



**Independent Communications
Authority of South Africa**

**2nd Report on the state of the ICT sector
in South Africa**

31st March 2017

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1 INTRODUCTION

The Independent Communications Authority of South Africa (ICASA) is responsible for regulating the South African communications, broadcasting and postal industries in the public interest and ensuring affordable services of a high quality for all South Africans. ICASA aims to be the authoritative source of relevant sector statistics for consumers, government, industry and other stakeholders. To this end, the Authority publishes the *State of the Information and Communication Technology (ICT) Sector* report annually, with the inaugural version published in March 2016.

In preparing the second version of the report ICASA utilised data from secondary sources (like Statistics South Africa ("StatsSA")), as well as collecting information through detailed questionnaires that were sent to stakeholders. The information covers a 12-month period ending on the 30th September 2016, unless otherwise specified.

The questionnaires were customised for the three sectors that ICASA regulates, namely telecommunications, broadcasting and postal. In order to address confidentiality issues, the information gathered was aggregated so as to conceal stakeholder-specific information. Responses were received from a total of forty-six (46) Electronic Communication Services (ECS) and Electronic Communication Network Services (ECNS) licensees¹; seven (7) television and radio broadcasters and one (1) postal service and one (1) courier licensees².

This year's report contains additional indicators that were not included last year. For mobile services we included indicators such as penetration statistics (e.g. smartphone penetration). For broadcasting services, we now also cover radio. For postal services the information has been expanded to include data on the unreserved market.

¹ This includes major licensees and the vast majority of the value of the total market by revenue.

² See Appendix 1 for respondent companies

Limitations

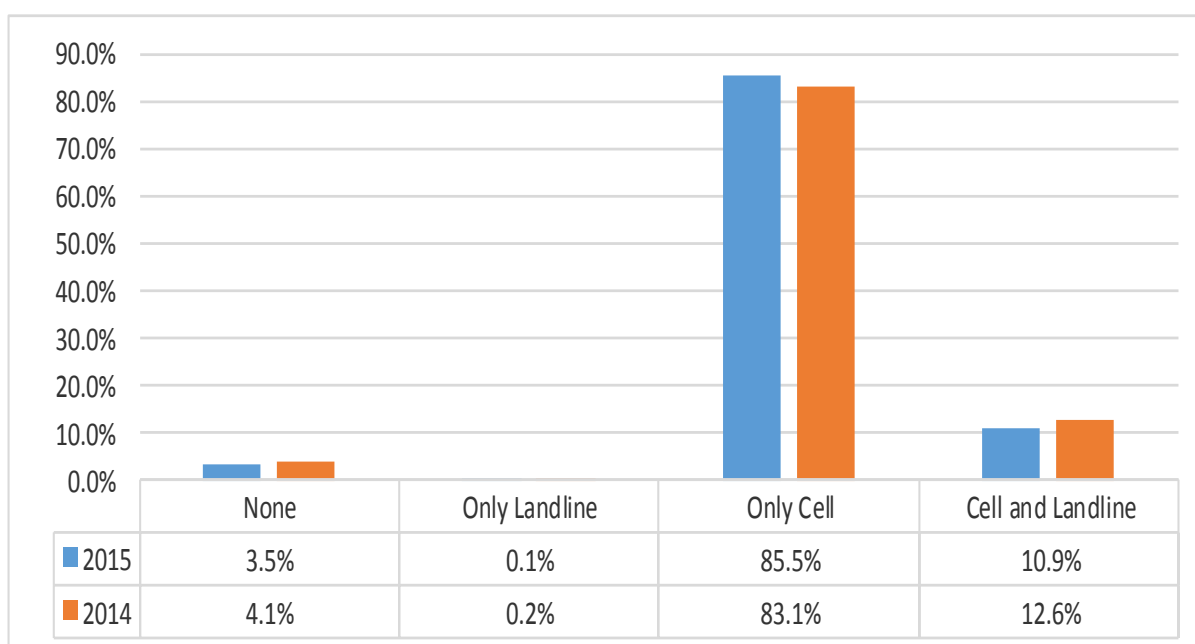
This report does not include price basket indicators as per the ITU definitions.

2 INFORMATION ON THE ICT SECTOR AS REPORTED BY STATISTICS SOUTH AFRICA

In terms of StatsSA's *General Household Survey* ("GHS") nationally a high number of households had access to some form of a telecommunication service in 2015, with only 3.5% (compared to 4.1% in 2014) not having any access to either a landline or a cellular phone.

By way of comparison, in 2015 85.5% (83.1% in 2014) of households had access to at least one (1) cellular phone, 10.9% (decreased from 12.6% in 2014) had access to both a landline and a cellular phone service and only 0,1% had access only to a landline service.

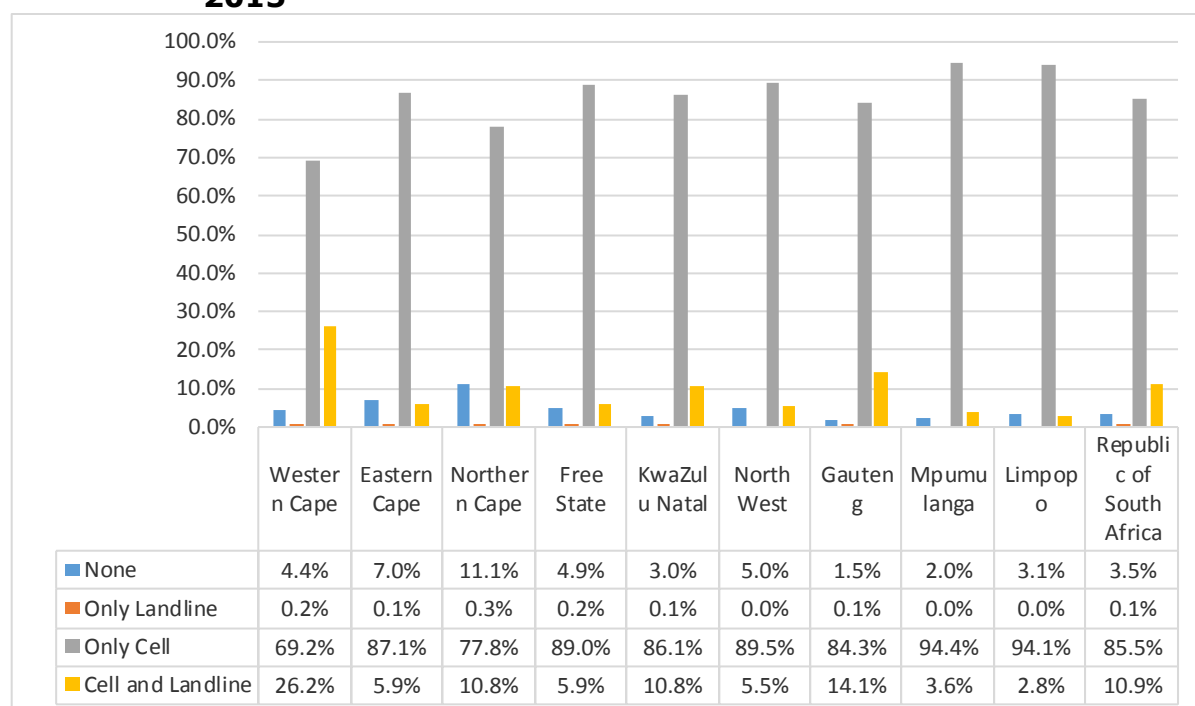
Graph 1: Percentage of Households who have functional landline and cellular telephone in the Republic of South Africa for 2015 and 2014



Source: StatsSA GHS, 2015

Mpumalanga is the Province with the highest percentage (94.4%) of household who have only cellular telephones followed by Limpopo at 94.1%. The Western Cape has the lowest percentage at 69.2%.

