br> actively looked for work or tried to start a business in the four works preceding |
| the survey interview and were available to start work or would have started a |  |
| business in the reference week. |  |
| Youth: | Individuals aged $15-34$ years. |

## Foreword

Gender equality is the cornerstone for a prosperous, modern economy that delivers sustainable inclusive growth while also ensuring that men and women may fully contribute to the betterment of societies and economies at large. Sustainable Development Goals (SDGs) identify the enhanced 'use of enabling technology, in particular Information and communications technology (ICT), to promote gender equality and women empowerment and calls for promoting universal access in ICT. This is because digital technologies and skills provide access services such as health, education, social protection and financial services. During the early stages of the COVID-19 pandemic, when lockdown closed marketplaces and schools, digital technologies became critical for businesses to continue operations and government to offer services.

However, access and use of ICT and its potentials are often uneven based on the socio-economic and demographic circumstances of individuals. This report explores the gender disparities with access to and use of ICT in South Africa. Focus of the report is aligned to 2023 theme of International Women's Day "DigitALL: Innovation and technology for gender equality" the day that celebrated women and girls who are championing advancement of transformative technology and digital education.

The report indicates that access to mobile telephones increased exponentially from 65,0\% in 2016 to 80,0\% in 2022. In 2022, ownership of mobile telephones was higher for females ( $80,9 \%$ ) than for males ( $77,9 \%$ ). Furthermore, there has been significant growth in internet connection among male and female-headed households reached equality nationally. An analysis of factors associated with lack of access to internet showed that male-headed households residing in Limpopo, Mpumalanga and Western Cape were more likely to lack internet access compared to households in Gauteng.

With regards to ITC assets, access to computers increased over the years, regardless of the sex of the head of the household while radio ownership declined. The female-headed households were more likely to own televisions than their male counterparts.

The report indicated that graduates in computer and information sciences from universities/technikons have increased from $3,3 \%$ in 2016 to $4,0 \%$ in 2021 . The majority of students who enrolled for computer and information sciences at university/technikon were males. Nationally, there were more males with ICT qualifications than females and males with ICT qualifications were more likely to be employed than their female counterparts during the reference period.


## CHAPTER 1: INTRODUCTION

### 1.1 Background

It is essential to have comparable statistics on the usage and access to information and communication technology (ICT) to develop policies and strategies that promote ICT-enabled growth, social cohesion, and inclusion. Having such statistics also helps to track and assess the impact of ICT on economic and social development. However, there is still a gender inequality issue that needs to be addressed. One of the primary goals of Sustainable Development Goal (SDG) 5 is to empower women and ensure gender equality through the use of ICT, particularly in addressing this issue.

Women's access to ICT can greatly enhance their social, psychological, educational, technological, political, and economic well-being. The National Development Plan (NDP) Agenda 2030 recognises the significance of establishing knowledge societies that afford everyone equal opportunities to learn and connect with others, making access to ICT crucial. To achieve sustainable and inclusive growth by 2030, South Africa must make investments in ICT networks.

According to the literature, women have less access to ICT than men. This is known as the gender divide in information and communication technology (ICT), and it is most visible in developing countries. ${ }^{3}$ It is the gap between men and women's ability to access and use the internet and digital technologies, and contribute to and benefit from their development. The exclusion of women and girls from digital technology can prevent them from realising the benefits of digital technology. This exclusion can be attributed to affordability constraints. ${ }^{4}$ Despite the fact that girls outnumber males in literacy, numeracy, and writing skills, they lag behind in digital skills. ${ }^{5}$

Since the COVID-19 pandemic, internet availability and demand have improved throughout the world. This was influenced by the quarantine conditions during lockdown, where technology was the means to communicate with the outside world from households to outside country borders. The Independent Communications Authority of South Africa reported that the national population coverage for 3G increased from $99,8 \%$ in 2020 to $99,9 \%$ in 2021 ; for 4 G/LTE it increased from $96,4 \%$ in 2020 to $97,7 \%$ in 2021 ; and for 5G it increased from $0,7 \%$ in 2020 to $7,5 \%$ in $2021 .{ }^{6}$

The internet provides a path to narrowing gender gaps that women and girls experience in real life, such as educational and employment opportunities. However, in order to benefit from the internet one must have access and be able to utilise it on a regular basis. Empowering girls and women to pursue ICT careers can also hasten their socio-economic progress. This will help to close the skills gap in ICT while also contributing to gender equality. Furthermore, the usage of tablets and computers from early childhood development (ECD) can ensure that this talent is acquired and available to both males and females. ${ }^{7}$ This report provides the results of the gender analysis of ICT and other socio-economic factors using secondary data from the General Household Survey 2016, 2019 and 2022. The three data points will be used to see the progress.

[^1]
### 1.2 Objective of the report and conceptual framework

Given the important developmental role of ICTs and the need to prevent gender disparities, this report will attempt to:

- Examine gender differences in access and use of various ICT assets and services, including television, radio, fixed telephones, mobile telephones, and the Internet;
- Analyses gender differences in ICT and education and in labour market outcomes;
- Determine the factors associated with ICT access for female and male-headed households; and
- Create ICT access index to measure the level of ICT and measure the disparity by sex


### 1.3 Legislation and policy framework

Following the establishment of the democratic government in 1994, policies were changed in order to rectify past inequities and ensure that all South Africans had access to universal and inexpensive services in order to pursue socio-economic development objectives.

### 1.3.1 International context

## Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), which define the course of global development until 2030, place a priority on gender equality in access to information and communication technologies (ICTs). Goal 5 of the SDGs seeks to achieve gender equality by 2030 and to end all forms of discrimination and violence against all women and girls everywhere. The SDGs provide a landmark opportunity for countries to close the digital gender divide through the targets stated below:

- Achieve universal affordable internet access by 2020 (SDG target 9.c).
- Ensure equal access to basic services [and] appropriate new technology for all women and men (SDG target 1.4).
- Implement policies to empower women through technology (SDG target 5.b).
- Promote global collaboration on and access to science, technology and innovation (SDG target 17.6).
- Beyond these important targets, access to information and communication technology (ICT) is also critical to achieving other SDGs, such as: achieving quality education (Goal 4), creating decent work and economic growth (Goal 8), and reducing inequalities (Goal 10).


### 1.3.2 Regional agenda

## Gender Equality and Agenda 2063

Gender equality is prioritised in Agenda 2063 as a key component of Africa's future. Aspiration 6 and Goal 17 of the Agenda are most focused on achieving comprehensive gender equality to support people-driven development in Africa. Agenda 2063 emphasises two major priority areas to do this: eradicating violence and discrimination against women and girls; and empowering women and girls. The short-term plan for Agenda 2063 (2013-2023) prioritises economic rights, political participation and representation, women's and girls' empowerment, reducing levels of gender-based violence and discrimination against women and girls, reducing all harmful social norms and customary practices, and eliminating barriers to quality education, health and social services.

### 1.3.3 Local context

The South African post-apartheid government introduced many policies that target gender equality in the country. The following legislative frameworks and policies were passed post-1994 to improve the living conditions of women and to create a peaceful gender balance within South African society.

The Constitution of the Republic of South Africa, 1996 states that all South African citizens have a right to be affirmed and enriched with democratic values of human dignity and equality. Given these human rights values, all citizens, including responsible government officials, must comply with such values and uplift the living conditions of their citizens.

The Employment Equity Act, Act No. 55 of 1998 was established to promote equal opportunity and fair labour practice in the workplace through the elimination of unfair discrimination and implementing of affirmative action measures to redress the disadvantages in employment experienced by designated groups, to ensure their equitable representation in all occupational categories and levels in the workforce.

The Gender Equality Strategic Framework (GESF) for the Public Service came into effect in 2009. The framework is premised on the promotion and protection of human dignity and human rights of women, including women with disabilities. All government departments must include the following eight principles in their departmental action plans towards achieving women's empowerment and gender equality within the public service workplace:

- Transformation for non-sexism.
- Establishing a policy environment on women's empowerment and gender equality.
- Meeting equity targets by ensuring women's full participation and decision-making by employing $50 \%$ women at all levels of the SMS.
- Creating an enabling environment.
- Gender mainstreaming in all work of the department.
- Empowerment through capacity development for women's advancement and gender equality.
- Providing adequate resources for advancing gender equality.
- Accountability, monitoring and evaluation.


## National Development Plan (NDP)

The National Development Plan 2030 states that advances in science and technology are essential because they transform how people live and effectively support economic growth and development. Information and Communication Technologies (ICTs) play a key role in facilitating all the objectives of the NDP. The NDP (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 needs 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 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 Department of Telecommunications and Postal Services (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.

National Digital and Future Skills Strategy, ${ }^{8}$ which envisages a society of digitally skilled South Africans. The strategy recognises digital skills as one of the key skills sets required for the creation of new kinds of 21st century jobs.

2020 Reconstruction and Recovery Plan for the South African Economy has identified ICT in general, and communications and digital economy, as key enablers for South Africa's economic reconstruction and recovery plan.

[^2]
### 1.4 Data sources

The main data sources for the report are surveys conducted by Statistics South Africa (Stats SA), which include:

- The General Household Survey (GHS), an annual household survey that measures the living circumstances of South African households. It is used as a tool aimed at measuring development progress, including service delivery in the country. The GHS is an annual household survey that has been conducted by Stats SA since 2002. The survey visits between 28000 and 30000 sampled dwelling units in all nine provinces annually. It collects data on education, health and social development, housing, households' access to services and facilities, food security and agriculture. The focus years are 2016, 2019 and 2022.
- The Quarterly Labour Force Survey (QLFS), a household-based sample survey that collects data on the labour market activities of individuals aged 15 years or older who live in South Africa.
- The other main source of data used is the mid-year population estimates, which estimate the population as of mid-year (01 July in a given year). This provides useful estimates of the population based on certain demographic variables. The estimation process takes into account the latest available data on fertility, mortality and migration to estimate the size of the population of South Africa.

One of the major challenges in monitoring progress towards attaining gender equity is the lack of data. Even as the official supplier of statistics in South Africa, Stats SA cannot produce all data required to measure gender-related indicators. In addressing this, administrative data where there is disaggregation of gender is used. Therefore, this report also used administrative sources of data analysis. Government departments collect a large amount of data as part of their day-to-day administration. Administrative records contain a wide variety of data covering different socio-economic and demographic information, which is usually required to complete processes such as providing goods and services. Administrative sources of data used in this report were obtained from the Department of Higher Education (HEMIS).

### 1.5 Limitations of the study

Since the analysis largely relies on sample surveys and a weighting process to extrapolate sample estimates to population estimates, the absolute number of cases does not always correspond with census or administrative data sources. In addition, due to the sample sizes of the surveys, disaggregation of indicators by sex and municipality may not be possible. The ICT data are mostly associated to infrastructure and therefore cannot be disaggregated by sex. For some of the ICT variables available, the data are not disaggregated in terms of gender.

### 1.6 Notes to data users

The household survey program at Statistics South Africa (Stats SA) uses the Master Sample frame, which has been developed as a general-purpose household survey frame that can be used by all other Stats SA household-based surveys based on information collected during the 2011 Census conducted by Stats SA.

In addition, all the household-based surveys at Stats SA are benchmarked to population estimates series preceding the 2022 Census and hence do not reflect the demographics of Census 2022. Future surveys from Stats SA will be reflective of the Census as soon as these estimates are availed from the second quarter of 2024 onwards.

### 1.7 Report layout

Chapter 1: Covers the introduction, outlines the rationale for producing the report, and describes the data sources used.
Chapter 2: Presents the selected demographic indicators that will assist in indirectly measuring the influence of social institutions on gender equality, including access to ICT.
Chapter 3: Presents findings on the trends in households' access to telephonic communications, mobile telephones and fixed telephones.
Chapter 4: Presents results of internet connectivity by households using a gender lens.
Chapter 5: Analyses and presents the data on ICT assets such as computer, radio and television using a gender lens.
Chapter 6: Analysis of ICT and education.
Chapter 7: Analysis of labour market outcomes and ICT.
Chapter 8: Composite Index of ICT.
Chapter 9: Concludes the report by providing a summary of key findings.

## CHAPTER 2: DEMOGRAPHIC FACTORS

### 2.1 Introduction

Demography is the study of the human population in terms of its size, composition, spatial distribution, and long-term trends. ${ }^{9}$ Demographic information is important in providing a broad understanding of the different characteristics of the population, which include but are not limited to sex, age and population group. It provides information that may be utilised to make decisions in a variety of settings, such as government and social services. Population censuses and household surveys provide data on the characteristics of the persons and households. Increased population has an impact on the demand for services, and up-to-date information can assist in proper planning and allocation of resources.

More insight provided by the demographic profile will assist in indirectly measuring the influence of social institutions on gender equality, including the progress of women's autonomy, empowerment and control over material resources. This chapter will provide basic information about the number of the female population and households headed by females.

### 2.2 Basic demographics of the population

Map 2.1: Female population by province, 2022


Source: MYPE 2022

According to the 2022 Mid-year Population Estimates (MYPE), of the 60,6 million people in South Africa, 31,0 million $(51,1 \%)$ were females. Gauteng comprised the largest share of the female population, with approximately 8,1 million people ( $26,0 \%$ ) living in the province. KwaZulu-Natal had the second largest female population in South Africa, with an estimated 6,0 million people ( $19,4 \%$ ) living in this province. Northern Cape remained the province with the smallest share of the female population of $661000(2,1 \%)$.

[^3]Figure 2.1: Percentage share of the total population by sex, 2016-2022


Source: MYPE 2022

Figure 2.1 shows the percentage share of females in the overall population by sex over seven years. The graph above depicts the pattern of the fluctuating population for the reference period. Generally, females reported the highest percentage share of the general population compared to their male counterparts for all the years. The female population remained stable, with a marginal reduction of 0,2 of a percentage point (from $51,3 \%$ in 2016 to $51,1 \%$ in 2022) in population size between 2016 and 2022. In 2017, the percentage share of females in the population declined by a 0,1 percentage point and remained the same until 2019. Between 2019 and 2020, there was a slight decline of 0,1 of a percentage point among females, with the males increasing by the same percentage point. From 2020, the percentage share of males and females as the share of the total population remained constant ( $48,9 \%$ and $51,1 \%$, respectively).

Figure 2.2: Percentage of females as a share of the total population by province, 2016-2022


Source: MYPE 2022

Figure 2.2 shows the percentage of females as a share of the total population within each province between 2016 and 2022. For the reference period, the female population of South Africa consistently declined. Between 2016 and 2017, the female population declined in Eastern Cape, Mpumalanga and Western Cape whilst the other six provinces remained unchanged. Between 2019 and 2020, the share of the female population within most provinces remained unchanged; however, there was a slight decline in the female population in Limpopo by 0,1 of a percentage point. The North West province had the lowest share of the female population at 49,2\%. The analysis also reveals that Limpopo, Eastern Cape, KwaZulu-Natal and Free State had higher proportions of females in all years of reporting.

Figure 2.3a: Distribution of population by age group and sex, 2016


Figure 2.3b: Distribution of population by age group and sex, 2022


Source: MYPE 2022
Figures 2.3a and 2.3b show the population distribution by sex and age group, and further indicate that South Africa has a youthful population, with a sizable youth bulge between the ages of 25 and 34 in 2016, and 25-34 in 2022. In 2016 there were 29,2 million females in South Africa, which increased by 1,8 million to 31,0 million in 2022. In 2022, the highest proportions of both males and females were those in the age category 10-14 years. Both males and females aged 20-24 years showed the highest decrease in population between the years 2017 and 2022. Conversely, males and females aged 35-39 years recorded the highest increase in population size. The pyramid also shows that in 2016, men outnumber women from ages 0 to 34 , and $0-39$ for 2022. However, women outnumber men at age 35 in 2016 and age 40 in 2022.

Figure 2.4: Percentage distribution of females by population group, 2016 and 2022


[^4]Whites were the only population group that showed a positive increase (approximately 0,2 of a percentage point) in the female population, while the other population groups recorded a decline in the proportion of females for the reporting period. The Indian/Asian population was the only population that was below the national average and recorded a decrease from $49,3 \%$ in 2016 to $48,9 \%$ in 2022, which was above the national average. The Indian/Asian population was the only population that showed a substantial increase in the percentage of males, while other population groups showed a slight increase in the percentage of males.

### 2.3 Characteristics of households

Map 2.2: Percentage share of female-headed households by province, 2022


Source: GHS 2022
Map 2.2 above displays the percentage share of female-headed households by province in 2022. Gauteng recorded the highest percentage share of female-headed households ( $25,3 \%$ ), followed by KwaZulu-Natal ( $18,8 \%$ ) and Eastern Cape ( $11,1 \%$ ). Northern Cape remains the province with the lowest share of femaleheaded households (2,2\%), followed by Free State (5,7\%).

Figure 2.5a: Proportion of female-headed households to SA by province, 2016


Source: GHS 2016
Figure 2.5b: Proportion of female-headed households to SA by province, 2022


Source: GHS 2022
Gender analysis requires an understanding of family composition in order to identify households with female heads of the household. Figures 2.5 a and 2.5 b above show that a sizeable number of households in South Africa were headed by males between 2016 and 2022. The analysis revealed that more than four-tenths $(41,5 \%)$ of the households in South Africa were headed by females, which increased by 0,7 of a percentage point in 2022. KwaZulu-Natal, Eastern Cape and Limpopo showed a decrease in female-headed households for the reporting period. In 2022, female-headed households were most common in provinces with large rural areas such as Eastern Cape, Limpopo, KwaZulu-Natal, and Free State.

Figure 2.6: Proportion of female-headed households to SA by population group, 2016 and 2022


Source: GHS 2016 and 2022
Figure 2.6 depicts that most female-headed households were among black Africans in 2016, followed by coloureds. However, in 2022 the coloured population had the majority of female-headed households with 1,3 percentage points, slightly higher than black Africans. All population groups showed an increase in the proportion of female-headed households, except the black African population group that remain unchanged whilst their male counterparts showed the opposite. According to various demographic studies, males have higher mortality rates than females across all age groups. Because of this, women often outlive their male partners and thus become the head of the household.

### 2.4 Conclusion

The female population in South Africa was estimated at 31,0 million ( $51,1 \%$ ) in 2022. Females reported the highest percentage share of the overall population compared to their male counterparts for all the years. Black Africans and whites were the only population groups that showed a positive increase in the female population, while the other population groups recorded a decline in their female populations for the reporting period. In 2022, there were 18,5 million households in South Africa, and 7,8 million ( $47,1 \%$ ) were headed by females. Gauteng comprises the largest share of female-headed households, followed by KwaZulu-Natal; Northern Cape had the least. All population groups showed an increase in the proportion of female-headed households, except the black African population group that remained unchanged. In 2022, female-headed households were most common in provinces with large rural areas such as Eastern Cape, Limpopo, KwaZulu-Natal, and Free State.

## CHAPTER 3: ACCESS TO TELEPHONIC COMMUNICATION

### 3.1 Introduction

Access to ICT refers to the right, permission and unrestricted capacity to utilise information and communication technology devices such as mobile telephones, computers and internet to receive, process, retrieve, store and consume information. The usage of mobile telephone in South Africa has been increasing rapidly over the years. In addition, the growth in the number of households 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.

The General Household Survey report of 2021 (GHS 2021) indicates that $90,8 \%$ of the population uses mobile telephone exclusively and 0,5\% uses landlines only. Approximately 69,6\% of households accessed the internet using mobile devices in 2021 and only $2,2 \%$ of the respondents had neither mobile telephone nor landlines. ${ }^{10}$

According to Amerson (2020: 308) and a study by Dscout (Winnick, n.d.), the average person touches his or her phone at least 2617 times a day, as it is a convenient device pertaining to staying connected with others (mostly through messaging and social media) and provides a sense of security. The level of access to mobile telephones 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 a user and producer. This section presents findings on the trends in households' access to telephonic communications, fixed telephones and individual access to mobile telephones for the years 2016, 2019 and 2022.

### 3.2 Mobile telephone ownership

Access to a mobile telephone is explicitly acknowledged within the SDG goal 5 (target 5 b) which seeks to enhance the use of enabling technology, in particular ICT, to promote the empowerment of women. Mobile telephone ownership is one of the measures of economic progress, and when women invest in mobile telephones, their families and communities benefit. To boost social and economic progress, more women must be empowered with mobile telephones. ${ }^{11}$ Mobile telephones are an enabling tool for access to the internet. They have changed the way that people work, socialise, organise, and entertain themselves. It has become increasingly important for internet access as smartphones have become more available and affordable. Access to mobile telephones provides freedom in deciding when and where to use them for learning and they can help increase gender equality in education when utilised effectively, while on the other hand offering opportunities to close gender gaps by enabling women access to knowledge and general information, generating additional revenue, and expanding work opportunities. ${ }^{12}$

In order to assess individual ownership of mobile telephones, household members aged 10 years and older were requested to indicate whether they owned a mobile telephone in working order during some or all of the past 12 months. This section explores the gender disparities in ownership of mobile tele phones to monitor the gap that exists between the genders by province and quintiles.

[^5]Table 3.1: Percentage of persons who own mobile telephones by sex, 2016, 2019 and 2022

| Sex | N ('000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \mathrm{No} \\ \text { access } \end{array}$ | Total |
| Male | 14867 | 8428 | 23295 | 17385 | 5314 | 22699 | 18835 | 5338 | 24174 |
| Female | 16296 | 8196 | 24492 | 19134 | 4883 | 24017 | 20617 | 4863 | 25481 |
| Both sexes | 31163 | 16624 | 47787 | 36518 | 10197 | 46715 | 39453 | 10202 | 49654 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 63,8 | 36,2 | 100,0 | 76,6 | 23,4 | 100,0 | 77,9 | 22,1 | 100,0 |
| Female | 66,5 | 33,5 | 100,0 | 79,7 | 20,3 | 100,0 | 80,9 | 19,1 | 100,0 |
| Both sexes | 65,2 | 34,8 | 100,0 | 78,2 | 21,8 | 100,0 | 79,5 | 20,6 | 100,0 |

Source: GHS 2016, 2019 and 2022
*Totals exclude unspecified mobile telephones
Table 3.1 above illustrates the number of persons who owned mobile telephones by sex in 2016, 2019 and 2022. Of all the 47,7 million persons in 2016 , roughly 31,2 million owned mobile telephones, representing $65,2 \%$. In 2022, the percentage of persons who owned mobile telephones increased by 1,3 percentage points (from $78,2 \%$ in 2019 to $79,5 \%$ in 2022).

In 2022, females who owned mobile telephones increased by 14,4 percentage points (from 66,5\% in 2016 to $80,9 \%$ in 2022) while their male counterparts increased by 14,1 percentage points (from 63,8\% in 2016 to $77,9 \%$ in 2022). Generally, the percentage of females who owned mobile telephones exceeded their male counterparts in the reference period.

Figure 3.1: Percentage of persons who owned mobile telephones by sex and province, 2016, 2019 and 2022


Source: GHS 2016 and 2022
Figure 3.1 shows the percentage of persons who owned mobile telephones by sex and province in South Africa. Nationally, the percentage of females who owned mobile telephones increased from 66,5\% in 2016 to $80,9 \%$ in 2022. A similar pattern was observed among males with an increase of 14,1 percentage points (from $63,8 \%$ in 2016 to $77,9 \%$ in 2022). The percentage of females who owned mobile telephones were generally higher than that of males in all provinces.

The highest increase in males who owned mobile telephones was recorded in Limpopo with 19,9 percentage points (from $57,7 \%$ in 2016 to $77,6 \%$ in 2022). For their female counterparts, mobile telephone ownership in KwaZulu-Natal increased by 18,1 percentage points (from $62,5 \%$ in 2016 to $80,6 \%$ in 2022). Provincial variations showed that Gauteng recorded the lowest percentage increase at 9,2 percentage points in females who owned mobile telephones (from $76,5 \%$ in 2016 to $85,7 \%$ in 2022). For their male counterparts, a similar pattern was observed in Gauteng with a 9,5 percentage point increase (from $75,3 \%$ in 2016 to $84,8 \%$ in 2022).

Table 3.2: Persons who owned mobile telephones by sex and quintiles, 2016 and 2022

| Income quintiles | N ('000) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  | 2022 |  |
|  | Male | Female | Male | Female |
| Quintile 1 | 3181 | 3405 | 3277 | 4011 |
| Quintile 2 | 1844 | 2881 | 2551 | 3632 |
| Quintile 3 | 2398 | 3122 | 3337 | 3976 |
| Quintile 4 | 3253 | 3272 | 4495 | 4264 |
| Quintile 5 | 4190 | 3616 | 5176 | 4734 |
| RSA | 14867 | 16296 | 18835 | 20617 |
|  | Per cent |  |  |  |
| Quintile 1 | 69,7 | 71,8 | 72,1 | 78,5 |
| Quintile 2 | 42,5 | 53,8 | 63,0 | 71,0 |
| Quintile 3 | 52,9 | 59,2 | 72,0 | 78,1 |
| Quintile 4 | 67,7 | 69,4 | 83,4 | 83,9 |
| Quintile 5 | 82,9 | 82,2 | 93,2 | 93,2 |
| RSA | 63,8 | 66,5 | 77,9 | 80,9 |

Source: GHS 2016 and 2022

Table 3.2 illustrates the percentage of persons who owned mobile telephones by sex and quintiles in 2016 and 2022. In 2016, persons in quintile 5 had a high percentage of mobile telephone ownership irrespective of the sex; the same was true in 2022. About 8 in 10 females in quintile 5 ( $82,2 \%$ ) had mobile telephones compared to $71,8 \%$ in quintile 1 in 2016. Even though females had a higher percentage in ownership of mobile telephones in quintile 1 to 4 , males had a higher percentage in quintile 5 ( $82,9 \%$ ) than females ( $82,2 \%$ ). In 2022, there was equality in the ownership of mobile telephones between males and females in quintile $5(93,2 \%)$.

Table 3.3: Percentage share of persons who owned mobile telephones to the share of the population by sex and province, 2022

| Province | Share of total population |  |  | Share of persons owning mobile <br> telephones |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
|  | Male | Female | Both <br> sexes | Male | Female | Both <br> sexes |
|  | 11,5 | 12,0 | 11,8 | 11,7 | 12,0 | 11,9 |
| EC | 10,6 | 10,7 | 10,7 | 8,8 | 9,8 | 9,3 |
| NC | 2,1 | 2,1 | 2,1 | 1,9 | 1,9 | 1,9 |
| FS | 4,9 | 4,9 | 4,9 | 4,5 | 4,7 | 4,7 |
| KZN | 19,0 | 19,5 | 19,3 | 18,1 | 19,3 | 18,7 |
| NW | 6,8 | 6,9 | 6,9 | 6,5 | 6,6 | 6,6 |
| GP | 27,6 | 25,4 | 26,5 | 31,4 | 27,8 | 29,5 |
| MP | 7,9 | 8,0 | 7,9 | 7,9 | 8,1 | 8,0 |
| LP | 9,7 | 10,4 | 10,1 | 9,1 | 9,8 | 9,5 |
| RSA | $\mathbf{1 0 0 , 0}$ | $\mathbf{1 0 0 , 0}$ | $\mathbf{1 0 0 , 0}$ | $\mathbf{1 0 0 , 0}$ | $\mathbf{1 0 0 , 0}$ | $\mathbf{1 0 0 , 0}$ |

Source: GHS 2022

Table 3.3 illustrates the share of persons who owned mobile telephones to the share of the total population by sex across provinces in 2022. The table shows that the distribution of persons who own mobile telephones was proportional to the respective shares of the population in the provinces. Gauteng and KwaZulu-Natal provinces remained the largest contributors in mobile telephone ownership, accounting for 29,5\% and 18,7\% of individuals owning mobile telephones, respectively. The Northern Cape province remained the lowest contributor in mobile telephone ownership with a share of $1,9 \%$.

The share of mobile telephone ownership remained the same for males and females in Northern Cape, with both sexes contributing an equal share of $1,9 \%$. Women were dominating in mobile telephone ownership except for the Gauteng province, where men contributed a share of $31,4 \%$ while women contributed a smaller share of $27,8 \%$ in overall mobile telephone ownership.

Figure 3.2: Percentage of persons who owned mobile telephones by sex of the household head and age group, 2016 and 2022


Source GHS 2016 and 2022
Figure 3.2 above shows the percentage of persons who owned mobile telephones by sex and age group in 2016 and 2022. Both adults and youth recorded a decrease in the reference period regardless of sex. The percentage of male youth declined by 3,8 percentage points from $85,4 \%$ in 2016 to $81,6 \%$ in 2022 , while their counterparts declined by 2,7 percentage points in the same period. Male adults who owned mobile telephones declined slightly from $90,7 \%$ to $89,3 \%$ whereas their female counterparts declined from $92,7 \%$ to $92,3 \%$ between 2016 and 2022. Older persons increased by 1,4 percentage points and 1,5 percentage points in the reference period, for both males and females respectively.
Figure 3.3: Gender parity ratio in mobile telephone access, 2016, 2019 and 2022


Source: GHS 2016, 2019 and 2022
Figure 3.3 depicts the gender parity ratio in mobile telephone access in the reference period. A gender parity ratio (GPR) is a measure of gender equality; i.e. a GPR of 1,0 represents parity (equality), a GPR below 1,0
shows a disparity or a gender gap in favour of males, whereas a GPR of greater than 1,0 shows disparities in favour of females. The figure shows that gender parity was in favour of females for the reference period. The GPR remained stable for the reference period. The GPR remained the same for 2016 and $2019(1,10)$ and narrowed in $2022(1,09)$.

### 3.3 Household access to fixed telephones

In developed countries, there are major differences in the ways in which men and women use ICTs. Women use telephones for longer duration calls and primarily for relationship maintenance or keeping in touch with those close to them while men make fewer calls, spend less time on the phone and use them primarily for instrumental purposes - essentially, to attain an objective ${ }^{13}$. This section explores the gender disparities in fixed telephones, to monitor the gap that exists between the genders by province, metro, employment status and dwelling type. The fixed line market is represented by general stagnation, and penetration has been steadily declining since 2002, when more than a quarter (25,7\%) of South African households had a landline telephone in their homes, falling to $13,1 \%$ in $2013^{14}$.

[^6]Table 3.4: Percentage of households with access to fixed telephones by sex of the household head, 2016, 2019 and 2022

| Sex | N ('000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | No <br> access | Total | Access | access | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total |
| Male | 1063 | 8054 | 9116 | 940 | 9040 | 9980 | 814 | 9868 | 10682 |
| Female | 440 | 6013 | 6452 | 492 | 6687 | 7179 | 518 | 7277 | 7794 |
| Both sexes | 1502 | 14066 | 15569 | 1433 | 15727 | 17159 | 1332 | 17144 | 18476 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 11,7 | 88,4 | 100,0 | 9,4 | 90,6 | 100,0 | 7,6 | 92,4 | 100,0 |
| Female | 6,8 | 93,2 | 100,0 | 6,9 | 93,1 | 100,0 | 6,6 | 93,4 | 100,0 |
| Both sexes | 9,7 | 90,4 | 100,0 | 8,4 | 91,7 | 100,0 | 7,2 | 92,8 | 100,0 |

Source: GHS 2016, 2019, 2022
**Totals exclude unspecified fixed telephones

Table 3.4 displays the percentage of households with access to fixed telephones by sex of the household head in 2016, 2019 and 2022. During this period the overall usage of fixed telephones in households declined from 1,5 million ( $9,7 \%$ ) to 1,3 million ( $7,2 \%$ ) in 2022. Of all the 15,6 million households in $2016,1,5$ million households had access to fixed telephones which represented $9,7 \%$ of the households. In 2019, the households with access to fixed telephones decreased to 1,4 million which represented $8,4 \%$, and further declined to 1,3 million which represented $7,2 \%$ of the households in 2022. In 2022, female-headed households with access to fixed telephones decreased by 0,2 of a percentage point (from 6,8\% in 2016 to $6,6 \%$ in 2022); their male counterparts declined by 4,1 percentage points (from $11,7 \%$ in 2016 to $7,6 \%$ in 2022). While the fixed-line market has been declining consistently, ownership of mobile telephones has increased exponentially. ${ }^{15}$ This reflects the ongoing market shift away from telephony products to mobile telephones, as most people use or have access to internet on their mobile telephones. This is due to ICT's rapid and evolving nature, as people change their preference based on the latest technologies.

[^7]Figure 3.4: Percentage of households with access to fixed telephones by sex of the household head and province, 2016 and 2022


Source: GHS 2016 and 2022

A breakdown of the percentage of households with access to fixed telephones by sex of the household head and province is illustrated in Figure 3.4. The provincial variations reveal that Western Cape, Gauteng and KwaZulu-Natal had the highest percentage of both male- and female-headed households with access to fixed telephones compared to the other provinces in 2016. In 2022, Free State surpassed Gauteng and KwaZuluNatal and was the second province with the highest percentage of households with access to fixed telephones. All nine provinces showed the same pattern as the country, where male-headed households with access to fixed telephones exceeded female-headed households, except in Free State where the opposite was observed. However, male-headed households were in the majority in 2022.

For the reference period, male-headed households in Western Cape had more access to fixed telephones and decreased by 9,0 percentage points (from $24,1 \%$ in 2016 to $15,1 \%$ in 2022) whilst female-headed households decreased by 2,7 percentage points (from $17,7 \%$ in 2016 to $15,0 \%$ in 2022). The largest gender gap was observed in KwaZulu-Natal, where 13,3\% of male-headed households had access to fixed telephones whilst $6,1 \%$ of female-headed households had access in 2016. This gender gap narrowed in 2022. In 2022, the majority of female-headed households in three provinces (Northern Cape, North West and Mpumalanga) had access to fixed telephones than their male counterparts.

Figure 3.5: Percentage of households with access to fixed telephones by sex of the household head and geographical location, 2016 and 2022


Source: GHS 2016 and 2022
Figure 3.5 depicts the percentage of households with access to fixed telephones by sex of the head of the household and geographical location. It was evident that metros had more access to fixed telephones than non-metros. In 2016, male-headed households had more access to fixed telephones than female-headed households for both metros and non-metros. The percentage point difference was 6,2 (17,5\% male-headed and $11,3 \%$ female-headed) in the metros and 2,4 (6,3\% for male-headed and 3,9\% for female-headed) in the non-metros.

In 2022, access to fixed telephones continued to decline for South African households. The male-headed households within the metros declined by 9,1 percentage points (17,5\% in 2016 and $8,4 \%$ in 2022), while access to fixed telephones for female-headed households located in the metros decreased by 3,5 percentage points (from 11,3\% in 2016 to $7,8 \%$ in 2022). For the non-metro areas, access to fixed telephones increased for both sexes.

Figure 3.6: Percentage of households with access to fixed telephones by sex of the household head and dwelling type, 2016 and 2022


Source: GHS 2016 and 2022
Figure 3.6 illustrates the percentage of households with access to fixed telephones by sex of the head of the household and dwelling type. Although households living in formal dwellings had the highest access to fixed telephones for both males and females, a decline was observed for the reference period. On the contrary, the percentage of households with access to fixed telephones residing in traditional and informal dwellings increased for both sexes. The access to fixed telephones for male-headed households in the year 2016 was as follows: $14,5 \%$ in formal dwellings; $1,5 \%$ in informal dwellings; and $1,0 \%$ in traditional dwellings. Access to fixed telephones for female-headed households was as follows: $8,2 \%$ in formal dwellings; $1,2 \%$ in informal dwellings; and $1,0 \%$ in traditional dwellings. For male-headed households and female-headed households, access to fixed telephones in traditional dwellings showed equality (with $1,0 \%$ for 2016 , which increased to $5,1 \%$ for 2022). In 2022, female-headed households who resided in informal dwellings had more access than male-headed households (at 5,5\% and 5,1\% respectively). For formal dwellings, male-headed households had more access than female-headed households with a 1,2 percentage point difference.