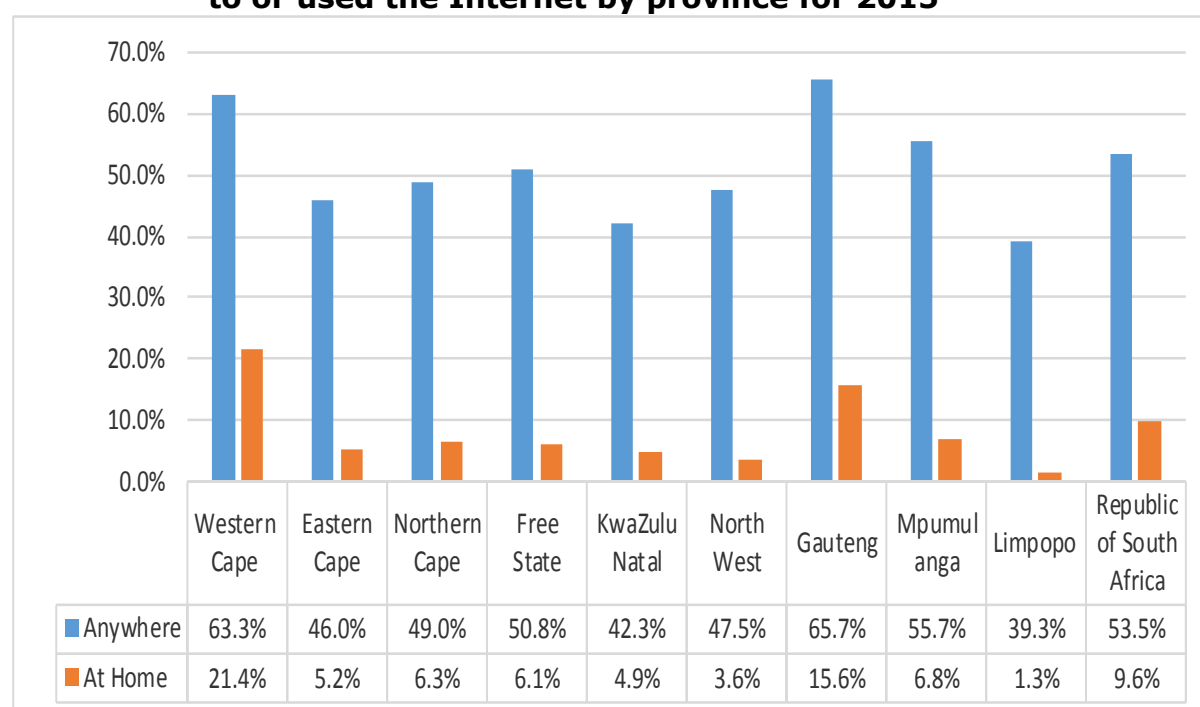
Graph 2: Percentage of Households who have functional landline and cellular telephone in their dwellings by province for 2015



Source: StatsSA GHS, 2015

Just over half of South Africa's households (53.5%) had at least one member who used the Internet either at home, workplace, place of study, or Internet café in 2015. For Gauteng the figure was 65.7% and the Western Cape 63.3%, whilst just over one-third (39.3%) of household in Limpopo had access to the Internet.

Graph 3: Percentage of Households with access to the Internet at home, or for which at least one member has access to or used the Internet by province for 2015



Source: StatsSA GHS, 2015

47.6% of South Africans have access to internet using mobile devices. Only 9.3% have access to internet using internet cafes or educational facilities.

Table 1: Households' access to the Internet by place of access, geotype and province, 2015

Place Internets accessed	Geotype	Province (per cent)									
		WC	EC	NC	FS	KZN	NW	GP	MP	LP	RSA
At home	Metro	25,2	10,8	NA	10,1	8,2	NA	16,4	NA	NA	16,0
	Urban	14,4	4,9	7,0	4,5	6,0	6,5	10,6	7,9	3,7	7,5
	Rural	12,6	1,2	4,5	4,1	1,1	0,9	10,2	6,0	0,5	2,1
	Total	21,4	5,2	6,3	6,1	4,9	3,6	15,6	6,8	1,3	9,6
At work	Metro	22,7	19,9	NA	13,9	21,7	NA	24,5	NA	NA	23,1
	Urban	13,9	12,2	11,6	9,7	20,7	12,5	14,6	15,5	15,7	14,4
	Rural	4,7	1,1	4,9	3,8	4,7	4,1	11,7	5,7	2,8	3,7
	Total	19,1	9,8	9,7	10,0	14,7	8,2	23,1	9,9	5,8	15,0
Using mobile devices	Metro	63,7	53,1	NA	56,7	36,3	NA	56,9	NA	NA	54,7
	Urban	39,4	50,3	51,6	45,2	48,8	50,6	58,7	63,1	50,5	51,1
	Rural	12,3	29,5	33,4	36,1	28,8	39,9	54,7	45,5	31,9	33,7
	Total	53,6	41,9	46,4	47,1	36,2	45,1	57,1	53,2	36,3	47,6
At Internet Cafes or education al facilities	Metro	15,5	13,6	NA	6,8	9,5	NA	16,7	NA	NA	14,9
	Urban	9,5	8,1	2,2	7,0	9,5	6,3	6,9	7,1	2,4	7,0
	Rural	0,8	1,3	2,6	6,6	4,2	5,3	1,2	5,0	0,9	3,1
	Total	12,9	6,9	2,3	6,9	7,4	5,8	15,3	5,9	1,2	9,3

Source: StatsSA GHS, 2015

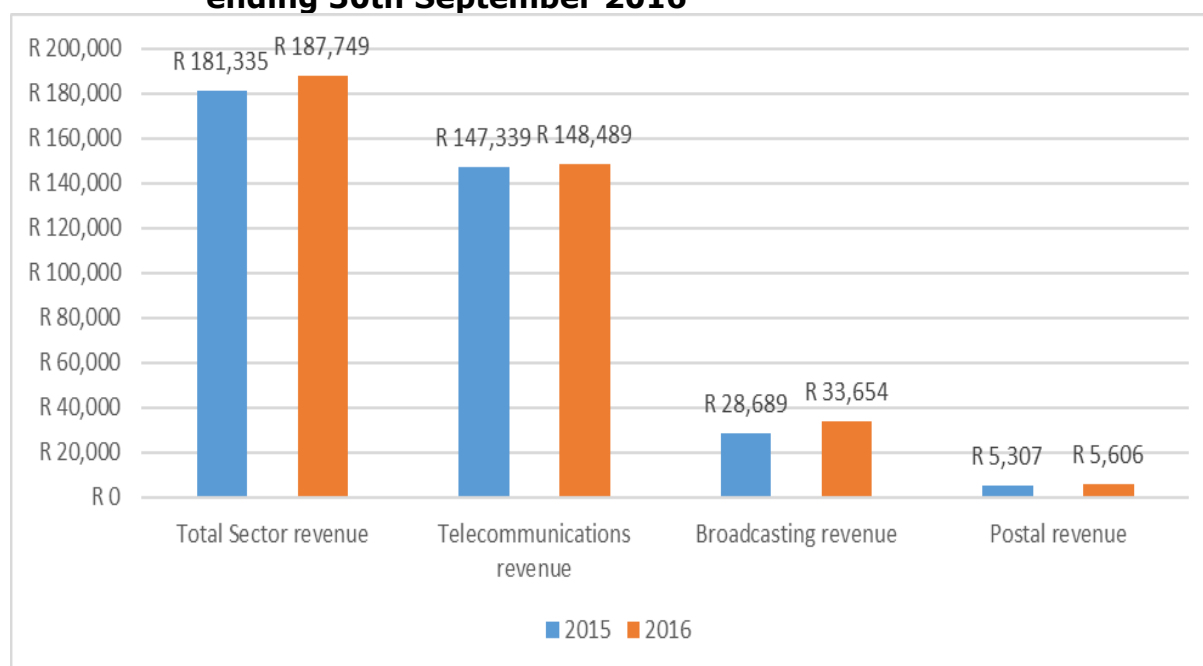
3 ICT DATA COLLECTED BY ICASA

This section of the report presents the aggregated data from the questionnaires received in December 2016, forty-six (46) Electronic Communication Services (ECS) and Electronic Communication Network Services (ECNS) licensees, seven (7) broadcasters (TV and Radio), and two (2) Postal Licensees³.