Figure 3.7: Gender parity ratio in households with access to fixed telephones by province, 2016, 2019 and 2022


Source: GHS 2016, 2019 and 2022

Figure 3.7 depicts the gender parity ratio (GPR) in households with access to fixed telephones by province for the reference period. The figure depicts a disparity in access to fixed telephones in favour of male-headed households across provinces (from 0,41 in 2016 to 0,52 in 2019 and 0,64 in 2022). The GPR in Western Cape, Eastern Cape, KwaZulu-Natal, Limpopo and Mpumalanga had narrowed between 2016 and 2022. The GPR narrowed for all the provinces, showing that inequalities between female-headed and male-headed households decreased except for Free State.

The GPR for Mpumalanga narrowed from 0,46 in 2016 to 0,91 in 2022, and Eastern Cape narrowed from 0,35 in 2016 to 0,88 in 2022. Between 2016 and 2022, the GPR widened in Free State (from 0,83 in 2016 to 0,61 in 2022) and North West (from 0,46 in 2016 to 0,85 in 2022).

Although the data revealed that there was no change in the gender parity ratio in the Northern Cape province between 2016 and 2019, the GPR narrowed from 0,56 in 2019 to 0,86 in 2022. The GPR for Gauteng narrowed from 0,36 in 2016 to 0,56 in 2019, then widened to 0,51 in 2022. Mpumalanga recorded the smallest gender gap of 0,09 in fixed telephones for 2022.

Figure 3.8: Gender parity ratio in households with access to fixed telephones by geographical location, 2016, 2019 and 2022


Source: GHS 2016, 2019 and 2022
Figure 3.8 depicts the gender parity ratio in households with access to fixed telephones by geographical location in 2016, 2019 and 2022. The figure presents a disparity in access to fixed telephones in favour of male-headed households for both metros and non-metros. However, it can be observed that the gender parity ratio in households with access to fixed telephones in metros narrowed consistently (from 0,38 in 2016 to 0,49 in 2019, then to 0,56 in 2022), indicating that access to fixed telephones by male-headed households declined relative to that of female-headed households. Similarly, the gender parity ratio in households with access to fixed telephones in non-metros narrowed from 0,51 in 2016 to 0,72 in 2022. The smallest gender gap was observed in non-metros (GPR closer to 1 compared to metros) for the reference period.

### 3.4 Households without access to either fixed-line or mobile telephones

The fundamental functioning of a society depends on communication. It establishes connections between individuals and organisations, promoting communication and the exchange of ideas and information as well as coordinating economic growth. When people are too far away to hear each other clearly directly, telephones are a way of communicating that enables two or more people to conduct a conversation. Households without access to a landline or a mobile telephone may find it challenging to stay in touch with friends and family, and will experience communication difficulties. This can cause emotions of loneliness and isolation and can be particularly problematic in emergency situations. Additionally, access to crucial information and opportunities will be restricted as a result.

Figure 3.9: Percentage of households with or without access to fixed telephones and mobile telephones by sex of the household head, 2016 and 2022


Source: GHS 2016 and 2022
Figure 3.9 illustrates the percentage distribution of households with access to fixed telephones and mobile telephones by sex of the household head for 2016 and 2022. The majority of households had access to mobile telephones, followed by those who have both fixed-line and mobile telephone irrespective of the sex of the household head. For the reference period, the percentage of households with no access to either a mobile telephone or fixed-line increased (from $3,4 \%$ in 2016 to $4,1 \%$ in 2022). The proportion of households with access to both fixed and mobile telephones declined by 2,4 percentage points (from $9,5 \%$ in 2016 to $7,1 \%$ in 2022). Male-headed households recorded the highest percentage of households with access to both fixed telephones and mobile telephones in both reported years ( $11,6 \%$ in 2016 and $7,6 \%$ in 2022), showing a decline of 4,0 percentage points. In 2016, $3,4 \%$ of households reported to have no access to any telephony; this increased to $4,1 \%$ in 2022 (an increase of 0,7 of a percentage point for both sexes).

Figure 3.10: Percentage of households with no access to either fixed-line telephones or mobile telephones by sex of the household head and population group, 2016 and 2022


Source: GHS 2016 and 2022

The figure above depicts the percentage distribution of households with no access to either fixed-line telephones or mobile telephones by sex and population group in 2016 and 2022. For the reference period, coloureds had the largest percentage of both male and female heads of households without access to any kind of telephony for both sexes. This percentage was the highest in male-headed households in 2016, while the contrary was observed in 2022. Households headed by whites and Indian/Asian population groups had the lowest percentages of those with no access to either fixed-line or mobile telephones, and the highest proportions were observed in female-headed households in both years. The percentage of households with no access to either fixed-line telephones or mobile telephones increased with 0,8 of a percentage point (from $3,8 \%$ in 2016 to $4,6 \%$ in 2022) amongst black African male-headed households and 0,2 of a percentage point (from 3,1\% in 2016 to 3,4\% in 2022) among female-headed households between 2016 and 2022.

Figure 3.11: Percentage of households with no access to either fixed telephone or mobile telephone by sex of the household head and dwelling type, 2016 and 2022


[^8]Figure 3.11 depicts the percentage distribution of households with no access to either fixed telephone or mobile telephone by sex of the household head and dwelling type in 2016 and 2022. For the reference period, the analysis revealed that there was no significant difference between male- and female-headed households with no access to either fixed telephone or mobile telephone residing in formal dwellings. The same pattern was observed among female-headed households in informal dwellings in 2016. The majority of both male- and female-headed households with no access to either fixed telephone or mobile telephone resided in traditional dwellings. In 2022, male-headed households with no access to either fixed telephone or mobile telephone in traditional dwellings doubled (from $7,2 \%$ in 2016 to $14,5 \%$ in 2022). The same pattern was observed among female-headed households in informal dwellings.

Table 3.5: Percentage of households with no access to either fixed telephone or mobile telephone by sex of the household head and quintiles, 2016 and 2022

| Income quintiles | N ('000) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  | 2022 |  |
|  | Male | Female | Male | Female |
| Quintile 1 | 73 | 51 | 135 | 100 |
| Quintile 2 | 74 | 60 | 94 | 69 |
| Quintile 3 | 114 | 72 | 131 | 80 |
| Quintile 4 | 39 | 10 | 79 | 28 |
| Quintile 5 | 6 | * | 18 | 11 |
| Total | 307 | 194 | 457 | 288 |
| \% |  |  |  |  |
| Quintile 1 | 6,0 | 3,1 | 8,2 | 5,1 |
| Quintile 2 | 5,6 | 3,7 | 5,5 | 3,7 |
| Quintile 3 | 6,7 | 6,0 | 6,5 | 5,1 |
| Quintile 4 | 2,1 | 1,1 | 3,2 | 2,4 |
| Quintile 5 | 0,3 | 0,3 | 0,7 | 1,1 |
| Total | 3,8 | 3,2 | 4,4 | 3,8 |

Source: GHS 2016 and 2022
**Value based on three or less unweighted cases are considered too small to provide accurate estimates, and values are therefore replaced by asterisks.

Table 3.5 illustrates the number of households with no access to either fixed telephone or mobile telephone by sex of the household head and quintiles for 2016 and 2022 . For the reference period, there was a general increase in the number of households with no access to either fixed telephone or mobile telephone for both female- and male-headed households in all the quintiles. The number of households with no access to either fixed telephone or mobile telephone was higher for male-headed households in the bottom three quintiles (quintile 1, 2 and 3) and higher for female-headed households in quintile 3 for 2016, and quintile 3 and 1 for 2022.

The highest increase was recorded in male-headed households in quintile 1 (from 6\% in 2016 to 8,2\% in 2022) and the same was observed in female-headed households (from 3,1\% in 2016 to $5,1 \%$ in 2022). The upper two quintiles (quintile 4 and 5) recorded the lowest percentage of households with no access to either fixed telephone or mobile telephone compared to other quintiles.

Figure 3.12: Percentage of households with no access to either fixed-line telephones or mobile telephones by sex of head of household and geographical location, 2016 and 2022


Source: GHS 2016 and 2022
The figure above shows the percentage of households without access to either fixed-line telephones or mobile telephones by sex of the head of the household and geographical location in 2016 and 2022. The findings show that the highest percentage of households without access to any telephony was recorded in non-metros. The highest percentage of households without access to either fixed-line telephones or mobile telephones headed by males were more likely to be found in non-metro than metro areas. The percentage of male-headed households without access to either fixed-line telephones or mobile telephones in metros increased by 0,4 of a percentage point (from $2,4 \%$ in 2016 to $2,8 \%$ in 2022) and 1,0 percentage point in non-metros (from 4,8\% in 2016 to $5,8 \%$ in 2022), whilst female-headed households increased by 1,6 percentage points in metros (from $1,6 \%$ in 2016 to $3,2 \%$ in 2022) and 0,1 of a percentage point in non-metros (from 4,1\% in 2016 to 4,2\% in 2022) respectively.

Figure 3.13: Gender parity ratio in households with no access to either fixed telephone or mobile telephone by sex and geographical location, 2016, 2019 and 2022


Source: GHS 2016, 2019 and 2022

Figure 3.13 illustrates the gender parity ratio in households with no access to either fixed telephones or mobile telephones by geographical location in 2016, 2019 and 2022. The figure depicts a disparity in households without access to either fixed telephones or mobile telephones in favour of male-headed households across all geographical locations. The findings demonstrate that the gender parity ratio in non-metros widened from 0,72 in 2016 to 0,61 in 2022, indicating that more male-headed households were without access to either fixed or mobile telephones. However, the gender parity ratio in the metros progressed towards parity (from 0,40 in 2016 to 0,53 in 2019 and 0,69 in 2022). Non-metro regions experienced the smallest gender gap of 0,28 in 2016 and the metro regions by 0,31 in 2022.

Figure 3.14: Gender parity ratio in households with no access to either fixed telephone or mobile telephone by sex and province, 2016, 2019 and 2022


Source: GHS 2016, 2019 and 2022
Figure 3.14 depicts the gender parity ratio in households with no access to either fixed telephones or mobile telephones by province for 2016, 2019 and 2022. For the reference period, provincial variations show a disparity in households with no access to either fixed telephones or mobile telephones in favour of men across provinces, except in Limpopo where the opposite was observed in 2016. Limpopo was the only province with a GPR above the parity $(1,23)$ in 2016 , indicating that more female-headed households had no access to either fixed telephones or mobile telephones. Between 2016 and 2019, the gender gap in Western Cape widened (from 0,58 in 2016 to 0,48 in 2019, then narrowed to 0,99 in 2022), and KwaZulu-Natal (from 0,89 in 2016 to 0,54 in 2019, then narrowed to 0,76 in 2022).

Western Cape had a gender equality in households with no access to either fixed telephones or mobile telephones in 2022. The gender gap in Limpopo, Eastern Cape, Northern Cape, Free State, North West, and Mpumalanga widened between 2019 and 2022, where more male-headed households than their female counterparts had no access to either fixed telephones or mobile telephones.

### 3.5 Factors associated with lack of access to mobile telephones or fixed telephones using logistic regression, 2022

This section used logistic regression modelling to investigate factors associated with households without fixed telephones or mobile telephones. The model presents a list of variables hypothesised to be associated with a lack of access to fixed telephones or mobile telephones. Furthermore, due to the report focusing on ICT through a gender lens, the regression model has been subdivided into two groups. The first will be predicting the factors associated with male-headed households while the second will focus on female-headed households.

The odds ratios from the survey results were interpreted as follows:

- $O R<1$ - The likelihood of non-reference occurring is less than the likelihood of reference occurring (reference more likely to occur).
- $O R=1$ - The likelihood of non-reference occurring is the same as the likelihood of reference occurring.
- $O R>1$ - The likelihood of non-reference occurring is more than the likelihood of reference occurring.

Table 3.6: Factors associated with lack of access to mobile telephone or fixed telephone using logistic regression, 2022

| Parameter | $\mathrm{Pr}>$ [t] | Odd ratio | $\mathrm{Pr}>$ [t] | Odd ratio |
| :---: | :---: | :---: | :---: | :---: |
| Model type | Male head |  | Female head |  |
| Intercept | -3,7108 |  | -3,9298 |  |
| Province |  |  |  |  |
| Gauteng (reference category) |  |  |  |  |
| Eastern Cape | <,0001 | 3,497* | 0,1000 | 1,6890 |
| Free State | <,0001 | 3,184* | 0,2779 | 1,4930 |
| KwaZulu-Natal | 0,0035 | 1,951* | 0,3865 | 1,3310 |
| Limpopo | 0,5584 | 1,179 | 0,3226 | 0,7090 |
| Mpumalanga | 0,1198 | 1,505 | 0,0139 | 0,3030* |
| North West | 0,1142 | 1,513 | 0,6330 | 0,8330 |
| Northern Cape | 0,0001 | 2,933* | 0,0183 | 2,3100* |
| Western Cape | 0,1825 | 1,430 | 0,3969 | 1,3810 |
| Age grouping |  |  |  |  |
| Adults (reference category) |  |  |  |  |
| Older persons | 0,0717 | 1,253 | <,0001 | 2,2160* |
| Youth | 0,0947 | 1,233 | 0,2334 | 1,2540 |
| Population group |  |  |  |  |
| Black African (reference category) |  |  |  |  |
| Coloured | 0,0002 | 2,128* | 0,0006 | 2,2760* |
| Indian/Asian | 0,9431 | 1,037 | 0,0742 | 2,3290 |
| White | 0,9417 | 1,045 | 0,1010 | 1,8760 |
| Quintile |  |  |  |  |
| Quintile 2 (reference category) |  |  |  |  |
| Quintile 1 | 0,0049 | 1,553* | 0,0005 | 1,6920* |
| Quintile 3 | 0,1576 | 1,244 | 0,0309 | 1,4000* |
| Quintile 4 | 0,0497 | 0,700* | 0,1244 | 0,6940 |
| Quintile 5 | <,0001 | 0,183* | 0,0052 | 0,2860* |
| Geographical location |  |  |  |  |
| Non-metro (reference category) |  |  |  |  |
| Metro | 0,0151 | 0,701* | 0,1101 | 0,7310 |
| Dwelling type |  |  |  |  |
| Formal (reference category) |  |  |  |  |
| Informal | <,0001 | 2,464* | 0,0005 | 2,1380* |
| Traditional | 0,0004 | 1,985* | 0,0902 | 1,4570 |

* Values are significant at 95\% level of significance

Source: GHS 2022
Generally, male-headed households in the eight other provinces were more likely to have no access to mobile telephones or fixed telephones than male-headed households in Gauteng. The odds of the older persons and youth male-headed households were $25 \%$ and $23 \%$ higher than the odds of adult male-headed households not having a fixed telephone or a mobile telephone. The odds of male-headed coloured, Indian/Asian and white households not having access to fixed telephones or mobile telephones were $2,13,1,04$ and 1,05 times the odds of male-headed black African households. The male-headed households in quintile 4 and 5 were less likely not to have access to fixed telephones or mobile telephones than male-headed households in quintile 2. In the metro regions, male-headed households were 30,0\% less likely to have access to no phones than in the non-metro regions. Those who resided in informal and traditional dwellings and were male-headed households were 2,46 and 1,99 times the odds of not having access to the two devices than those who lived in formal dwellings.

For female-headed households, the odds of having access to neither mobile telephones nor fixed telephones for Eastern Cape, Free State, KwaZulu-Natal, Northern Cape and Western Cape were respectively 1,69, 1,49, $1,33,2,31$ and 1,38 times the odds for Gauteng. Moreover, female-headed households in Limpopo, Mpumalanga and North West were less likely to not have access to telephones or mobile telephones. The odds for older persons and youth female-headed households were $122 \%$ and $25 \%$ higher to have access to neither mobile telephones nor fixed telephones than adult female-headed households. The odds for coloured, Indian/Asian and white households to not have access to mobile telephones nor fixed telephones were respectively $2,28,2,33$ and 1,88 times the odds for black African households. Households in quintile 1 and 3 were more likely to have no access to phones than households in quintile 2 . In the non-metro regions, the odds were $27 \%$ lower than the odds in the metro regions to have no phones. Informal and traditional households were 2,14 and 1,46 times the odds of having access to neither in formal dwelling households.

### 3.6 Conclusion

Generally, there was an increase in mobile telephone ownership from 65,2\% in 2016 to $79,5 \%$ in 2022. Females ( $66,5 \%$ in 2016 and $80,9 \%$ in 2022) had a higher percentage of mobile telephone ownership than their male counterparts ( $63,8 \%$ in 2016 and $77,9 \%$ in 2022). Ownership of mobile telephones was higher amongst persons in the upper income quintiles compared to those in the lower quintiles irrespective of sex. Even though females had a higher percentage of ownership of mobile telephones, males had a higher percentage in quintile 5 ( $82,9 \%$ ) than females ( $82,2 \%$ ). In 2022 , there was equality in the ownership of mobile telephones between males and females in quintile 5 ( $93,2 \%$ ).

Male-headed households recorded the highest percentage of households with access to both fixed telephones and mobile telephones for both reported years (11,7\% in 2016 and $7,6 \%$ in 2022). The percentage of persons with access to mobile telephones was higher amongst females for the reference period. The majority of maleheaded households from the poorest quintile and the second quintile were more likely to have no access to mobile telephones than their female counterparts in both reported years, and were more likely to be found in non-metro than metro areas. There were more male-headed households without access to either a fixed telephone or mobile telephone than female-headed households.

Households in the Northern Cape province were more likely to lack access to either fixed or mobile telephones than households in the Gauteng province, while male-headed households in the Eastern Cape, Free State and KwaZulu-Natal were more likely to lack access to either form of telephone than male-headed households in the Gauteng province. Female-headed households in Mpumalanga were less likely to lack access to either form of telephone than female-headed households in Gauteng. Households headed by female older persons were more likely to lack access to either fixed or mobile telephones than households headed by female adult persons. Coloured households were more likely to lack access to either fixed or mobile telephones than black African households.

Households in quintiles 1 were more likely than households in quintile 2 to lack access to either fixed or mobile telephones, while households in quintile 5 were less likely to lack access than households in quintile 2. Femaleheaded households in quintiles 3 were more likely than female-headed households in quintile 2 to lack access, while male-headed households in quintile 4 were less likely to lack access to either fixed or mobile telephones than male-headed households in quintile 2. Male-headed households in metro areas were less likely to be without access to either fixed or mobile telephones than male-headed households in non-metro areas. Households residing in informal dwellings were more likely to be without access to either fixed or mobile telephones than households residing in formal dwellings, while male-headed households residing in traditional dwellings were more likely to be without access to either fixed or mobile telephones than male-headed households residing in formal dwellings.

## CHAPTER 4: ACCESS TO INTERNET

### 4.1 Introduction

Internet connectivity empowers daily communication as it enables connection and transferring of information between individuals and households for work, school and socialising purposes. The internet is a source of limitless opportunities for professional growth, the creation of value and personal indulgence. Internet connectivity accelerated during the COVID-19 pandemic. According to the International Telecommunication Union, $63,0 \%$ of the population in 2020 were connected to the internet in comparison to $54,0 \%$ in $2019 .{ }^{16}$ In terms of the gender digital divide index which looked at internet accessibility, coverage and affordability, South Africa is ranked 5th in a report compiled by DAKA advisory and Women In Digital Transformation. ${ }^{17}$

Internet connectivity has been shown as an important tool to empower women as the world is moving towards gender equality. Globally, the gender gap has increased from 2013 to 2017, showing that in 2017 about 250 million women were not connected to the internet. The gender gap in internet access has shown a sustainable increase in developing countries. ${ }^{18}$ While the use of devices and the internet is the most widely acknowledged method of evaluating basic access, it tends to neglect power dynamics that may disadvantage women in particular. It is critical to define "access" in terms of ownership, control, and use. ${ }^{19} \mathrm{~A}$ crucial step towards achieving women's full involvement in the digital economy and society is ensuring that women have equal access to and use of digital payments. ${ }^{20}$ This chapter looks into internet connectivity by households through a gender lens using data from the General Household Survey 2016, 2019 and 2022.

### 4.2 Access to internet connection by households

Information and communication technology (ICT) is widely used for economic growth and social development in the livelihood of individuals and households. Even though ICT is viewed as one of the main tools to bring empowerment and development, access and use of technologies is limited to income and extended to literacy, education, location and age. ${ }^{21}$ In many countries, internet usage by women are said to be limited to educated ones residing in urban areas. ${ }^{22}$ The majority of households and individuals have access to internet daily, although there is a difference between internet use and access. Internet access means having permission to connect to the internet using mobile devices and other technological tools that enable internet connectivity. Internet use means the ability to communicate, share and access information at a small or larger distance. The internet can be accessed through a variety of means such as fixed lines, WIFI and mobile internet devices. Within sub-Saharan African countries, South Africa is frequently regarded as the most information integrated country due to extensive mobile device access. ${ }^{23}$ Mobile devices and internet connection are important tools to empower women to participate in different aspects of life. According to the ITU statistics on internet use in urban and rural areas in 2020, $50,0 \%$ of individuals in urban areas use internet and only $15 \%$ in rural areas use internet.

[^9]The relationship between technology and women's rights is interlinked with SDG 5 (gender equality), which includes a specific focus on employing technology and ICT to realise women's and girls' empowerment. ${ }^{24}$ Realising gender equality goes beyond any single or personal goal. It is critical to ensure that no one is left behind and essential to the achievement of each and every SDG goal. In South Africa, females are economically disadvantaged and have limited access to information and communication technology. ${ }^{25}$ The ICT sector is one of the sectors where women, marginalised and vulnerable groups are discriminated against, i.e. youth and persons with disabilities. A lot of improvement is required to ensure that these groups are granted opportunities within this sector. It is important to further develop digital tools and information and ensure accessibility by everyone to help bridge gender gaps.

Map 4.1: Percentage of households with access to internet by province, 2022


Source: GHS 2022

Map 4.1 shows the percentage of households with access to the internet by province, in 2022. Western Cape had the highest percentage of households with access to the internet, followed by Gauteng with $80,0 \%$, while Limpopo province had the lowest percentage of households with access to the internet, at $62,2 \%$.

[^10]Table 4.1: Percentage of households with access to internet by sex of the household head, 2016 and 2022

| Sex | N ('000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \\ \hline \end{array}$ | Total |
| Male | 5630 | 3589 | 9218 | 6384 | 3598 | 9982 | 8031 | 2652 | 10683 |
| Female | 3780 | 2745 | 6525 | 4472 | 2709 | 7181 | 5881 | 1913 | 7794 |
| Both sexes | 9410 | 6334 | 15744 | 10856 | 6307 | 17163 | 13912 | 4565 | 18477 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 61,1 | 38,9 | 100,0 | 64,0 | 36,0 | 100,0 | 75,2 | 24,8 | 100,0 |
| Female | 57,9 | 42,1 | 100,0 | 62,3 | 37,7 | 100,0 | 75,5 | 24,5 | 100,0 |
| Both sexes | 59,8 | 40,2 | 100,0 | 63,3 | 36,7 | 100,0 | 75,3 | 24,7 | 100,0 |

Source: GHS 2016, 2019 and 2022
In 2016, 9,4 million households (59,8\%) had access to the internet. Among those, the majority of male-headed households (61,1\%) had internet connection while $57,9 \%$ of female-headed households had access to the internet. In 2022, a significant increase in internet connectivity was observed, where $75,2 \%$ of male-headed households and $75,5 \%$ of female-headed households had access to the internet. However, according to the data, females were more likely to reside in households with internet connection, slightly exceeding males in both years.

Figure 4.1: Percentage of households with access to internet by sex of head of household and geographical location, 2016 and 2022


Source: GHS 2016 and 2022
Figure 4.1 illustrates the percentage of household with access to the internet by sex of the head of the household and geographical location, 2016 and 2022. Internet access for households headed by both sexes has been increasing over the reference period. Male-headed households' internet connection in metros increased by 12,8 percentage points (from $70,4 \%$ in 2016 to $83,2 \%$ in 2022 ) and 14,9 percentage points (from $52,5 \%$ in 2016 to $67,4 \%$ in 2022) in non-metros. Female-headed household in metros' internet connection increased by 12,4 percentage points (from $70,2 \%$ in 2016 to $82,6 \%$ in 2022) and 20,7 percentage points (from $49,8 \%$ in 2016 to $70,5 \%$ in 2022) in non-metros. Male-headed households were more likely to have internet connection than female-headed households in metros for both years.

Figure 4.2: Percentage of households with access to internet by sex of household head and province, 2016 and 2022


Source: GHS 2016 and 2022.
Figure 4.2 shows the percentage of households with access to the internet by sex of the household head and province for 2016 and 2022. Provincial analysis revealed that Gauteng had the most households with internet connection, followed by Western Cape regardless of gender in 2016. However, in 2022 Western Cape had the most households with internet access, followed by Gauteng irrespective of gender. Households with the least internet connection were in Limpopo and Eastern Cape. Gender equality in internet connection was observed in Gauteng and Western Cape in 2016. The analysis shows that in 2022, female-headed households (75,5\%) and male-headed households almost reached gender equality (75,2\%). In Gauteng, female-headed households were more likely to have internet connection (81,0\%) than male-headed households (79,5\%). In 2022, female-headed households had more internet connection than male-headed households.

Figure 4.3: Percentage of households with access to internet by sex of household head and province, 2016 and 2022


Source: GHS 2016 and 2022
Figure 4.3 above shows the percentage of households with access to internet by age group and sex of the household head between 2016 and 2022. The youth-headed households had more access to internet than the adult and older persons-headed households throughout the reported years. There was an increase in internet access amongst all the age groups regardless of the sex of the household head for the reference period. Older persons male-headed households had more access to internet than their female counterparts. Youth maleheaded households had more access to internet in 2016 than their female counterparts, however, in 2022 the female headed households had more access.

The adult female-headed households recorded an increase of 18,6 percentage points (from 60,6\% in 2016 and $79,2 \%$ in 2022) in access to internet. While their male counterparts recorded an increase of 14 percentage points (from 61,9\% in 2016 to $75,9 \%$ in 2022).

Figure 4.4: Percentage of households with access to internet using different services, 2016 and 2022


Source: GHS 2016 and 2022

Figure 4.4 displays the percentage of households with access to internet using different services in 2016 and 2022. Communication plays a significant role in the operation of society. It connects people and businesses, promoting communication and the exchange of ideas and information, as well as coordinating economic operations and development. More than 50,0\% of households used mobile devices to access internet services for both male- and female-headed households in 2016. In 2016, male-headed households were more likely to access the internet at home and at work than their female counterparts. Female-headed households were more likely to access the internet at an internet café or educational institution than their male counterparts.

### 4.3 Factors associated with lack of access to the internet using logistic regression, 2022

This section used logistic regression modelling to investigate factors associated with households' lack of access to the internet. The model presents a list of variables thought to be linked to a lack of internet access. Furthermore, due to the report focusing on ICT through a gender lens, the regression model has been subdivided into two groups. The first will be predicting the factors associated with male-headed households while the second will focus on female-headed households.

Table 4.2: Factors associated with lack of access to the internet using logistic regression, 2022

| Parameter | $\mathrm{Pr}>$ [ t$]$ | Odd ratio | $\mathrm{Pr}>[\mathrm{t}]$ | Odd ratio |
| :---: | :---: | :---: | :---: | :---: |
| Model type | Male head |  | Female head |  |
| Intercept | -0,6018 |  | -1,5351 |  |
| Province |  |  |  |  |
| Gauteng (reference category) |  |  |  |  |
| Eastern Cape | 0,6039 | 1,06 | 0,1298 | 1,226 |
| Free State | 0,267 | 0,854 | 0,2533 | 1,19 |
| KwaZulu-Natal | 0,4642 | 0,924 | 0,4401 | 0,9 |
| Limpopo | 0,0129 | 1,361* | <,0001 | 1,778* |
| Mpumalanga | <,0001 | 0,541* | 0,2469 | 0,834 |
| North West | 0,831 | 0,972 | 0,4256 | 1,146 |
| Northern Cape | 0,4642 | 0,879 | 0,1985 | 1,262 |
| Western Cape | 0,0031 | 0,654* | 0,085 | 0,746 |
| Age grouping |  |  |  |  |
| Adults (reference category) |  |  |  |  |
| Older persons | <,0001 | 1,754* | <,0001 | 2,359* |
| Youth | <,0001 | 0,671* | 0,3226 | 0,91 |
| Population group |  |  |  |  |
| Black African (reference category) |  |  |  |  |
| Coloured | 0,3531 | 0,884 | 0,0011 | 1,63* |
| Indian/Asian | 0,0052 | 0,435* | 0,6263 | 1,185 |
| White | <,0001 | 0,322* | 0,8301 | 0,949 |
| Quintile |  |  |  |  |
| Quintile 2 (reference category) |  |  |  |  |
| Quintile 1 | <,0001 | 1,44* | <,0001 | 1,694* |
| Quintile 3 | 0,0034 | 1,238* | 0,0002 | 1,346* |
| Quintile 4 | 0,0007 | 0,752* | <,0001 | 0,623* |
| Quintile 5 | <,0001 | 0,219* | <,0001 | 0,274* |
| Geographical location |  |  |  |  |
| Non-metro (reference category) |  |  |  |  |
| Metro | <,0001 | 0,497* | 0,0004 | 0,705* |
| Dwelling type |  |  |  |  |
| Formal (reference category) |  |  |  |  |
| Informal | <,0001 | 2,027* | <,0001 | 1,951* |
| Traditional | <,0001 | 2,024* | <,0001 | 2,713* |

* Values are significant at 95\% level of significance

Source: GHS 2022

Table 4.3 shows the results from the logistic regression which has the estimates and odds ratio from maleheaded households as well as female-headed households.

The probability that a male-headed household does not have internet access is 0,354 when all the predictor variables are equal to zero (i.e. when the head of the household is a black African adult living in a formal dwelling unit in Gauteng and in quintile 2.

$$
\mathrm{P}_{\text {male }}=\frac{\mathrm{e}^{-0,6018}}{1+\mathrm{e}^{-0,6018}}=0,354
$$

When all the predictor variables are zero (i.e. when the head of the household is a black African adult living in a formal dwelling unit in Gauteng and in quintile 2 , there is a 0,177 probability that the household headed by a woman does not have access to the internet.

$$
\mathrm{P}_{\text {female }}=\frac{\mathrm{e}^{-1,5351}}{1+\mathrm{e}^{-1,5351}}=0,177
$$

According to the model, male-headed households living in the Eastern Cape or Limpopo were respectively 1,06 and 1,361 times more likely to lack access to the internet than those in Gauteng. However, due to the insignificant p-value for the Eastern Cape there was no significant difference in the likelihood of male-headed households lacking internet access between the Eastern Cape and Gauteng. On the other hand, femaleheaded households living in the Eastern Cape or Limpopo were more likely to lack access to the internet than households in Gauteng. However, the likelihood of female-headed households in Gauteng and the Eastern Cape lacking internet access was not significantly different.

Male-headed households in the Western Cape were less likely to not have access to the internet than those in Gauteng. A similar pattern was observed for female-headed households in the Western Cape, however, there was no conclusive significant difference between female-headed households in the Western Cape and Gauteng not having access to the internet.

The odds of male-headed households aged 60 and above, not having access to the internet were $75,4 \%$ higher than the odds of adult male-headed households. Similarly, the odds of elderly female-headed households not having access to the internet were 135,9\% higher than the odds of adult female-headed households.

According to the model for male-headed households, the likelihood of Indian/Asian and white households not having access to the internet was lower than the likelihood of black African households. On the other hand, a similar pattern was observed for female-headed households. Both models (male-headed and female-headed households) show that households in quintiles 1 and 3 were more likely to not have access to the internet compared to households in quintile 2. In contrast, households in quintiles 4 and 5 were less likely to not have access to the internet compared to households in quintile 2.

For both male-headed and female-headed households, the likelihood of not having internet access in a metro area was lower than the likelihood of a household in a non-metro area. Households who resided in traditional and informal dwellings were more likely to lack access to the internet than those in formal dwellings, irrespective of the gender of the head of the household.

### 4.4 Conclusion

Internet access for households headed by both males and females have been consistently increasing during the reference period. Female-headed households were more likely to have internet connection than maleheaded households in both the metros and non-metros. The factors associated with lack of access to internet reflected that households in Limpopo were more likely to lack internet access than households in Gauteng. In addition, male-headed households in Mpumalanga and Western Cape were less likely to lack internet access than male-headed households in Gauteng. Households with people aged 60 and above were more likely to lack internet access than adult-headed households while youth male-headed households were less likely to lack internet access than adult male-headed households. Female-headed households for the coloured population were more likely to lack internet access than female-headed households for the black African population, whereas male-headed households for the Indian/Asian and white populations were less likely to lack internet access than male-headed households for black Africans.

Households in quintiles 1 and 3 were more likely than households in quintile 2 to lack internet access, whereas households in quintiles 4 and 5 were less likely than households in quintile 2. Households in metro areas were less likely to be without internet access than households in non-metro areas, whereas households in formal and traditional houses were more likely to be without internet access than households in informal dwellings.

## CHAPTER 5: ACCESS TO ICT ASSETS

### 5.1 Introduction

Assets are properties owned by an individual or a household. Technological enhancements and improved access to new technologies, such as fast-computing and high-speed affordable communications and other computational applications and sciences play a role in influencing different areas such as finance, education, businesses and the economy. According to the General Household Survey report in 2021, 87,3\% of the population owned televisions and $60,8 \%$ owned paid TV (DStv, MNet-subscriptions and top-TV). In this section, we looked at household access to computers, televisions and radios.

Computers are crucial productivity tools that simplify a range of communication-related tasks. Therefore, the extent to which households may utilise ICT for their benefit can grow in proportion to the availability of computers. COVID-19 has also proven that access to and usage of a computer is vital, hence people managed to work from home, produce and operate businesses. To date, some organisations still allow their employees to work from home or remotely from time to time. Computers in communication play a significant role and are also the centrepieces of information technology. It is one of the enabling tools for accessing technology. This chapter analyses the data on ICT assets such as a computer, radio and television using the GHS 2016, 2019 and 2022.

### 5.2 Households access to computers

Household computers are utilised for various functions such as online bill payment, in-home movie or television viewing, in-home tutoring, social media access, gaming and internet access, among others. They also offer email as a means of communication, and offer corporate employees the option of working from home.

Map 5.1: Households with access to computers by province, 2022


Source: GHS 2022

Map 5.1 shows the proportion of households with access to computers by province, in 2022. Western Cape had the highest proportion at $41,0 \%$, followed by Gauteng with $33,7 \%$; the lowest proportions were recorded in Eastern Cape at 15,1\% and Limpopo at 16,9\%.