3.1 Revenue for the three sectors that ICASA regulates

The total revenue reported for the three sectors that ICASA regulates has increased by 3.5% compared to 2015, the main contributor is the Broadcasting sector which has increased by more than 17.3%.

Graph 4: Total revenue of 3 sectors, R million, for the 12 months ending 30th September 2016



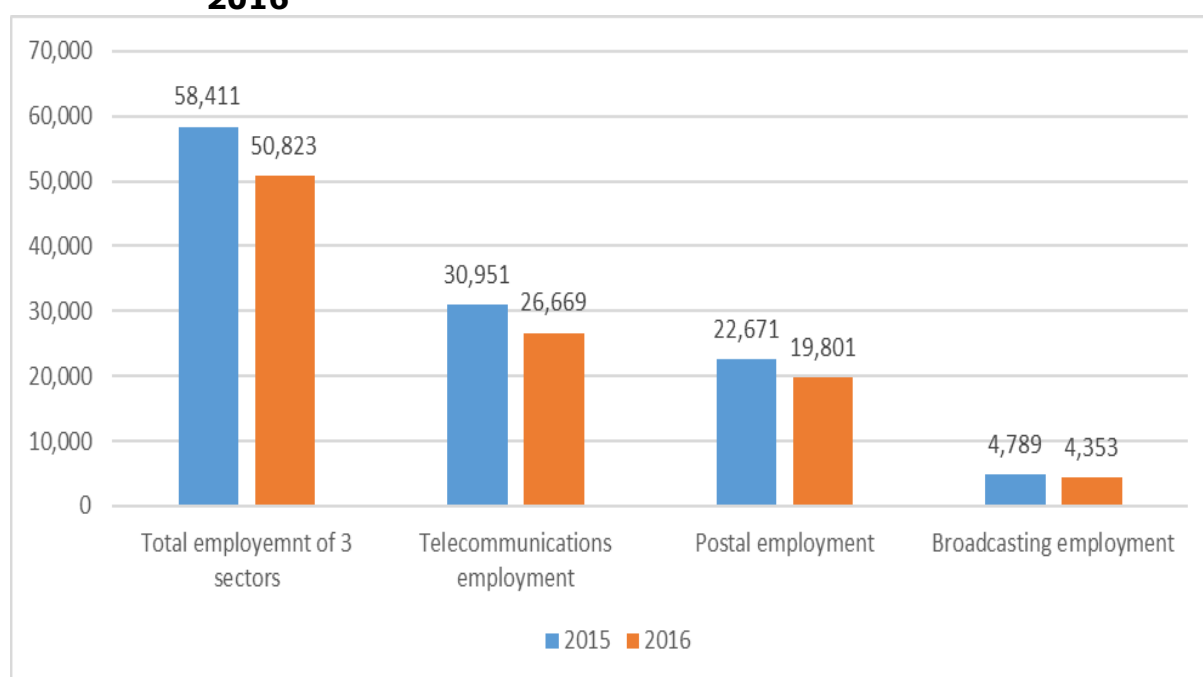
Source: ICASA Electronic Communications, Broadcasting and Postal Questionnaires, December 2016

3.2 Employment for the three sectors that ICASA regulates

As of 30 September 2016, the total number of employees reported for the three sectors that ICASA regulates has decreased significantly by 13.0%. All three sectors have experienced a significance.

Note: This excludes about 7000 people in the broadcasting sector that are employed in South Africa but not under the actual licensee company.

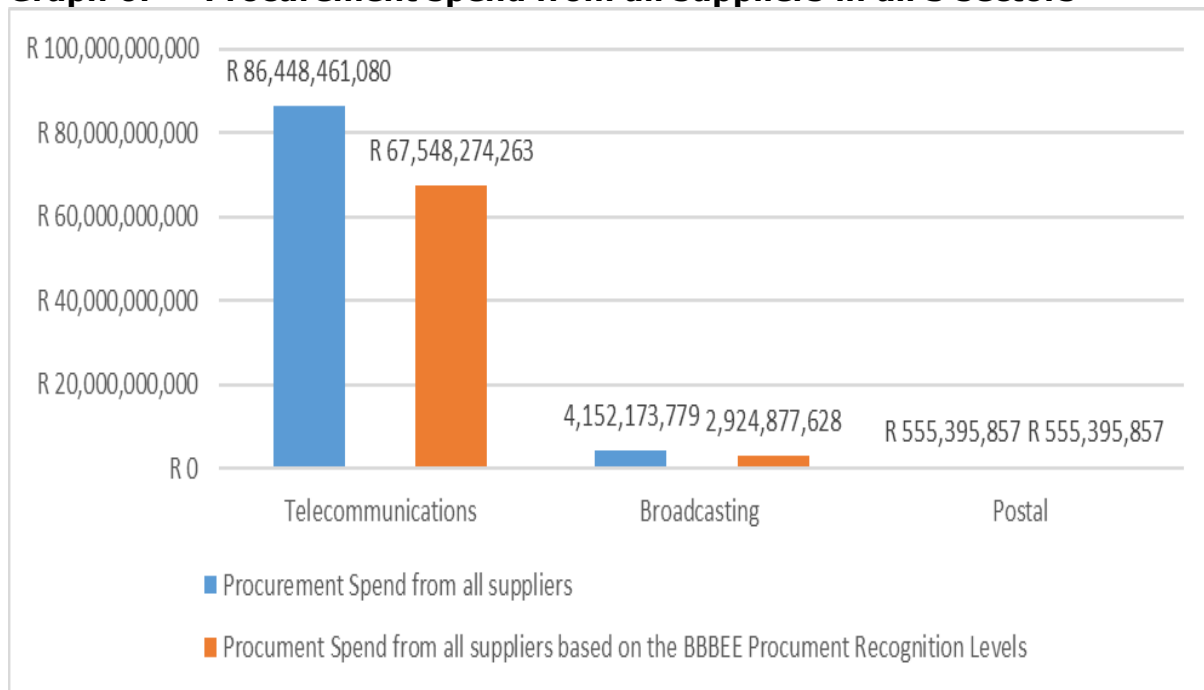
Graph 5: Total employment of 3 sectors, as of 30 September 2016



Source: ICASA Electronic Communications, Broadcasting and Postal Questionnaires, December 2016

In 2016 about 78.1% of the procurement spend was awarded to suppliers based on BBBEE procurement recognition levels.