Table 5.1: Percentage of households with access to computers by sex of the household head, 2016, 2019 and 2022

| Sex | N' (000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | No access | Total | Access | $\begin{array}{r} \mathrm{No} \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total |
| Male | 2374 | 6744 | 9118 | 2624 | 7355 | 9979 | 3098 | 7581 | 10679 |
| Female | 1009 | 5462 | 6471 | 1274 | 5905 | 7179 | 1638 | 6156 | 7794 |
| Total | 3383 | 12206 | 15589 | 3898 | 13260 | 17158 | 4735 | 13738 | 18473 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 26,0 | 74,0 | 100,0 | 26,3 | 73,7 | 100,0 | 29,0 | 71,0 | 100,0 |
| Female | 15,6 | 84,4 | 100,0 | 17,7 | 82,3 | 100,0 | 21,0 | 79,0 | 100,0 |
| Total | 21,7 | 78,3 | 100,0 | 22,7 | 77,3 | 100,0 | 25,6 | 74,4 | 100,0 |

Source: GHS 2016, 2019 and 2022
**Totals exclude unspecified computers

The above table illustrates the percentage share of households with access to a computer by sex of the household head for 2016, 2019 and 2022. The number of households with access to a computer increased by 1,3 million (from 3,4 million in 2016 to 4,7 million in 2022), representing $21,7 \%$ and $25,6 \%$ respectively. Overall, there was a consistent increase in the percentage of households with access to computers among both males and females in the reference period.

Looking at the differences by headship, access to a computer by female-headed households increased by 5,4 percentage points (from $26,0 \%$ in 2016 to $29,0 \%$ in 2022) while male-headed households increased by 3,0 percentage points (from $15,6 \%$ in 2016 to $21,0 \%$ in 2022). The availability of a computer within the household plays a dynamic role as each member of the household is able to utilise it for their benefit as well as the benefit of the household.

Figure 5.1: Percentage of households with access to computers by province and sex of the household head, 2016 and 2022


[^11]Figure 5.1 depicts the percentage of households with access to computers by province and sex of the household head between 2016 and 2022. All the provinces recorded an increase in access to computers for both male- and female-headed households, except in Mpumalanga where male-headed households recorded a decline of 1,0 percentage point (from $21,7 \%$ in 2016 to $20,7 \%$ in 2022). In 2016, 39,3\% of male-headed households in Western Cape had access to a computer and increased to 45,3\% in 2022. Although Northern Cape is the least populous province, it was observed that $15,1 \%$ of female-headed household had access to computers in 2016 and increased by 4,0 percentage points to 19,1\% in 2022.

Figure 5.2: Percentage of households with access to computers by population group and sex of household head, 2016 and 2022


Source: GHS 2016 and 2022
Figure 5.2 above demonstrates the percentage of households with access to computers by population group and the sex of the household head. Black African female-headed households increased by 5,3 percentage points (from 11,1\% in 2016 to $16,4 \%$ in 2022) whilst black African male-headed households increased by 3,4 percentage points (from $16,7 \%$ in 2016 to $20,1 \%$ in 2022). The Indian/Asian population shows an improvement in households with access to a computer for both sexes at 16,1 percentage points for male-headed households and 23,4 percentage points for female-headed households for the reference period. Three-quarters of maleheaded households for the white population group had access to computers in 2016 and increased to 80,7\% in 2022, while their female counterparts improved from 62,1\% in 2016 to $70,0 \%$ in 2022. This analysis reveals that the majority of the white and Indian/Asian population households had access to a computer compared to other population groups.

Figure 5.3: Percentage of households with access to computers by sex and age group of household head, 2016 and 2022


Source: GHS 2016 and 2022
Figure 5.3 above depicts the percentage of households with access to computer by age group and sex of the household head between 2016 and 2022. Older persons male-headed households had more computer access than youth and adults' male-headed households in 2016. However, in female-headed households, the adults had more access than youth and older persons. Adults' male-headed households had higher computer access than youth and older persons-headed households. During the reference period, there was an increase in computer access amongst all the age groups. The adult male-headed households recorded an increase of 4,0 percentage points in access to computer (from 27,6 in 2016 and 31,6 in 2022). The youth female-headed households computer access increased from 15,0\% in 2016 to 21,0\% in 2022.

Table 5.2: Percentage of households with access to computers by quintiles and sex of the household head, 2016 and 2022

| Income quintiles | N('000) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2022 |  |  |
|  | Male | Female | Both sexes | Male | Female | Both sexes |
| Quintile 1 | 113 | 96 | 209 | 149 | 128 | 277 |
| Quintile 2 | 101 | 91 | 192 | 171 | 169 | 340 |
| Quintile 3 | 180 | 96 | 276 | 290 | 247 | 537 |
| Quintile 4 | 371 | 178 | 549 | 628 | 336 | 964 |
| Quintile 5 | 1179 | 419 | 1598 | 1727 | 685 | 2412 |
| Total | 1944 | 880 | 2824 | 2965 | 1565 | 4530 |
|  | Per cent |  |  |  |  |  |
| Quintile 1 | 5,8 | 10,9 | 7,4 | 5,0 | 8,2 | 6,1 |
| Quintile 2 | 5,2 | 10,4 | 6,8 | 5,8 | 10,8 | 7,5 |
| Quintile 3 | 9,2 | 10,9 | 9,8 | 9,8 | 15,8 | 11,9 |
| Quintile 4 | 19,1 | 20,2 | 19,4 | 21,2 | 21,5 | 21,3 |
| Quintile 5 | 60,6 | 47,6 | 56,6 | 58,3 | 43,8 | 53,2 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

Source: GHS 2016 and 2022
**Please note that figures exclude those unspecified household income, meaning the ones who did not respond in the survey.
As depicted in the table above, the percentage of households with access to a computer differs across the quintiles. The analysis revealed that households in the wealthiest quintile (quintile 5) had a high percentage of access to a computer compared to the other quintiles. For the reference period, quintile 1 and 5 recorded a decrease in the percentage of households with access to computers. The percentage of households with access to a computer in the poorest quintile (quintile 1) decreased by 1,3 percentage points (from $7,4 \%$ in 2016 to $6,1 \%$ in 2022) while those in quintile 5 decreased by 3,4 percentage points (from $56,6 \%$ in 2016 to 53,2\% in 2022).

### 5.3 Household ownership of a radio

Radio is the technology of signalling and communicating using radio waves. ${ }^{26}$ In the past, radio played a significant role and the majority of households had access to it, because a radio was portable, cheaper compared to television. Households were able to be informed and get better communication regarding their surroundings and life in general through the radio. Nonetheless, with years advancing and emerging technology, individuals are able to access radio on their mobile telephone, in the car or on DStv rather than owning a radio as a stand-alone asset. However, the GHS asked households if they own a radio which they define as a stand-alone device capable of receiving broadcast radio signals, using common frequencies.

Table 5.3: Percentage of households who own a radio by sex of the household head, 2016, 2019 and 2022

| Sex | N ('000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total |
| Male | 5221 | 3908 | 9129 | 3819 | 6159 | 9979 | 3828 | 6851 | 10679 |
| Female | 3449 | 3027 | 6476 | 2510 | 4669 | 7179 | 2457 | 5337 | 7794 |
| Total | 8670 | 6935 | 15605 | 6329 | 10829 | 17158 | 6285 | 12188 | 18473 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 57,2 | 42,8 | 100,0 | 38,3 | 61,7 | 100,0 | 35,9 | 64,2 | 100,0 |
| Female | 53,3 | 46,7 | 100,0 | 35,0 | 65,0 | 100,0 | 31,5 | 68,5 | 100,0 |
| Total | 55,6 | 44,4 | 100,0 | 36,9 | 63,1 | 100,0 | 34,0 | 66,0 | 100,0 |

Source: GHS 2016, 2019 and 2022
**Totals exclude unspecified radio

The above table summarises households with radio ownership by sex of the household head for 2016, 2019 and 2022. Nationally, radio ownership within households declined consistently over the reference period. In 2016, the majority of households had access to radios compared to those without access while the opposite was observed from 2019 to 2022. Radio ownership declined from 8,7 million households ( $55,6 \%$ ) in 2016 to 6,3 million households (34,0\%) in 2022.

[^12]Figure 5.4: Percentage of households who own a radio by sex of the household head and province, 2016 and 2022


Source: GHS 2016 and 2022
Figure 5.4 above shows the percentage of households who own a radio by province and sex of the household head in 2016 and 2022. Generally, radio ownership declined for both male- and female-headed households for the reference period. Both male- and female-headed households showed a decline of 21,4 percentage points and 21,8 percentage points respectively in 2022. The provincial differences reveal that Free State had the highest percentage of households with radio ownership (64,9\% for male-headed households and 63,8\% for female-headed households), followed by KwaZulu-Natal (63,2\% for male-headed households and 56,8\% for female- headed households) in 2016. In 2022, KwaZulu-Natal surpassed Free State and had the highest percentage of both male- and female-headed households with access to a radio. Mpumalanga and Limpopo showed the lowest percentage of female-headed households with radio ownership with $22,3 \%$ and $22,7 \%$ respectively in 2022.

Table 5.4: Percentage of households who own a radio by quintiles and sex of the household head, 2016 and 2022

| Income quintiles | N ('000) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2022 |  |  |
|  | Male | Female | Both sexes | Male | Female | Both sexes |
| Quintile 1 | 629 | 789 | 1418 | 505 | 529 | 1034 |
| Quintile 2 | 765 | 835 | 1600 | 598 | 633 | 1231 |
| Quintile 3 | 930 | 641 | 1571 | 707 | 490 | 1197 |
| Quintile 4 | 1060 | 509 | 1569 | 817 | 377 | 1194 |
| Quintile 5 | 1277 | 492 | 1769 | 1078 | 386 | 1464 |
| Total | 4661 | 3266 | 7927 | 3705 | 2414 | 6119 |
|  | Per cent |  |  |  |  |  |
| Quintile 1 | 13,5 | 24,2 | 17,9 | 13,6 | 21,9 | 16,9 |
| Quintile 2 | 16,4 | 25,6 | 20,2 | 16,1 | 26,2 | 20,1 |
| Quintile 3 | 20,0 | 19,6 | 19,8 | 19,1 | 20,3 | 19,6 |
| Quintile 4 | 22,7 | 15,6 | 19,8 | 22,1 | 15,6 | 19,5 |
| Quintile 5 | 27,4 | 15,1 | 22,3 | 29,1 | 16,0 | 23,9 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

Source: GHS 2016 and 2022
${ }^{* *}$ Figures exclude those unspecified household income, meaning the ones who did not respond in the survey

The above table illustrates the ownership of a radio in the household by quintiles and sex of the household head for 2016 and 2022. Approximately $27,4 \%$ of male-headed households who own radios were in quintile 5 while female-headed household accounted for $15,1 \%$ of radio ownership in 2016.

In 2022, a higher percentage of female-headed households in quintile 1 to 3 were more likely to own a radio than their male counterparts. For quintile 4 and 5 , the ownership of a radio was higher among male-headed households.

Figure 5.5: Percentage of households who own a radio by population group and sex of the household head, 2016 and 2022


Source: GHS 2016 and 2022
Figure 5.5 above depicts household ownership of a radio across the various population groups and sex of the household head. Black African female-headed households showed a decline of 20,7 percentage points (from $51,3 \%$ in 2016 to $30,6 \%$ in 2022), whereas coloured female-headed households declined by 21,9 percentage points (from $54,6 \%$ in 2016 to $32,7 \%$ in 2022). For male-headed households, the white and Indian/Asian population groups showed the highest percentage decrease of radio ownership (22,9\% and 19,7\% percentage points respectively).

### 5.4 Household access to television

Broadcast television is a means of delivering radio waves from transmitters to antenna receivers, which produces visual images on a television set for viewers to tune into. They are governed by television stations, which provide a number of independent channels with varying frequencies. ${ }^{27}$ Broadcast television includes all shows that are broadcasted to viewers who have tuned in to the right channel and is effectively used for marketing and advertising. ${ }^{28}$ Television has become part of entertainment during family time; through this it has become the source of information about attitudes and behaviour. By allowing the repetitive messages from TV in your home, it is believed that it can change an individual's assumptions, beliefs and values.

[^13]Table 5.5: Percentage of households who owned televisions by sex of household head, 2016, 2019 and 2022

| Sex | N ('000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | $\begin{array}{r} \mathrm{No} \\ \text { access } \\ \hline \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \\ \hline \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total |
| Male | 7410 | 1719 | 9129 | 8028 | 1951 | 9979 | 8537 | 2142 | 10679 |
| Female | 5285 | 1183 | 6468 | 5997 | 1182 | 7179 | 6518 | 1276 | 7794 |
| Total | 12695 | 2903 | 15597 | 14024 | 3134 | 17158 | 15055 | 3418 | 18473 |
| Per cent |  |  |  |  |  |  |  |  |  |
| Male | 81,2 | 18,8 | 100,0 | 80,4 | 19,6 | 100,0 | 79,7 | 20,1 | 100,0 |
| Female | 81,7 | 18,3 | 100,0 | 83,5 | 16,5 | 100,0 | 83,6 | 16,4 | 100,0 |
| Total | 81,4 | 18,6 | 100,0 | 81,7 | 18,3 | 100,0 | 81,5 | 18,5 | 100,0 |

Source: GHS 2016, 2019 and 2022
**Totals exclude unspecified television

Table 5.5 demonstrates the percentage of households who owned televisions by sex of the household head for 2016, 2019 and 2022. Generally, the majority of households in South Africa owned televisions irrespective of the sex of the household head in both years. The analysis showed that out of 15,6 million households, 12,7 million $(81,4 \%)$ had access in 2016 . The percentage of female-headed households with access to a television increased over time while the contrary was observed for males.

Figure 5.6: Percentage of households who owned televisions by sex of household head and province, 2016 and 2022


Source: GHS 2016 and 2022

Figure 5.6 shows the percentage of households who owned televisions by sex of the household head and province, 2016 and 2022. The ownership of a television among female-headed households increased from $81,7 \%$ in 2016 to $83,6 \%$ in 2022 while the contrary was observed for male-headed households (dropped from $81,2 \%$ to $79,9 \%$ ). Between 2016 and 2022, the majority of households headed by both males and females owned televisions in Western Cape, followed by Gauteng, Free State and Mpumalanga. In 2016, femaleheaded households dominated in television ownership in seven provinces, except in Eastern Cape and KwaZulu-Natal. In 2022, Northern Cape was the only province where television ownership was dominated by male-headed households with a slight difference of 0,6 of a percentage point compared to female-headed households. In 2022, female-headed households were more likely to own a television than male-headed households.

Figure 5.7: Percentage of households who owned televisions by sex and population group of the household head, 2019 and 2022


Source: GHS 2016 and 2022

Figure 5.7 shows the percentage of households who owned televisions by sex of the household head and population group in 2016 and 2022. In 2016, Indian/Asian and white male-headed households reached equity in television ownership ( $97,2 \%$ ), while Indian/Asian female-headed households exceeded the male-headed households with 0,2 of a percentage point, almost reaching gender equality. White male-headed households exceeded female-headed households with 1,0 percentage point in 2016. Black African households were less likely to own a television compared to other population groups and South Africa. Male-headed households among black Africans recorded a decline in television ownership while the contrary was observed for their female counterparts. Between 2016 and 2022, all four population groups recorded a decline in male-headed households who owned a television, while black African and coloured households recorded an increase in female-headed households who owned a television.

Table 5.6: Percentage of households who owned televisions by sex of the household head and quintiles, 2016 and 2022

| Income quintiles | N ('000) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2022 |  |  |
|  | Male | Female | Both sexes | Male | Female | Both sexes |
| Quintile 1 | 904 | 1255 | 2159 | 1083 | 1439 | 2522 |
| Quintile 2 | 1007 | 1281 | 2288 | 1314 | 1588 | 2902 |
| Quintile 3 | 1285 | 950 | 2235 | 1546 | 1321 | 2867 |
| Quintile 4 | 1501 | 763 | 2264 | 1973 | 1056 | 3029 |
| Quintile 5 | 1887 | 732 | 2619 | 2389 | 975 | 3364 |
| Total | 6584 | 4982 | 11566 | 8305 | 6378 | 14683 |
| Per cent |  |  |  |  |  |  |
| Quintile 1 | 13,7 | 25,2 | 18,7 | 13,0 | 22,6 | 17,2 |
| Quintile 2 | 15,3 | 25,7 | 19,8 | 15,8 | 24,9 | 19,8 |
| Quintile 3 | 19,5 | 19,1 | 19,3 | 18,6 | 20,7 | 19,5 |
| Quintile 4 | 22,8 | 15,3 | 19,6 | 23,8 | 16,6 | 20,6 |
| Quintile 5 | 28,7 | 14,7 | 22,6 | 28,8 | 15,3 | 22,9 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

Source: GHS 2016 and 2022
*Totals exclude unspecified household income

Table 5.6 depicts the percentage of households who owned televisions by sex of the household head and quintiles for 2016 and 2022. In 2016, the wealthiest male-headed households owned more televisions in comparison to male-headed households in other quintiles. The wealthiest female-headed households were less likely to own televisions in comparison to female-headed households in other quintiles, while femaleheaded households in quintile 2 owned more televisions. In 2022, the same pattern was observed for femaleheaded households with a slight increase of 0,6 of a percentage point in the wealthiest quintile.

Figure 5.8: Percentage of households who owned televisions by sex of the household head and geographical location, 2016 and 2022


Source: GHS 2016 and 2022

Figure 5.8 illustrates the percentage of households who owned televisions by sex of the household head and geographical location in 2016 and 2022. The analysis shows that the majority of households who owned televisions were in metros, regardless of the sex of the household head. The figure shows that female-headed households in both geographical locations were more likely to own a television than their male counterparts. For the reference period, there was a decline in the percentage of male-headed households who owned a television in both metros and non-metros whilst female-headed households in metros were fixed and increased in non-metros. An improvement was recorded among female-headed households in non-metros as shown by an increase of 3,1 percentage points (from $77,9 \%$ in 2016 to $81,0 \%$ in 2022) while the metros remained unchanged at $87,4 \%$ for both years.

### 5.5 Household access to selected ICT assets

This sub-section provides information on households that lack access to selected ICT assets which are; television, computers and radio. Furthermore, these selected ICT assets provide access to information and knowledge, therefore, those households without access to those may be deprived of such information and knowledge.

Map 5.2: Percentage distribution of households without access to the selected ICT assets by province, 2022


Source: GHS 2022

The map above shows the percentage distribution of households without access to selected ICT assets namely: computers, televisions and radios in 2022. North West ( $18,0 \%$ ) recorded the highest percentage of households with no access to ICT assets (computer, television, radio), followed by Northern Cape (17,0\%), Limpopo (15,6\%), Mpumalanga (15,4\%) and Eastern Cape (14,8\%). Western Cape ( $5,8 \%$ ) had the lowest percentage of households with no ICT assets followed by Free State (11,1\%).

Table 5.7: Percentage of households without access to the selected ICT assets by sex of the household head, 2016, 2019 and 2022

| Sex of the headed of household | N'(000) |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2016 |  |  | 2019 |  |  | 2022 |  |  |
|  | Access | $\begin{array}{r} \text { No } \\ \text { Access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { Access } \end{array}$ | Total | Access | $\begin{array}{r} \text { No } \\ \text { access } \end{array}$ | Total |
| Male | 8196 | 1023 | 9218 | 8652 | 1330 | 9982 | 9235 | 1448 | 10683 |
| Female | 5753 | 772 | 6525 | 6307 | 874 | 7181 | 6892 | 903 | 7794 |
| Total | 13949 | 1795 | 15744 | 14959 | 2204 | 17163 | 16127 | 2351 | 18477 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Male | 88,9 | 11,1 | 100,0 | 86,7 | 13,3 | 100,0 | 86,4 | 13,6 | 100,0 |
| Female | 88,2 | 11,8 | 100,0 | 87,8 | 12,2 | 100,0 | 88,4 | 11,6 | 100,0 |
| Total | 88,6 | 11,4 | 100,0 | 87,2 | 12,8 | 100,0 | 87,3 | 12,7 | 100,0 |

Source: GHS 2016, 2019, 2022
Table 5.7 above shows the percentage of households with no access to the selected ICT assets by sex of the head of household in 2016, 2019 and 2022.

For the reference period, percentage of households with no access to ICT increased for both male and femaleheaded households, except for a slight decrease for female-headed households in 2022. The percentage of households with no access to selected ICT assets increased from 1,8 million ( $11,4 \%$ ) to 2,4 million ( $12,7 \%$ ) in 2022. Of all the 15,7 million households in 2016, 1,8 million households had no access to ICT assets which represented $11,4 \%$ of the households. In 2022, the female- headed households were less likely than the maleheaded households to be with no access to the selected ICT assets. However, female-headed households with no access to ICT assets decreased by 0,2 percentage points (from 11,8\% in 2016 to $11,6 \%$ in 2022); while their male counterparts increased by 2,5 percentage points (from 11,1\% in 2016 to 13,6\% in 2022).

Figure 5.9: Percentage of households with no access to the selected ICT assets by dwelling type and sex of the household head, 2016-2022


GHS 2016 and 2022

Figure 5.9 above shows the percentage of households with access to selected ICT assets by dwelling type and sex of the head of household from 2016 to 2022. The percentage of households without access to selected ICT assets residing in the formal dwelling was lower than the other dwelling types irrespective of the sex of the head of household in the reported period. Male-headed households without access to these assets in the formal dwellings increased by 2,0 percentage points and the female-headed households increased by 0,5 percentage points in the reported period. The percentage of male-headed households residing in the informal dwellings increased from $26,1 \%$ in 2016 to $34,9 \%$ in 2022, while their female counterparts increased from $28,0 \%$ to $33,9 \%$ in the same period. In the traditional dwellings, the percentage of female-headed households without access to these assets decreased from $32,5 \%$ in 2016 to $26,2 \%$ in 2022, while the percentage of maleheaded households increased from $24,5 \%$ to $32,7 \%$ during the same period.

Figure 5.10: The percentage of households with no access to the selected ICT assets by sex and population group of the household head, 2016-2022


Source: GHS 2016 and 2022

Figure 5.10 above shows the percentage of households without access to selected ICT assets by sex and population group of the head of household from 2016-2022. Black African households without access to these assets had higher percentages in both years while the white households without access had the lowest percentages. The black African male-headed households without access to ICT assets increased from 13,6\% to $16,1 \%$ and black African female-headed households decreased by 0,4 percentage points from $13,4 \%$ to $13,0 \%$ in 2016 and 2022 respectively. Between 2016 and 2022, the percentage of Indian/Asian households headed by males without access to ICT assets increased from $2,2 \%$ to $4,3 \%$, while the percentage of Indian/Asian households headed by females without access to these assets increased from 2,2\% to 3,8\%.

### 5.6 Conclusion

Access to computers increased over the years, regardless of the sex of the household head. This analysis revealed that the majority of white and Indian/Asian households had access to a computer compared to other population groups. Access to a computer was mostly observed in metro areas compared to non-metro areas. Female-headed households showed an increase in access to a computer across all provinces. There was more accessibility of computers within households in the wealthiest income quintile.

Radio ownership declined over the years as the majority of households access radio on different platforms. Households headed by females in Mpumalanga and Limpopo recorded the lowest percentage of radio ownership. Radio ownership was mostly recorded in the wealthiest income quintile in 2016, while the opposite was observed in the poorest income quintile in 2022. The decline in the usage of radio shows that as time advances and technology improves, the ownership of radio as an asset within households is no longer in demand as there are several platforms where radio can be accessed using other assets such as mobile telephones, DStv, cars, etc. Generally, female-headed households were more likely to own televisions than their male counterparts. The increase in television ownership in female-headed households shows an improvement in the lifestyle of women in both the metros and non-metros and thus contributes towards women empowerment in the aspect of asset ownership.

## CHAPTER 6: ICT AND EDUCATION

### 6.1 Introduction

The South African government and various government departments (including the Department of Education) developed policies to influence the implementation of ICT in education. The Department of Communication and Digital Technology developed an implementation programme for the national digital and future skills strategy for South Africa. One of the implementation contexts is to ensure advancing access to infrastructure. The Department of Basic Education (DBE) has introduced curriculum innovation by adding coding and robotics to the Grade R-9 curriculum. The focus does not solely lie on children, but also on the educators who will be instilling these skills. The motion of curriculum innovation opens room for skills development and growth for current educators, as well as an employment opportunity for students possessing digital skills.

Universities are motivated to accelerate their contribution to advanced digital skills by adding a module with advanced digital content to every degree and short courses. This motion is implored by the National Digital and Future Skills Strategy. Providing digital skills goes hand in hand with connectivity and high-speed internet connection. According to research, about 18000 schools have internet connection but only 8,0\% experience high-speed connectivity (DBE, 2020). The National Development Plan (NDP, 2030) targets to increase participation rate at universities to roughly 1,62 million per year. Moreover, the Department of Science and Technology (DST) set out a ten-year (2008-2018) innovative plan, which targeted to increase the number of graduates in science, engineering and technology subjects to $35 \%$. However, this target was not attained. In 2018 the total STEM graduates were about $28,6 \%$. ${ }^{29}$

Table 6.1: Enrolment at universities/technikons by CESM category, 2017, 2019 and 2021

| 2nd order CESM Category | 2016 |  | 2019 |  | 2021 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Per cent | Number | Per cent | Number | Per cent |
| Agriculture, agricultural operations and related sciences | 19530 | 2,0 | 21579 | 2,0 | 22002 | 2,1 |
| Architecture and the built environment | 12519 | 1,3 | 13903 | 1,3 | 12764 | 1,2 |
| Visual and performing arts | 14041 | 1,4 | 16218 | 1,5 | 14973 | 1,4 |
| Business, economics and management studies | 264934 | 27,1 | 265974 | 24,7 | 265797 | 24,9 |
| Communication, journalism and related studies | 20002 | 2,0 | 20321 | 1,9 | 22592 | 2,1 |
| Computer and information sciences | 41158 | 4,2 | 44358 | 4,1 | 47659 | 4,5 |
| Education | 176986 | 18,1 | 211274 | 19,7 | 192714 | 18,0 |
| Engineering | 83230 | 8,5 | 88302 | 8,2 | 76261 | 7,1 |
| Health professions and related clinical sciences | 60396 | 6,2 | 67511 | 6,3 | 62378 | 5,8 |
| Family ecology and consumer sciences | 3525 | 0,4 | 3399 | 0,3 | 3711 | 0,3 |
| Languages, linguistics and literature | 21311 | 2,2 | 20334 | 1,9 | 19561 | 1,8 |
| Law | 59241 | 6,1 | 79695 | 7,4 | 95662 | 9,0 |
| Life sciences | 30345 | 3,1 | 33698 | 3,1 | 34064 | 3,2 |
| Physical sciences | 30486 | 3,1 | 33319 | 3,1 | 38096 | 3,6 |
| Mathematics and statistics | 14188 | 1,5 | 17214 | 1,6 | 16848 | 1,6 |
| Military sciences | 6 | 0,0 | 3 | 0,0 | 7 | 0,0 |
| Philosophy, religion and theology | 6564 | 0,7 | 7026 | 0,7 | 7492 | 0,7 |
| Psychology | 30446 | 3,1 | 35870 | 3,3 | 32679 | 3,1 |
| Public management and services | 33924 | 3,5 | 40793 | 3,8 | 48632 | 4,6 |
| Social sciences | 53006 | 5,4 | 54121 | 5,0 | 54155 | 5,1 |
| Total | 975837 | 100,0 | 1074911 | 100,0 | 1068046 | 100,0 |

Source: HEMIS 2016-2021

[^14]Table 6.1 above shows the total number of students who enrolled at universities/technikons by Classification of Educational Subject Matter (CESM) for 2016, 2019 and 2021. The number of students who enrolled at universities/technikons increased by 92 thousand from 976 thousand in 2016 to roughly 1,1 million in 2021. Approximately 1 in 4 students were enrolled in Business, economics and management studies (24,9\%), followed by those who enrolled in Education-related studies. It was notable that enrolment in computer and information sciences increased from 4,2\% in 2016 to $4,5 \%$ in 2021.

Figure 6.1: Share of students enrolled for computer and information sciences at university/technikon as a proportion of all CESM categories, 2016, 2019 and 2021


Source: HEMIS 2016-2021

Figure 6.1 above depicts the share of students enrolled in computer and information sciences as a proportion of the entire CESM categories at universities/technikons. The majority of male students were more likely to enrol in computer and information sciences at universities/technikons than their female counterparts. Between 2016 and 2019, there was no difference in the share of students in computer and information sciences amongst males ( $6,4 \%$ ) and females ( $2,6 \%$ ). During 2021, the share in enrolment for computer and information sciences for both females and males increased, from 6,4\% in 2016 to $7,1 \%$ in 2021 for males, while for females there was 0,2 of a percentage point increase in $2021(2,8 \%)$.

Figure 6.2: Percentage of students enrolled for computer and information sciences in universities or technikons by sex and population group, 2016, 2019 and 2021


Source: HEMIS 2016-2021
The above figure shows the share of students who enrolled for computer and information sciences by population group and sex in 2016, 2019 and 2021. For the reference period, the majority of males enrolled for computer and information sciences in universities/technikons compared to their female counterparts across all population groups. Amongst black Africans in 2016, 6 out of 10 ICT enrolments were males while for females it was 4 in 10; this was observed throughout the reference period. A similar pattern for black Africans was observed amongst the coloured population group. The Indian/Asian and white population groups showed a similar outcome: 7 in 10 ICT enrolments were males in both population groups. It was noted that between 2016 and 2021 there was a minimal increase amongst female enrolment in ICT for all population groups, excluding the coloured population group.

Table 6.2: Enrolment cycle count of ICT students in TVET colleges by NC(V) programmes and sex, 2016-2021

| Year | NC(V) Level 2 |  |  | NC(V) Level 3 |  |  | NC(V) Level 4 |  |  | NC(V) Level 2-4 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male | Female | Both | Male | Female | Both | Male | Female | Both | Male | Female | Both |
| 2016 | 2592 | 2522 | 5114 | 1321 | 1311 | 2632 | 974 | 772 | 1746 | 4817 | 4675 | 9492 |
| 2017 | 2090 | 1930 | 4020 | 876 | 830 | 1706 | 888 | 814 | 1702 | 3694 | 3734 | 7428 |
| 2018 | 2053 | 1822 | 3875 | 922 | 838 | 1760 | 808 | 676 | 1484 | 3552 | 3567 | 7119 |
| 2019 | 2093 | 2064 | 4157 | 1038 | 965 | 2003 | 885 | 700 | 1585 | 3987 | 3758 | 7745 |
| 2020 | 2131 | 2241 | 4372 | 1081 | 1097 | 2178 | 944 | 716 | 1660 | 4266 | 3944 | 8210 |
| 2021 | 1595 | 2126 | 3721 | 1297 | 1059 | 2356 | 1046 | 812 | 1858 | 4469 | 3466 | 7935 |
|  | Percent |  |  |  |  |  |  |  |  |  |  |  |
| 2016 | 50,7 | 49,3 | 100,0 | 50,2 | 49,8 | 100,0 | 55,8 | 44,2 | 100,0 | 50,7 | 49,3 | 100,0 |
| 2017 | 52,0 | 48,0 | 100,0 | 51,3 | 48,7 | 100,0 | 52,2 | 47,8 | 100,0 | 49,7 | 50,3 | 100,0 |
| 2018 | 53,0 | 47,0 | 100,0 | 52,4 | 47,6 | 100,0 | 54,4 | 45,6 | 100,0 | 49,9 | 50,1 | 100,0 |
| 2019 | 50,3 | 49,7 | 100,0 | 51,8 | 48,2 | 100,0 | 55,8 | 44,2 | 100,0 | 51,5 | 48,5 | 100,0 |
| 2020 | 48,7 | 51,3 | 100,0 | 49,6 | 50,4 | 100,0 | 56,9 | 43,1 | 100,0 | 52,0 | 48,0 | 100,0 |
| 2021 | 42,9 | 57,1 | 100,0 | 55,1 | 44,9 | 100,0 | 56,3 | 43,7 | 100,0 | 56,3 | 43,7 | 100,0 |

[^15]Table 6.2 shows the trend in the enrolment cycle across the $\mathrm{NC}(\mathrm{V})$ programmes at TVET colleges by sex over the reference period. During 2016, there were 9492 ICT enrolled students in TVET colleges, with 4817 males and 4675 females. However, the overall enrolment number fell to 7935 in 2021, with females (3466) accounting for most of the fall, while males (4469) slightly decreased. Generally, males were in the majority in the enrolment of ICT in the TVETs during the reference period. Nonetheless, females were in the majority in the $\mathrm{NC}(\mathrm{V})$ level 2 during 2020 and 2021. Moreover, in the $\mathrm{NC}(\mathrm{V})$ level 3 this was true during 2020 only, while for $\mathrm{NV}(\mathrm{V})$ level 4 males dominated the programme. These are similar patterns observed in universities/technikons, where males were dominating the enrolments in ICT, indicating a clear disparity in the enrolment in ICT in favour of males.

Table 6.3: Number of ICT students in TVET colleges who registered, wrote and completed NC(V) Level 4 qualifications, by programme and sex, 2016-2021

| Year | Males |  |  |  | Females |  |  |  | Total |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | $\begin{aligned} & 0 \\ & 0 \\ & \frac{3}{0} \\ & \frac{0}{0} \\ & \stackrel{0}{0} \\ & \frac{1}{3} \\ & \stackrel{\rightharpoonup}{0} \end{aligned}$ |  |  |  | $\begin{aligned} & 0 \\ & 0 \\ & \frac{3}{0} \\ & \frac{0}{0} \\ & \stackrel{\rightharpoonup}{0} \\ & \frac{0}{0} \\ & \stackrel{N}{0} \end{aligned}$ |  |  |  | $\begin{aligned} & 0 \\ & 0 \\ & \frac{3}{0} \\ & \frac{0}{0} \\ & \stackrel{0}{0} \\ & \frac{0}{0} \\ & \stackrel{N}{0} \end{aligned}$ |
| 2016 | 763 | 693 | 171 | 24,7 | 762 | 710 | 142 | 20,0 | 1525 | 1403 | 313 | 22,3 |
| 2017 | 662 | 558 | 183 | 32,8 | 742 | 687 | 151 | 22,0 | 1404 | 1245 | 334 | 26,8 |
| 2018 | 504 | 439 | 202 | 46,0 | 674 | 596 | 213 | 35,7 | 1158 | 1035 | 415 | 40,1 |
| 2019 | 447 | 381 | 148 | 38,8 | 627 | 549 | 153 | 27,9 | 1074 | 930 | 301 | 32,4 |
| 2020 | 460 | 375 | 172 | 45,9 | 593 | 504 | 181 | 35,9 | 1053 | 879 | 353 | 40,2 |
| 2021 | 482 | 388 | 167 | 43,0 | 643 | 570 | 184 | 32,3 | 1125 | 958 | 351 | 36,6 |

Source: HEMIS 2016-2021
Table 6.3 above shows the number of students who registered, wrote and completed $\mathrm{NC}(\mathrm{V})$ Level 4 for ICT in TVET between 2016 and 2021. The completion rate improved by 14,3 percentage points (from $22,3 \%$ in 2016 to $36,6 \%$ in 2021). In 2021, among the $36,6 \%$ of students who completed $\mathrm{NC}(\mathrm{V})$ Level 4 qualifications, males accounted for the highest completion rate at $43,0 \%$ while female students' completion rate was $32,3 \%$. Nonetheless, female and male students improved by 12,3 and 18,3 percentage points respectively from 2016 to 2021. Although female students were the majority, the completion rate for males was higher compared to females (difference of 10,7 percentage points).