Graph 6: Procurement spend from all suppliers in all 3 sectors



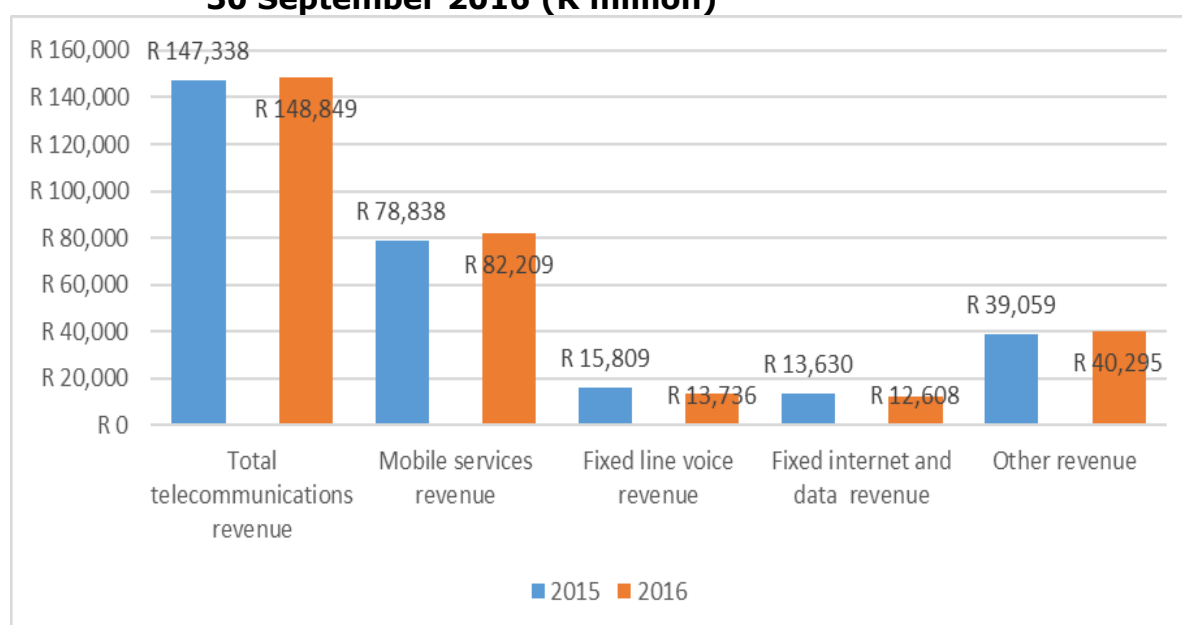
Source: ICASA Electronic Communications, Broadcasting and Postal Questionnaires, December 2016

4 TELECOMMUNICATIONS SECTOR

4.1 Telecommunication sector revenues

The Telecommunication revenue in 2016 has slightly increased by 1.0%. This increase is because of Mobile service revenue that has increased by 4.3%, however fixed line voice revenue and Fixed internet and data revenue have decreased significantly by 13.1% and 7.5% respectively in 2016.

Graph 7: Telecommunications revenue, for the 12 months ending 30 September 2016 (R million)



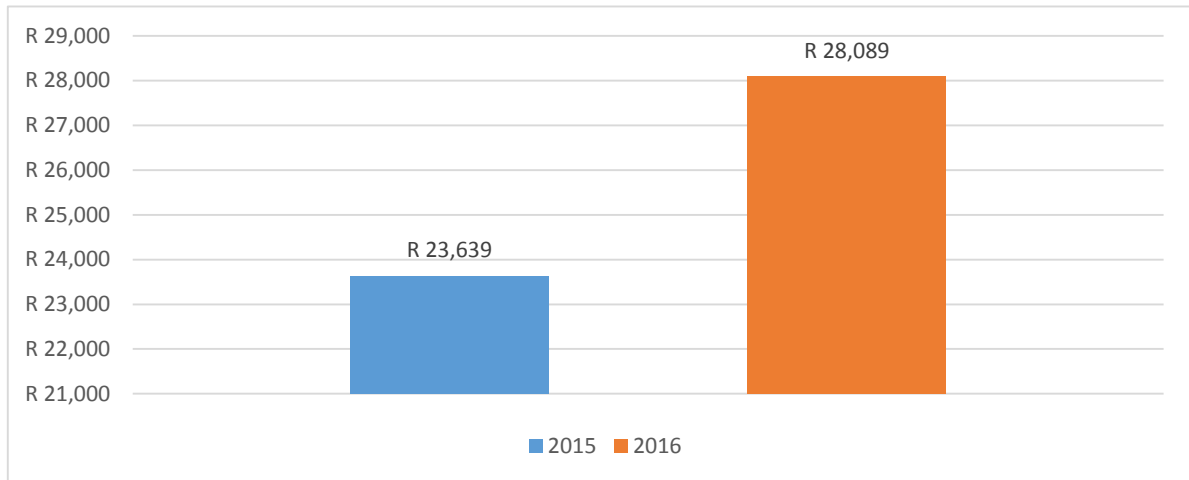
Source: ICASA Electronic Communications Questionnaire, December 2016

Note: Includes revenues from: telecommunication services earned from retail fixed-telephone, mobile-cellular, internet and data services offered by telecommunication operators (both network and virtual, including resellers) and interconnection, equipment sales and any other revenue

4.2 Total telecommunication investment

The total telecommunication investment in 2016 has increased by 18.8%

Graph 8: Total telecommunication investment, R million, for the 12 months ending 30th September 2016

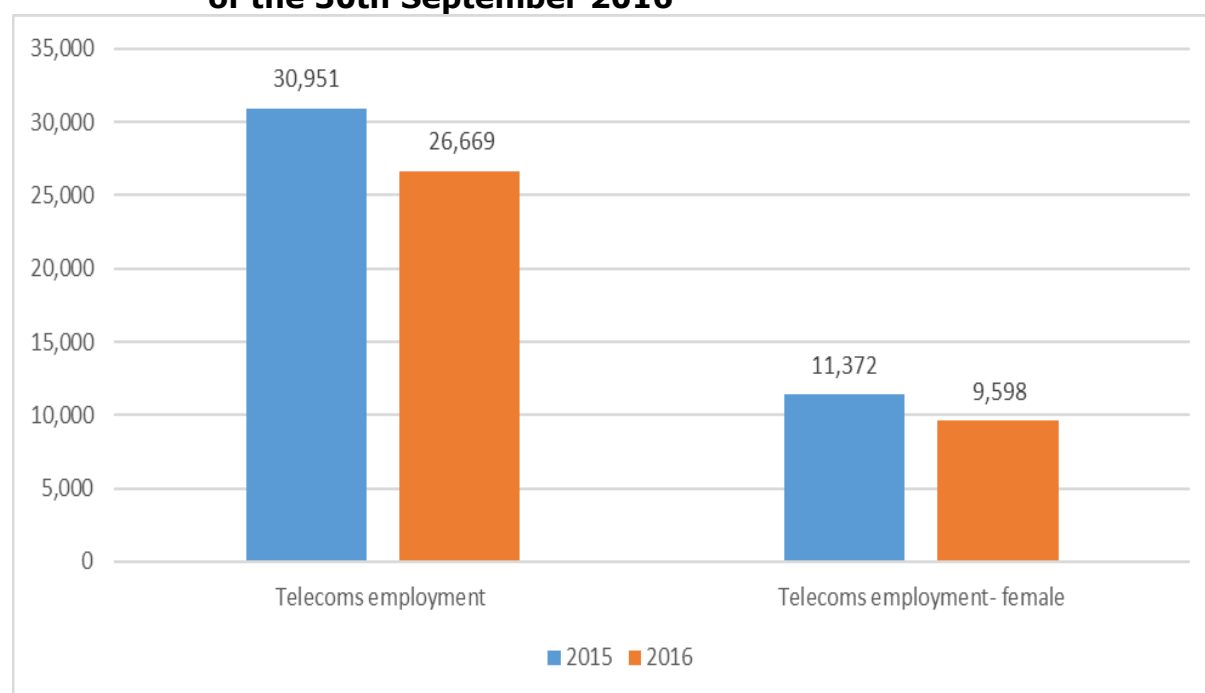


Source: ICASA Electronic Communications, Broadcasting and Postal Questionnaires, December 2016

4.3 Persons employed in the telecommunications sector

As of 30 September 2016, telecoms employment has decreased significantly by 13.8% and female's employment has decreased by 15.6%.

Graph 9: Persons employed in the telecommunications sector, as of the 30th September 2016

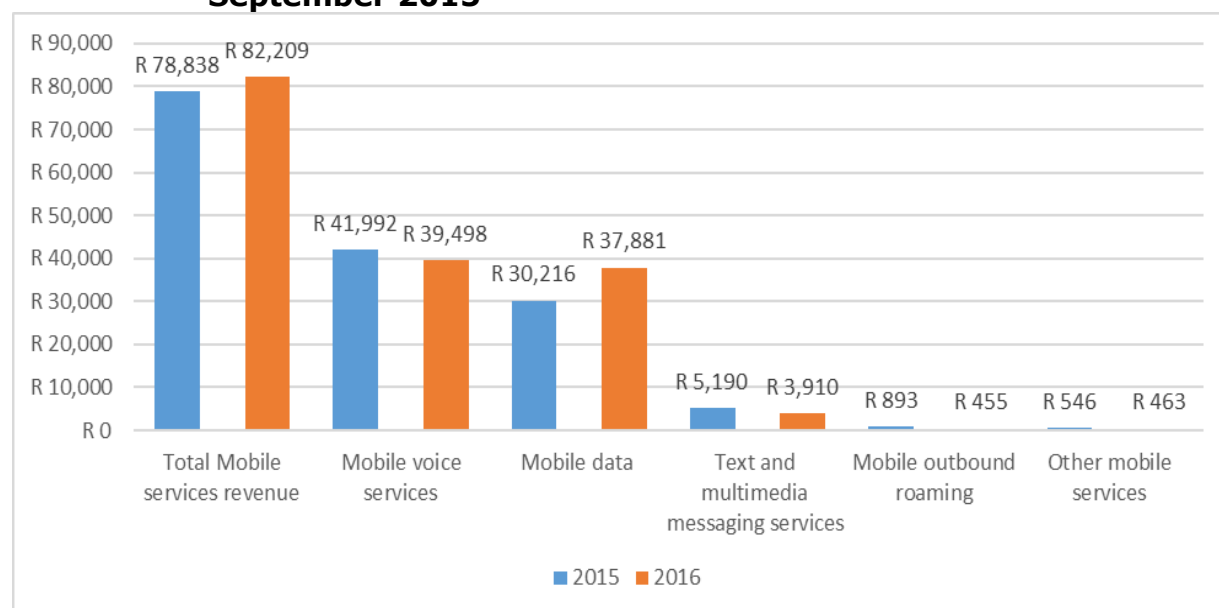


Source: ICASA Electronic Communications Questionnaire, December 2016

4.4 Total mobile services revenue

Mobile data revenue for the 12 months ending 30 September 2016, has increased significantly by 25.4% while mobile voice service has decreased by 5.9%.

Graph 10: Mobile services revenue for the 12 months ending 30 September 2015



Source: ICASA Electronic Communications Questionnaire, December 2016

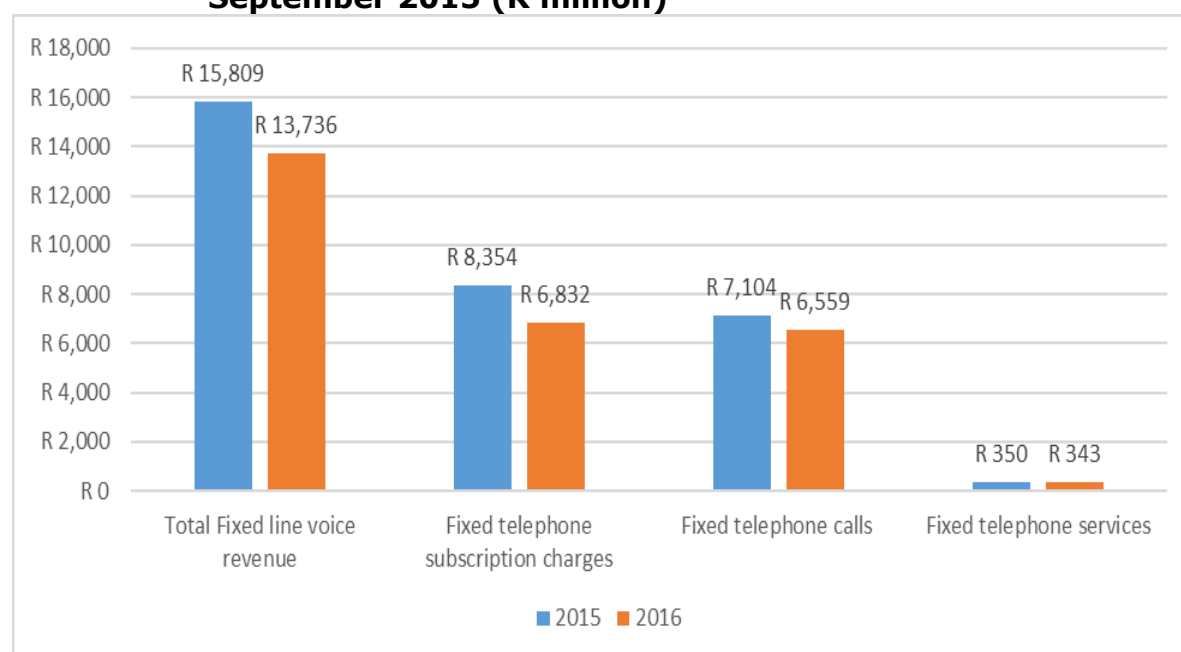
This includes retail mobile revenue from: the provision of voice services from national and international calls; outbound roaming abroad; mobile data; and text messaging and multimedia messaging (SMS and MMS) and any other mobile revenue.

Note: Excludes equipment revenue and termination (interconnection) revenue and any other revenue categories e.g. other wholesale services.

4.5 Fixed line services revenue

The reported fixed line revenue for the 12-month period ending 30 September 2016 decreased significantly by 13.1%.

Graph 11: Fixed line services revenue, 12 months ending 30 September 2015 (R million)