Figure 6.3: Percentage of persons with a post-secondary qualification by sex and age group, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021
Figure 6.3 presents the percentage of persons with a post-secondary qualification by sex and age group during the reference period. During the reference period (2016, 2019 and 2021), among persons aged 14-21, there were more males with a post-secondary qualification than females. Females dominated the percentage of individuals with a post-secondary qualification amongst those aged 22-29; this was more pronounced amongst those aged 22-24 in 2021 (57,1\% for females and 42,9\% for males).

Figure 6.4: Percentage of persons with ICT qualification by sex and age group, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021
Figure 6.4 above illustrates the number of persons with an ICT qualification by sex and age group in 2016, 2019 and 2021. The majority of males with an ICT qualification was among the age group 25-29, while the females were among the age group 14-21. The highest decline was observed among females aged 25-29 at 13,9 percentage points between 2019 and 2021, whereas males recorded an increase of the same percentage points.

Figure 6.5: Percentage share of persons with ICT as highest level of education by sex and age group, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021
Figure 6.5 shows the percentage share of persons with ICT as their highest level of education according to different age groups. Between 2016 and 2021, the age group 22-24 had an increase of 1,0 percentage point (from $11,5 \%$ in 2016 to $12,5 \%$ in 2021) for male ICT graduates, with a decline of 0,4 of a percentage point (from $7,9 \%$ in 2016 to $7,5 \%$ in 2021) for females with an ICT qualification. The analysis revealed that an ICT qualification was popular amongst those aged 22-24 compared to other age groups, irrespective of gender.

Table 6.4: Graduates at universities/technikons by CESM category, 2016-2021

| 2nd order CESM category | 2016 |  | 2019 |  | 2021 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Numbers | Per cent | Numbers | Per cent | Numbers | Per cent |
| Agriculture, agricultural operations and related sciences | 4504 | 2,2 | 4606 | 2,1 | 5829 | 2,5 |
| Architecture and the built environment | 3633 | 1,8 | 4180 | 1,9 | 3893 | 1,7 |
| Visual and performing arts | 3098 | 1,5 | 3314 | 1,5 | 3529 | 1,5 |
| Business, economics and management studies | 56364 | 27,8 | 58668 | 26,4 | 64971 | 27,9 |
| Communication, journalism and related studies | 3962 | 2,0 | 4099 | 1,8 | 4392 | 1,9 |
| Computer and information sciences | 6737 | 3,3 | 7538 | 3,4 | 9357 | 4,0 |
| Education | 42107 | 20,7 | 47492 | 21,4 | 41063 | 17,6 |
| Engineering | 14420 | 7,1 | 15971 | 7,2 | 14949 | 6,4 |
| Health professions and related clinical sciences | 13948 | 6,9 | 14781 | 6,7 | 13850 | 5,9 |
| Family ecology and consumer sciences | 912 | 0,4 | 780 | 0,4 | 874 | 0,4 |
| Languages, linguistics and literature | 3338 | 1,6 | 3822 | 1,7 | 4316 | 1,9 |
| Law | 8524 | 4,2 | 10685 | 4,8 | 15118 | 6,5 |
| Life sciences | 6735 | 3,3 | 7635 | 3,4 | 8252 | 3,5 |
| Physical sciences | 6345 | 3,1 | 6850 | 3,1 | 7764 | 3,3 |
| Mathematics and statistics | 1887 | 0,9 | 2340 | 1,1 | 2649 | 1,1 |
| Military sciences | 3 | 0,0 | 2 | 0,0 | 5 | 0,0 |
| Philosophy, religion and theology | 1375 | 0,7 | 1554 | 0,7 | 1631 | 0,7 |
| Psychology | 6654 | 3,3 | 7302 | 3,3 | 8886 | 3,8 |
| Public Management and Services | 7919 | 3,9 | 8841 | 4,0 | 10321 | 4,4 |
| Social sciences | 10610 | 5,2 | 11478 | 5,2 | 11608 | 5,0 |
| Total | 203076 | 100,0 | 221938 | 100,0 | 233257 | 100,0 |

Source: HEMIS 2016-2021

The above table displays the number of graduates from universities/technikons by CESM from 2016 to 2021. The analysis revealed a consistent increase in graduates from universities/technikons between 2016 and 2021. A total of 203076 students graduated from universities/technikons in 2016, increasing by 30181 to 233257 in 2021. Of all graduates during the reference period, the majority of graduates were in Business, economics and management studies as well as Education; this was consistent with proportions of the intake as these two categories had a large chunk of students. There was an increase in the percentage of graduates in computer and information sciences between 2016 and 2021 (3,3\%, 3,4\% and 4,0\% in 2016, 2019 and 2021 respectively).

Table 6.5: Share of the students who graduated for computer and information sciences at university/ technikon as proportion of overall, 2016, 2019 and 2021

| CESM Category | 2016 |  |  | 2019 |  |  | 2021 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male | Female | Both | Male | Female | Both | Male | Female | Both |
| Computer and information sciences | 4245 | 2492 | 6737 | 4612 | 2926 | 7538 | 5481 | 3872 | 9352 |
| Total CESM | 78764 | 124302 | 203066 | 83103 | 138816 | 221919 | 84367 | 148841 | 233208 |
|  | Per cent |  |  |  |  |  |  |  |  |
| Computer and information sciences | 5,4 | 2,0 | 3,3 | 5,5 | 2,1 | 3,4 | 6,5 | 2,6 | 4,0 |

Source: HEMIS 2016-2021
The above table shows the percentage share of students who graduated in computer and information sciences at university/technikon to the overall CESM graduates by sex for 2016, 2019 and 2021. Among the 233208 students that graduated in 2021 from university/technikon, the majority were females (148 841), representing $63,8 \%$ while males accounted for $36,2 \%$ ( 84367 ). Generally, there has been an increase in the share of students who graduated for computer and information sciences at university/technikon for the reference period. The gender analysis revealed that there was a gender disparity in students who graduated in computer and information sciences at university/technikon as more males graduated than females in this CESM category. Computer and information sciences graduates increased from 6 thousand during 2016 to 9 thousand in 2021, which represents a share of $3,3 \%$ and $4,0 \%$ respectively. Of all the 203 thousand graduates in 2016, roughly 6 thousand students graduated in computer and information sciences, which represents a share of $3,3 \%$ to the overall graduates. In 2019, the number of graduates in computer and information sciences increased to 7 thousand, which is represented by a share of $3,4 \%$ and further increased to 9 thousand, which is represented by a share of $4,0 \%$ in 2021. A similar pattern was observed amongst females and males who graduated in computer and information sciences during the reference period. In 2019, female graduates with computer and information sciences increased by 0,5 of a percentage point (from 2,1\% in 2016 to $2,6 \%$ in 2021); their male counterparts increased by 1,1 percentage points (from 5,4\% in 2016 to $6,5 \%$ in 2021).

Figure 6.6: Percentage of students who graduated in computer and information science studies in universities or technikons by sex and population group, 2016, 2019 and 2021


[^16]Figure 6.6 depicts the percentage of students who graduated in computer and information science studies by population group and sex. Amongst black African graduates, there were more female graduates than their male counterparts, with $53,3 \%$ female graduates and $46,7 \%$ male graduates for the year 2021. Between 2019 and 2021, the disparities amongst the population groups show that the percentage of male graduates decreased while female graduates increased, except for the Indian/Asian population group where the opposite was observed. In 2021, male graduates in the white population group was $78,4 \%$, while female graduates were $21,6 \%$. For the Indian/Asian population group, female graduates were $29,6 \%$ while male graduates were 70,4\%.

### 6.2 Conclusion

The level of enrolment at universities/technikons have increased in all the CESM categories between 2016 to 2021. The most notable increase in the CESM categories was observed in Business, economics and management sciences as well as in the Education fields of study compared to other fields. The gender analysis revealed that there was a gender disparity in students who graduated in computer and information sciences at university/technikon. The majority of students who enrolled for computer and information sciences at university/technikon were males. There were 2,5 percentage points more male students compared to their female counterparts enrolled for computer and information sciences for 2021. Disparities in enrolment for computer and information sciences amongst various population groups revealed that black African male students were fewer compared to male students in other population groups. However, the black African population showed more female students enrolled for computer and information sciences compared to other population groups.

Generally, there has been an increase in the share of students who graduated for computer and information sciences at university/technikon for the reference period. There has been an advancement for students who completed the NC(V) Level 4, with female students showing improvement of $12,1 \%$ and male students at $18,3 \%$ between 2016 and 2021. The percentage of students with ICT as their highest level of education was more for female students between the ages of 14 and 21 across the years (2016-2021), while male ICT graduates were more between the ages of 22 and 29 for all the reference points.

## CHAPTER 7: LABOUR MARKET OUTCOMES IN THE ICT SECTOR

### 7.1 Introduction

Lack of digital literacy contributes to digital exclusion, which results in employment exclusion. Digital literacy can be described as the ability to access, integrate, understand, manage, communicate and create information appropriately and safely using digital advances. Digital and future skills are key components in the South African human resources to improve capability and growth paths in the economic and government sectors. Economic competitiveness needs digital skills that can be incorporated in the labour market.

The digital and future skills implementation programme needs to ensure that science, technology, engineering, arts, mathematics, innovation, and entrepreneurship skills include young girls and women. This will assist in closing the gender divide between men and women in both ICT and employment. Young girls, women and people with disabilities must be prioritised with regard to digital skills training and employment. A digital gap exists at the workplace, both in the private and government sector. These two sectors need to scale up for industry needs to be met. ${ }^{30}$

The use of ICT also helps employees to be flexible and have independency of work. It empowers each person to tackle their responsibilities rapidly to do more work errands alone, encouraging manual work. Technology also expands labourer portability, liberating them from their work areas, permitting them to telecommute, in their vehicle or any place as long as they have internet access. ${ }^{31}$ In a world where skill levels are closely related to inequality, it is essential to invest in education; these investments should encompass all levels of the education system. ${ }^{32}$ Therefore a strong relation between education and the labour market is created. This section looks at the labour market outcomes in the ICT sector.

[^17]Figure 7.1: Labour market status of persons with ICT qualifications from a university and TVET by sex, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021
Figure 7.1 depicts the labour market status of persons with ICT qualifications from a university and TVET for the years 2016, 2019 and 2021. Persons with ICT qualifications from both university and TVET were more likely to be employed for the reference period. However, the highest percentage of persons with an ICT qualification from a university were employed than those from TVET colleges. For the reference period, the percentage of unemployed persons with ICT qualifications from both university and TVET increased over time. This can be attributed to the improvement in the absorption of persons with ICT qualifications in the job market. For discouraged work-seekers, an increase was observed in 2021 for both persons with ICT qualifications from a university and TVET. The percentage of employed university graduates gradually decreased between 2016 and 2021 (from $74,6 \%$ in 2016 to $72,6 \%$ in 2019 and to $66,4 \%$ in 2021), and the opposite was observed for the unemployed (from 12,7\% in 2016 to $17,3 \%$ in 2019 and to $20,9 \%$ in 2021).

The percentage of employed TVET college graduates gradually increased by a slight 0,2 of a percentage point (from $66,9 \%$ in 2016 to $67,1 \%$ in 2019), and then decreased by 5,2 percentage points (from $67,1 \%$ in 2019 to $61,9 \%$ in 2021). The percentage of unemployed TVET college graduates gradually increased between 2016 and 2021 (from $20,1 \%$ in 2016 to $20,8 \%$ in 2019 and to $24,1 \%$ in 2021). It is also evident from the analysis that the highest percentage of employed graduates with ICT qualifications are those who graduated from universities, whereas the majority of unemployed graduates with ICT qualifications are graduates from TVET colleges.

Figure 7.2a: Percentage of persons in the labour market with ICT qualifications from a university by sex, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021
Figure 7.2b: Percentage of persons in the labour market with ICT qualifications from a TVET college by sex, 2016, 2019 and 2021


[^18]Figures 7.2a and 7.2b above show the labour market status of persons with ICT qualifications from a university and TVET colleges by sex for 2016, 2019 and 2021. Nationally, there was a higher percentage of male graduates with ICT qualifications from a university and TVET college compared to female graduates. Male graduates with ICT qualifications from both university and TVET college were more likely to be employed than their female counterparts for all the years. The majority of females with ICT qualifications were unemployed compared to their male counterparts for all the years, except in 2016 where the opposite was observed. This reveals a similar pattern to the South African labour market which favours men than women ${ }^{33}$.Generally, men were more likely to be employed than their female counterparts and had lower unemployment rate. For the not economically active, females dominated for all the years, except in 2021 where the opposite was observed. For the reference period, employed males with ICT qualifications increased consistently while their female counterparts decreased.

Figure 7.3: Share of persons with ICT qualifications from a university as a proportion of all fields of study, 2016, 2019 and 2021


Source: QLFS 2016, 2019 and 2021

Figure 7.3 above depicts the share of persons with an ICT qualification from a university as a proportion of all fields of study. Nationally, graduates with ICT qualifications were contributing $5,0 \%$ in the overall population of university graduates in 2016. The proportion of ICT graduates decreased to $4,0 \%$ in 2019 , then increased to $5,1 \%$ in 2021. The percentage of employed persons with ICT qualifications from a university as a proportion of overall persons with university qualifications declined by 1,0 percentage points (from 4,8\% in 2016 to 3,8\% in 2019), and increased by 0,9 of a percentage point (from $3,8 \%$ in 2019 to $4,7 \%$ to 2021). However, the overall percentage of unemployed university graduates with ICT qualifications as a proportion of all unemployed university graduates increased from 7,1\% in 2016 to 8,1\% in 2021.

[^19]
### 7.2 Conclusion

Nationally, there were more males with ICT qualifications than females regardless of whether the qualifications were obtained from a university or TVET college. Nationally, males with ICT qualifications were more likely to be employed than their female counterparts for the reference period. There was a higher percentage of male graduates with ICT qualifications from a university compared to female graduates. For the reference period, employed males increased consistently while their female counterparts decreased.

## CHAPTER 8: COMPOSITE INDICATORS OF ICT ACCESS IN SOUTH AFRICA

### 8.1 Background

ICT has been a diverse and continuously growing sector in South Africa. Multiple ICT indices are developed and consist of indicators that are used to measure, compare, and assess progress in ICT for various countries. The ICT Development Index (IDI) tracks progress made in closing the digital divide, and is disaggregated at several levels. As such, they have the ability to be separated by demographic factors such as gender. This report uses the Information and Communication Technology Access Index, which is an established measure based on ITU methodology that is used to compare ICT across South African households and provinces. The household ICT Access Index (IAI) can be used to create a comprehensive picture of the type of households that have access to ICT; it also provides comparisons by population group as well as other key household characteristics. This makes it a valuable tool to identify the households most in need of ICT tools, enabling policymakers to target resources and design policies more efficiently.

## 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. The dimensions, indicators and limits that were established are presented fig 8.1. 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 through fixed internet at home and mobile telephones.

The IAI is made up of two sub-indices:

1. Active sub-Index: measures the level of household access to technologically advanced assets.
2. Passive sub-index: measures the level of household access to mail and broadcasting services.

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 8.1:
$\checkmark$ Households were classified as ICT LOW if it has an index score less than 3,86 e.g. if it had access to 3 Passive indicators and 1 Active indicator
$\checkmark$ Households were classified as ICT MEDIUM if they registered an index score equal to or greater than 3,86 and less than 7,06 if they had access to 3 Passive indicators and 2 or 3 Active indicators.
$\checkmark$ Households were classified as ICT HIGH if they registered an index score of greater or equals to 7,06, and if they had access to 3 Passive and 4 or 5 Active indicators. ${ }^{34}$

For computation of the final index, the Active sub-index was given 80 per cent weight, and the Passive subindex 20 percent weight. The sub-index value was calculated by taking the simple sum (using equal weights) of the indicator values. The final index value was then computed by summing the weighted sub-indices.

[^20]Figure 8.1: ICT access index of household access to ICT


Table 8.1: ICT access index of household by province and sex of the household head, 2022

| Province | Male-headed |  |  | Female-headed |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
|  | ICT Low | ICT Medium | ICT High | ICT Low | ICT Medium | ICT High |
|  | 20,3 | 49,5 | 30,1 | 23,1 | 55,6 | 21,3 |
| EC | 39,3 | 53,0 | 7,7 | 37,4 | 60,2 | 2,4 |
| NC | 31,4 | 58,1 | 10,5 | 37,3 | 58,8 | 3,9 |
| FS | 26,8 | 65,7 | 7,5 | 30,4 | 65,1 | 4,5 |
| KZN | 28,8 | 58,5 | 12,7 | 28,3 | 67,6 | 4,1 |
| NW | 38,9 | 57,6 | 3,5 | 36,3 | 61,1 | 2,6 |
| GP | 27,3 | 56,7 | 16,0 | 24,9 | 63,7 | 11,4 |
| MP | 31,3 | 65,1 | 3,7 | 25,4 | 73,2 | $\mathbf{1 , 4}$ |
| LP | 42,9 | 53,5 | 3,7 | 39,3 | 59,0 | $\mathbf{1 , 7}$ |
| RSA | $\mathbf{3 0 , 2}$ | $\mathbf{5 6 , 8}$ | $\mathbf{1 3 , 0}$ | $\mathbf{2 9 , 7}$ | $\mathbf{6 3 , 2}$ | $\mathbf{7 , 1}$ |
| Source GHS |  |  |  |  |  |  |

Source: GHS 2022
Table 8.1 shows the ICT access index of household by province and sex of the household head, 2022. Most male-headed households who ranked in the ICT high category were residing in the Western Cape ( $30,1 \%$ ), although Gauteng ( $16 \%$ ) was the second highest, representing half the percentage of the Western Cape. The results in the table indicate that $13 \%$ of male-headed households were ranked as ICT high nationally compared to female-headed households ( $7,1 \%$ ). The majority of households were classified as ICT medium, with maleheaded households at $56,8 \%$ and female-headed households at $63,2 \%$. About 6 in 10 male-headed households in Free State ( $65,7 \%$ ) and Mpumalanga ( $65,1 \%$ ) were classified in the ICT medium ( $56,4 \%$ ) category, followed by those in the ICT low ( $26,8 \%$ and $31,3 \%$ ) respectively.