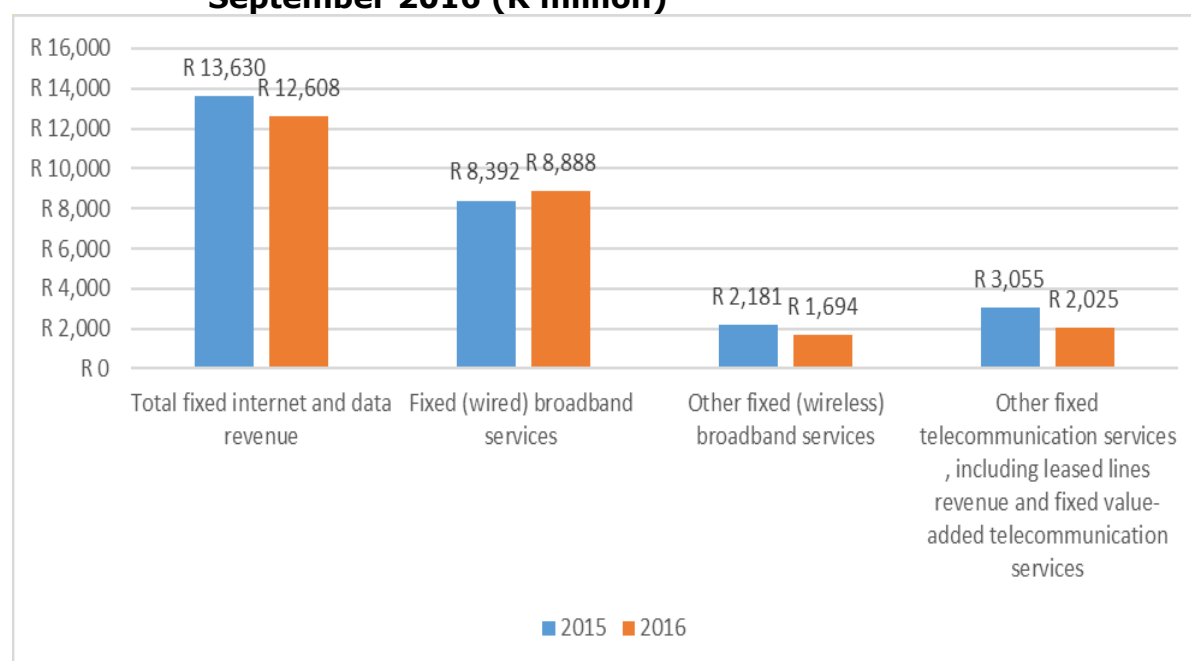


Source: ICASA Electronic Communications Questionnaire, December 2016

4.6 Total fixed internet revenues

Total fixed internet and data revenue decreased by 7.5%, however fixed (wired) broadband service has slightly increased by 5.9%.

Graph 12: Fixed internet revenue, 12 months ending 30 September 2016 (R million)



Source: ICASA Electronic Communications Questionnaire, December 2016

This includes:

- Fixed (wired) internet revenue from the provision of high-speed (at least 256 Kbit/s) data connectivity and related services over fixed (wired) infrastructure. It includes services such as DSL, cable modem and FTTH.
- Other (wireless) broadband retail revenue from the provision of high-speed (at least 256 Kbit/s) data connectivity and related services over a wireless infrastructure such as satellite or terrestrial fixed wireless broadband infrastructures. Excludes broadband revenue provided through mobile cellular services.

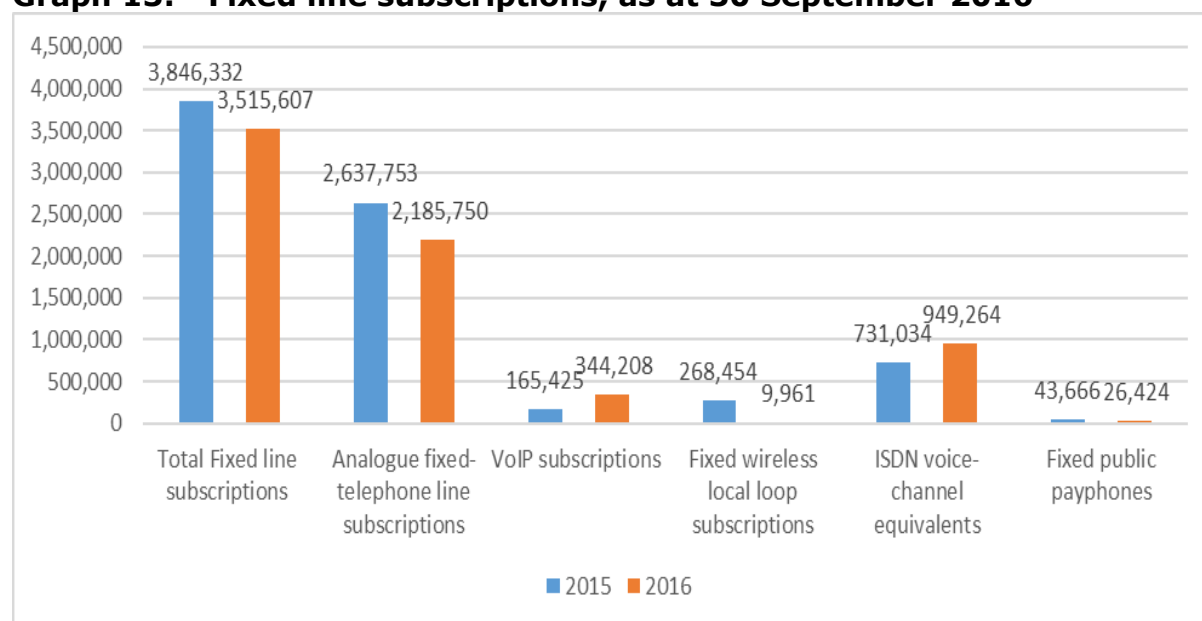
4.7 Telecommunications subscriptions

This section of the report covers fixed voice, mobile voice, and broadband and mobile data subscriptions.

4.7.1 Fixed line subscriptions

The number of fixed line subscriptions reported as at 30 September 2016 has decreased significantly by 8.6%, with the vast majority consisting of analogue fixed-telephone subscriptions.

Graph 13: Fixed line subscriptions, as at 30 September 2016



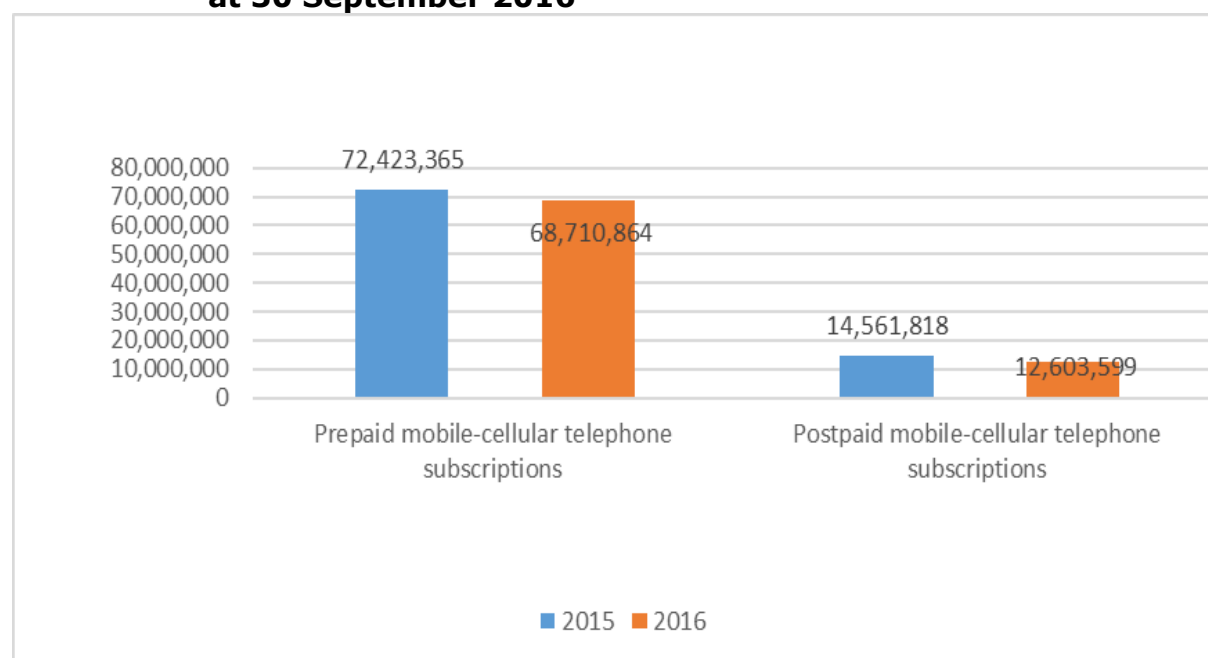
Source: ICASA Electronic Communications Questionnaire, December 2016

Note that the number of VoIP subscriptions is understated as not all players' subscriber numbers have been provided.

4.7.2 Mobile cellular subscriptions

Mobile cellular subscription has significantly decreased by 7%, Prepaid mobile-cellular telephone subscriptions decreased by 5.1%, and Postpaid mobile-cellular telephone subscriptions decreased by 13.4%.

Graph 14: Prepaid and postpaid mobile cellular subscriptions, as at 30 September 2016



Source: ICASA Electronic Communications Questionnaire, December 2016

Note: The definition of prepaid subscribers is adopted from the ITU definition of 3-month active subscribers. Some South African operators do not have this metric available but rather count SIMs that have not been disconnected within a 90-day window implying that the number may be overstated according to the strict definition. Top up bundles and machine-to-machine subscriptions were included in postpaid mobile cellular subscriptions.

4.7.3 Smart phone subscriptions

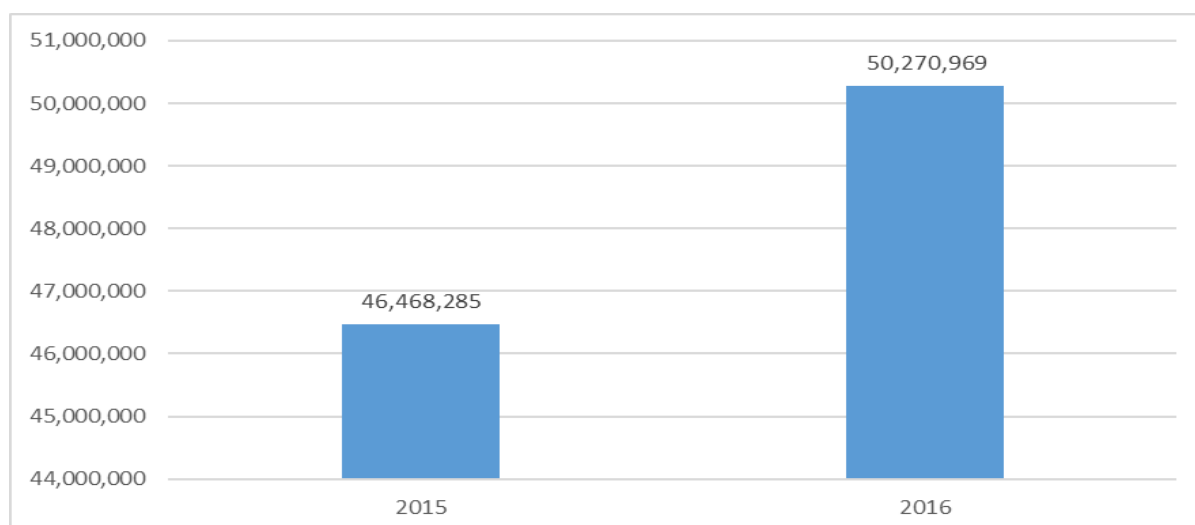
As at 30 September 2016, the total number of smart phones subscriptions was 24,340,341.

A smartphone is a mobile phone with advanced features: it has WiFi connectivity, web browsing capabilities, a high-resolution touchscreen display and the ability to use apps. The majority use one of the following mobile operating systems: Android, Symbian, iOS, BlackBerry OS and Windows Mobile.

4.7.4 Mobile data subscriptions

Mobile data subscription increased by 8.2% to 50,270,969 lines.

Graph 15: Total internet and data subscriptions, as at 30 September 2016



Source: ICASA Electronic Communications Questionnaire, December 2016

Note: All LTE connections are included in 'mobile'. There is room for the definition of 'mobile broadband subscriptions' to be improved in subsequent reports, noting that it was not possible to accurately distinguish between handset data usage and mobile data usage on other devices, or alternatively to distinguish SIMs used for both voice and data from SIMs dedicated to data usage. It was also necessary to count total internet subscriptions rather than 'broadband' subscriptions, as it was not possible to accurately break out 'narrowband' internet, albeit this is now a small minority of total internet subscriptions. 'Wireless broadband' number may be incomplete in respect of some players, especially those operating in unlicensed spectrum bands.

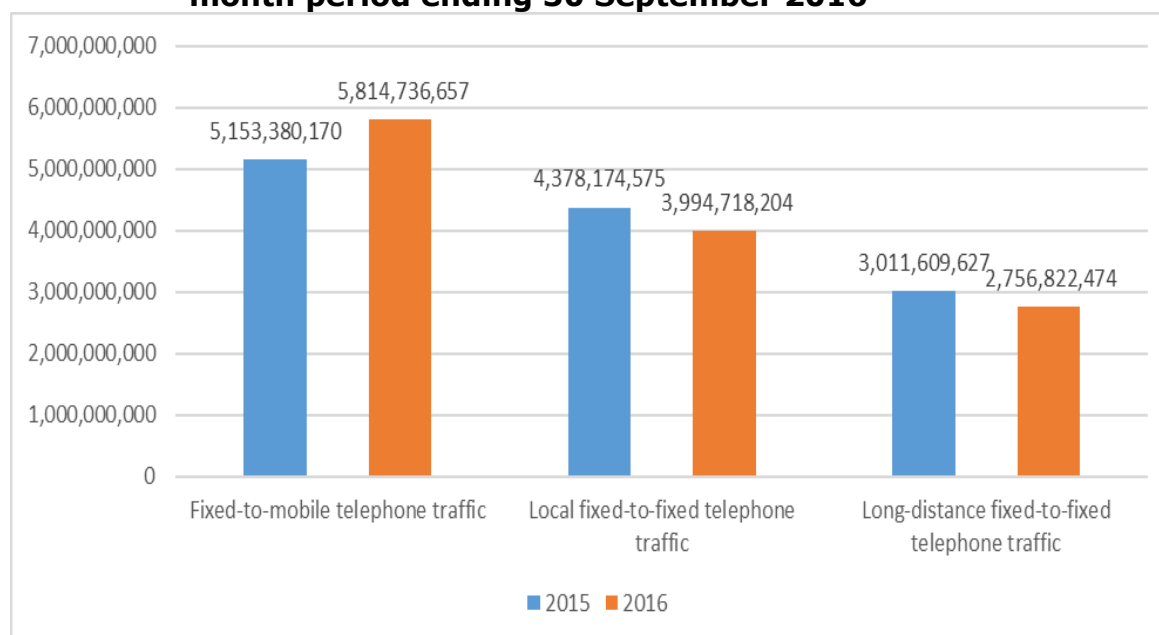
4.8 Network traffic

This section highlights usage of operator networks in terms of traffic volumes.

4.8.1 Fixed line voice traffic

Fixed-to-mobile telephone traffic has increased significantly by 12.8%, however Local fixed-to-fixed telephone and Long-distance fixed-to-fixed telephone traffic have decreased by 8.8% and 8.5% respectively.