Amongst female-headed households, the Western Cape still had the highest percentage of households categorised as having a high active rate. Irrespective of the province, the majority of female-headed households were classified as medium active rate, followed by those with a low active rate.

Figure 8.2: ICT access index of household by geographical location, 2022


Source: GHS 2022
The results in the above figure indicate that slightly more than a quarter ( $26,3 \%$ ) of male-headed households were ranked in the ICT high category irrespective of the geographical location compared to female-headed households (15,9\%). The majority of male-headed households in the metro regions were classified as ICT medium ( $57,0 \%$ ) while 1 in 4 households were rated as ICT high (19,8\%). Moreover, a similar pattern was observed for households in the non-metro regions. Furthermore, the majority of female-headed households residing in both metro and non-metro areas were found in the ICT medium category (64,5\% and 62,4\% respectively). Female-headed households were the fewest to be in the ICT high category compared to maleheaded households.

Figure 8.3: ICT access index of household by population group and sex of the household head, 2022


Source: GHS 2022

It was noticeable in the figure above that most female-headed households were categorised as ICT medium ( $63,3 \%$ ) compared to $56,8 \%$ of male-headed households while for the ICT high category, male-headed households accounted for $13,0 \%$ compared to $7,1 \%$ of female-headed households. Looking at the differences amongst the population groups, $43,6 \%$ of white female-headed households were in the ICT high category compared to $3,3 \%$ of black African households. Alternatively, about a third of black African-headed households ( $34,9 \%$ for male-headed households and $31,4 \%$ for female-headed households) were classified in the low ICT category compared to white-headed households, with $5 \%$ for male-headed households and $10,7 \%$ for femaleheaded households.

Table 8.2: ICT access index of household access to ICT by quintiles and sex of the household head, 2016 and 2022

| Income <br> quintiles | Male |  |  |  |  |  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ICT Low |  |  |  |  |  |  | ICT Medium | ICT High | ICT Low | ICT Medium | ICT High |
|  | 58,6 | 39,4 | 2,1 | 54,9 | 43,9 | 1,2 |  |  |  |  |  |  |
| Quintile 2 | 56,3 | 42,5 | 1,2 | 56,3 | 43,1 | 0,6 |  |  |  |  |  |  |
| Quintile 3 | 54,0 | 43,7 | 2,4 | 50,7 | 48,2 | 1,1 |  |  |  |  |  |  |
| Quintile 4 | 40,9 | 53,1 | 6,0 | 32,6 | 62,0 | 5,4 |  |  |  |  |  |  |
| Quintile 5 | 15,5 | 53,8 | 30,7 | 14,2 | 61,1 | 24,8 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Quintile 1 | 48,1 | 50,3 | 1,6 | 41,6 | 57,4 | 1,1 |  |  |  |  |  |  |
| Quintile 2 | 38,3 | 59,8 | 1,9 | 32,2 | 66,9 | 0,9 |  |  |  |  |  |  |
| Quintile 3 | 40,9 | 56,1 | 3,1 | 35,4 | 61,7 | 3,0 |  |  |  |  |  |  |
| Quintile 4 | 27,4 | 63,8 | 8,8 | 18,5 | 72,8 | 8,7 |  |  |  |  |  |  |
| Quintile 5 | 7,8 | 53,1 | 39,1 | 6,4 | 62,0 | 31,6 |  |  |  |  |  |  |

Source: GHS 2016 and 2022
Table 8.2 above demonstrates how an income of a household correlated with a rise in the proportion of households with high ICT access between 2016 and 2022. The fraction of households with inadequate access to ICT, on the other hand, decreased as household income increased. In 2022, 48,1\% of male-headed households in quintile 1 were classified as ICT low, compared to $40,9 \%$ in quintile 3 and $7,8 \%$ observed in quintile 5. For female-headed households, $6,4 \%$ were classified as having low ICT access in quintile 5, compared to $35,4 \%$ in quintile 3 while in quintile $1,41,6 \%$ of the households had low ICT access.

During the reference period, percentages of male-headed households in quintile 5 classified in the ICT high category increased by 8,4 percentage points, whereas the percentage of female-headed households increased by 6,8 percentage points.

Table 8.3: ICT access index by sex and age group of household head, 2016 and 2022

| Age groups | 2016 |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Male |  |  |  | Female |  |  |  |
|  | ICT low | $\begin{array}{r} \text { ICT } \\ \text { medium } \end{array}$ | ICT high | Total | ICT low | $\begin{array}{r} \text { ICT } \\ \text { medium } \end{array}$ | ICT high | Total |
| Youth | 41,3 | 51,4 | 7,3 | 100,0 | 43,9 | 52,8 | 3,4 | 100,0 |
| Adults | 39,6 | 47,5 | 12,9 | 100,0 | 42,4 | 51,4 | 6,1 | 100,0 |
| Older persons | 42,8 | 38,9 | 18,3 | 100,0 | 51,6 | 42,5 | 6,0 | 100,0 |
|  | 2022 |  |  |  |  |  |  |  |
| Youth | 33,1 | 59,6 | 7,4 | 100,0 | 30,8 | 63,0 | 6,2 | 100,0 |
| Adults | 27,7 | 57,1 | 15,2 | 100,0 | 25,4 | 66,7 | 7,9 | 100,0 |
| Older persons | 34,1 | 50,5 | 15,3 | 100,0 | 37,0 | 56,9 | 6,2 | 100,0 |

Source: GHS 2016 and 2022
Table 8.3 above shows the ICT access index of households by sex and age group of the household head in 2016 and 2022. During the reference period, a transition from the ICT low to the ICT medium category was observed in all the age groups. For male-headed households, older persons in the ICT medium category increased by 11,6 percentage points while adult males increased by 9,6 percentage points and the youth males increased by 8,2 percentage points in the reference period. For female-headed households, adults in the ICT medium category increased by 15,3 percentage points while older persons in the ICT medium category increased by 14,4 percentage points and the youth increased by 10,2 percentage points in the reference period.

Youth female-headed households in the ICT high category increased by 2,8 percentage points (from $3,4 \%$ in 2016 to $6,2 \%$ in 2022), while their male counterparts only increased by 0,1 percentage point (from $7,3 \%$ in 2016 to $7,4 \%$ in 2022). Male-headed households in the ICT high category had higher percentages compared to the female-headed households, regardless of age group.

### 8.2 Conclusion

Overall, more than half of the South African households were categorised as having medium access to ICT irrespective of the sex of the household head. Female-headed households were more likely to have medium access to ICT compared to their male counterparts. Western Cape was more likely to have high access to ICT compared to other provinces. White and Indian/Asian households were more likely to have higher access to ICT than other population groups.

## CHAPTER 9: SUMMARY AND CONCLUSIONS

Closing the gender digital divide is part of the Sustainable Development Goals, which emphasise gender equality and contribute to all other spheres of life, such as economic empowerment, education, and inclusive political participation. With the International Women's Day 2023 theme being "DigitALL: Innovation and technology for gender equality", this report provides valuable information to monitor progress on the interventions and commitments made for gender equality in access to and use of digital technologies.

## Access to telephones

The report indicates that while connectivity to fixed telephones declined from 2016 to 2022, access to mobile telephones increased exponentially during the same period. Fixed telephones were concentrated in wealthier households living in formal dwellings, in metro areas and mainly in Gauteng, KwaZulu-Natal and Western Cape. An analysis of access to telephones with a gender lens revealed that male-headed households recorded the highest percentage of households with access to fixed telephones for both reported years, in metro and non-metro areas. The gender parity ratios, however, indicated that the gap between male-headed households and female-headed households in both metro and non-metro areas was narrowing between 2016 and 2022.

An analysis of ownership of mobile telephones showed that ownership of mobile telephones for persons aged 10 years and older increased from $65,0 \%$ in 2016 to $80,0 \%$ in 2022. In 2022, ownership of mobile telephones was higher for females ( $80,9 \%$ ) than for males $(77,9 \%)$ with a GPR of 1,09 .

## Internet access

There has been significant growth in the number of female- and male-headed households that have a functioning internet connection. In 2022, internet connection among male- and female-headed households reached equality nationally. Female-headed households were most likely to have internet access than maleheaded households in both metros and non-metro areas. An analysis of the factors associated with lack of access to internet showed that male-headed households residing in Limpopo, Mpumalanga and Western Cape were more likely to lack internet access compared to households in Gauteng.

## Access to ICT assets

Access to computers increased over the years, regardless of the sex of the head of the household. Femaleheaded households showed an increase in access to computers among all population groups and across all the provinces. There was more access to computers within households in the wealthiest income quintile.

Radio ownership declined over the period of review by 21,4 percentage points, from 57,2\% in 2016 to 35,8\% in 2022 for male-headed households and by 21,8 percentage points from $53,3 \%$ in 2016 to $31,5 \%$ in 2022 for female-headed households.

The report revealed that the majority of white and Indian/Asian households had access to a television compared to other population groups. Generally, female-headed households were more likely to own televisions than their male counterparts.

## ICT and education and labour market indicators

The report indicated that graduates from universities/technikons have increased in all the CESM categories, including an increase in Computer and information sciences which increased from 3,3\% in 2016 to 4,0\% in 2021. The majority of students who enrolled for computer and information sciences at university/technikon were males. Disparities in enrolment for computer and information sciences amongst various population groups revealed that black African male students were fewer compared to male students in other population groups.

Nationally, there were more males with ICT qualifications than females, regardless of whether the qualifications were obtained from a university or TVET college. Nationally, males with ICT qualifications were more likely to be employed than their female counterparts for the reference period.

## ICT access index

According to the ICT access index data, $13,0 \%$ of male-headed households were ranked as ICT high compared to $7,1 \%$ of female-headed households. In both metro and non-metro areas, female-headed households were less likely to be ranked ICT high compared to male-headed households. All age groups had a transition from the ICT low to the ICT medium category throughout the reference period. Male-headed households in the ICT high category had higher percentages compared to the female-headed households, regardless of age group.



[^0]:    ${ }^{1}$ United Nations. 1997. Report of the Economic and Social Council for 1997. A/52/3. 18 September 1997, at 28: "Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels."
    ${ }^{2}$ Koronkiewicz M. 2008. Gender Parity Index, UNESCO, Bangkok.

[^1]:    ${ }^{3}$ Gurumurthy, A. (2004). Gender and ICTs. Overview Report: BRIDGE Development-Gender. Brighton: Institute of Development Studies.
    ${ }^{4}$ Gender Digital Divide Index Report, 2022.
    Is Development [Online]. Accessed from: https://data.unicef.org/resources/ictgenderdivide/ [Accessed on 04 April 2023]
    ${ }^{6}$ Independent Communications Authority of South Africa Strategic Plan for 2020/21-2024/2.
    ${ }^{7}$ United Nations. (2023). Bridging the Gender Digital Divide: Challenges and an Urgent Call for Action for Equitable Digital Skills Development [Online]. Accessed from: https://data.unicef.org/resources/ictgenderdivide/ [Accessed on 04 April 2023].

[^2]:    ${ }^{8}$ Government Gazette No. 43730 dated 23 September 2020.

[^3]:    ${ }^{9} \mathrm{https}: / / \mathrm{www}$. measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/population-analysis-for-planners/lesson-2.html

[^4]:    Source: MYPE 2022

[^5]:    ${ }^{10}$ The General Household Survey report of 2021.
    ${ }^{11}$ GSMA. (2010). Women \& Mobile: A Global Opportunity. A study on the mobile phone gender gap in low and middle-income countries. London: GSMA Development Fund - Cherie Blair Foundation for Women.
    ${ }^{12}$ Stats SA, 2022. Gender Series Volume IX: Women Empowerment, 2017-2022, Pretoria: Statistics South Africa.

[^6]:    ${ }^{13}$ Hafkin, N. and Taggart, N. (2001). Gender, Information Technology, and Developing Countries: An Analytic Study. Academy for Educational Development (AED).
    ${ }^{14}$ GHS Series Volume VI Information and Communication Technologies (ICT) In-depth analysis of the General Household Survey data 2002-2013

[^7]:    ${ }^{15} \mathrm{https}: / / t e c h c e n t r a l . c o . z a / t h e-s t u n n i n g-d e c l i n e-o f-f i x e d-l i n e s-i n-s o u t h-a f r i c a / 209948 / ~$

[^8]:    Source: GHS 2016 and 2022

[^9]:    ${ }^{16}$ The ITU ICT SDG indicators (2022) ITU. Available at: https://www.itu.int/en/ITU-D/Statistics/Pages/SDGs-ITU-ICT-indicators.aspx (Accessed: 18 July 2023).
    ${ }^{17}$ Alarcon, D., Anderson, R. \& Andreasson, K. (2022). Gender Digital Divide Index Report, Gender Digital Divide Index Report 2022. Available at: https://gddindex.com/wp-content/uploads/2022/02/GDDI-Report-2022.pdf (Accessed: 07 September 2023).
    ${ }^{18}$ Taking stock: Data and evidence on gender equality in digital access ... Available at:
    https://www.researchgate.net/publication/335203188_Taking_stock_Data_and_evidence_on_gender_equality_in_digital_access_skills_ and_leadership (Accessed: 26 July 2023).
    ${ }^{19}$ Taking stock: Data and evidence on gender equality in digital access ... Available at: https://www.researchgate.net/publication/335203188_Taking_stock_Data_and_evidence_on_gender_equality_in_digital_access_skills_ and_leadership (Accessed: 26 July 2023).
    ${ }^{20}$ Gender Digital Divide Index Report, 2022.
    ${ }^{21}$ Gillwald, A., Milek, A. \& Stork, C. 2010. Gender assessment of ICT access and usage in Africa. Towards Evidence-based ICT Policy and Regulation, 1(5).
    ${ }^{22}$ Primo, N. (2003). Gender Issues in the Information Society. Publication for the World Summit on the Information Society. Paris: UNESCO.
    ${ }^{23}$ Rosenberg, S. (2020) 1. Majorities in sub-Saharan Africa own mobile phones, but smartphone adoption is modest, Pew Research Center's Global Attitudes Project. Available at: https://www.pewresearch.org/global/2018/10/09/majorities-in-sub-saharan-africa-own-mobile-phones-but-smartphone-adoption-is-modest/ (Accessed: 12 July 2023).

[^10]:    ${ }^{24}$ Reshaping the future: Women, girls, ICTs and the SDGs UN Women - Headquarters. Available at:
    https://www.unwomen.org/en/news/stories/2017/7/reshaping-the-future-icts-and-the-sdgs (Accessed: 24 August 2023).*
    ${ }^{25}$ Pashapa, T. \& Rivett, U. (2018). Gender of household head and the digital divide in South Africa's settlements. Gender, Technology and Development. 21. 232-249. 10.1080/09718524.2018.1434994.

[^11]:    Source: GHS 2016 and 2022

[^12]:    ${ }^{26}$ "Radio". Oxford Living Dictionaries. Oxford University Press. 2019. Archived from the original on March 24, 2019. Retrieved 26 February 2019.

[^13]:    ${ }^{27}$ Fisher, D.E., Fink, D.G., Fisher, M.J. \& Noll, A.M.. "television". Encyclopedia Britannica, 18 Aug. 2023, https://www.britannica.com/technology/television-technology. Accessed 24 August 2023.
    ${ }^{28}$ Team, M.S. (2020) Broadcast television - meaning, importance, types \& example: Marketing overview, MBA Skool. Available at: https://www.mbaskool.com/business-concepts/marketing-and-strategy-terms/17828-broadcast-
    television.html\#:~:text=Broadcast\%20TV\%20comprises\%20of\%20all,audience\%20with\%20a\%20television\%20set. (Accessed: 8 August 2023).

[^14]:    ${ }^{29}$ Department Science and Technology. 2008. Innovation Towards a Knowledge-based Economy: Ten-Year Plan for South Africa (20082018). Accessed from: https://www.gov.za/documents/ten-year-plan-science-and-technology [Accessed on 09 September 2023].

[^15]:    Source: HEMIS 2016-2021

[^16]:    Source: HEMIS 2016-2021
    **Percentage excludes unknown

[^17]:    ${ }^{30}$ Department of Communications and Digital Technologies. 2021. Implementation Programme for the National Digital and Future Skills Strategy of South Africa, 2021-2025 [Online]. Accessed from: https://www.gov.za/sites/default/files/gcis document/202203/digital-and-future-skillsimplementation-programmefinal.pdf [Accessed on 09 May 2023].
    ${ }^{31}$ The Role and Impact of Information and Communications Technology (ICT) to Employees in Work from Home Set-up Maricar Caliliw ${ }^{1,2}$, Rodora Gonzales ${ }^{1}$, Ira Valenzuela ${ }^{1,3}$
    ${ }^{32}$ The impact of new technologies on the labour market and the social economy.

[^18]:    Source: QLFS 2016, 2019 and 2021

[^19]:    ${ }^{33}$ Labour Market Dynamics in South Africa, 2021

[^20]:    ${ }^{34}$ GHS series. Volume VI, Information and Communication Technologies (ICT): In-depth analysis of the General Household Survey Data 2002-2013 (2015). Pretoria: Statistics South Africa.