Graph 16: Fixed line voice local traffic, in minutes, for the 12-month period ending 30 September 2016

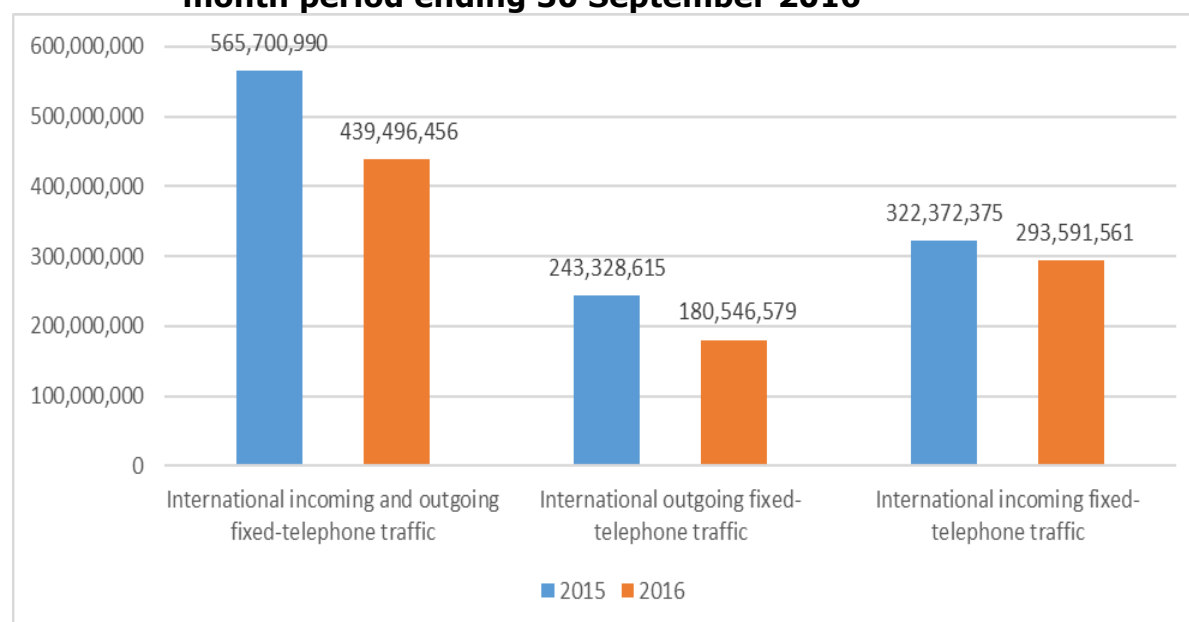


Source: ICASA Electronic Communications Questionnaire, December 2016

4.8.2 International incoming and outgoing fixed telephone traffic

International incoming and outgoing fixed-telephone traffic has decreased significantly by 22.3%, International outgoing fixed-telephone traffic decreased by 25.8% and International incoming fixed-telephone traffic decreased by 8.9%.

Graph 17: International Fixed line traffic, in minutes, for the 12-month period ending 30 September 2016

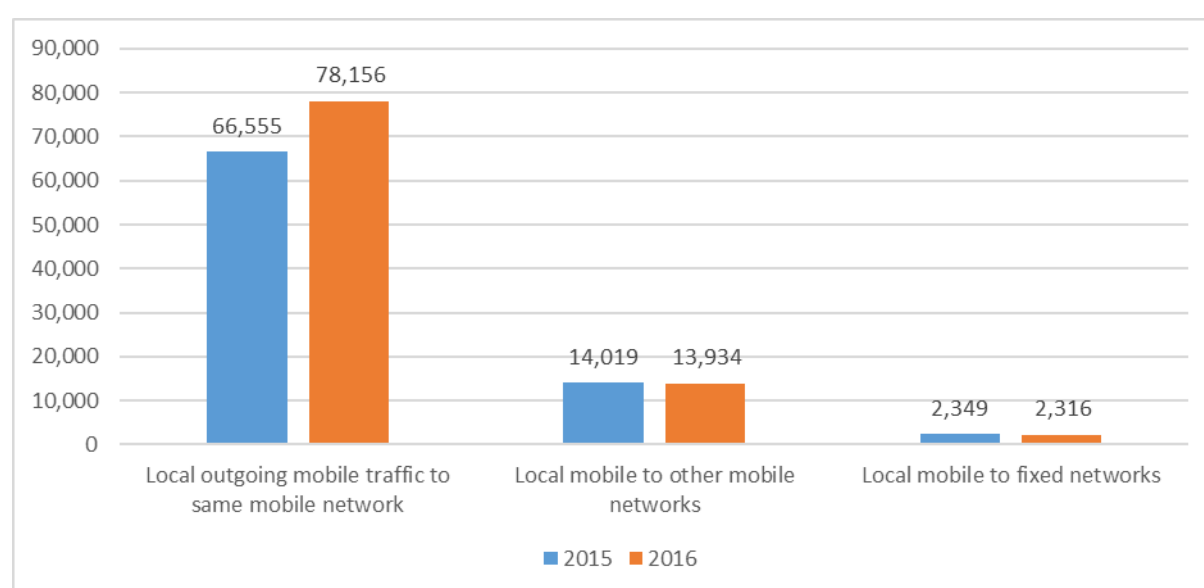


Source: ICASA Electronic Communications Questionnaire, December 2016

4.8.3 Mobile voice traffic

Local outgoing mobile traffic to same mobile network has significantly increased by 17.4%, Local mobile traffic to other mobile network decreased slightly by 0.6%, and Local mobile to fixed networks decreased slightly by 1.4%.

Graph 18: Mobile traffic in minutes for the 12-month period ending 30 September 2015 (million)

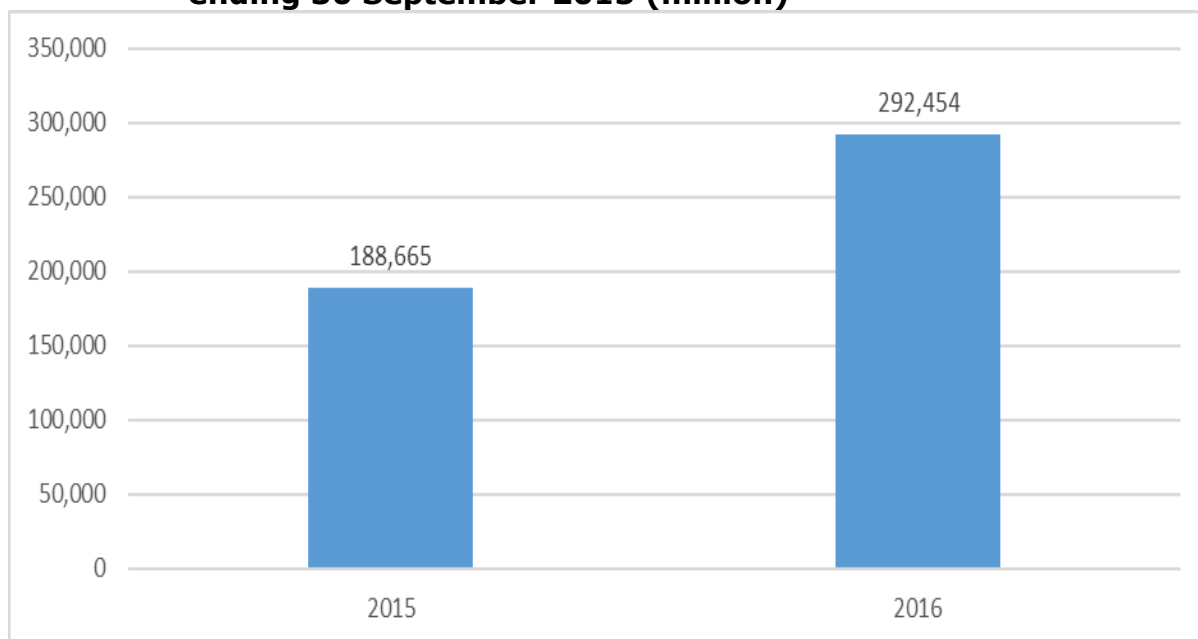


Source: ICASA Electronic Communications Questionnaire, December 2016

4.8.4 Mobile data traffic

Mobile data traffic significantly increased by 55.0%.

Graph 19: Mobile data traffic in minutes for the 12-month period ending 30 September 2015 (million)

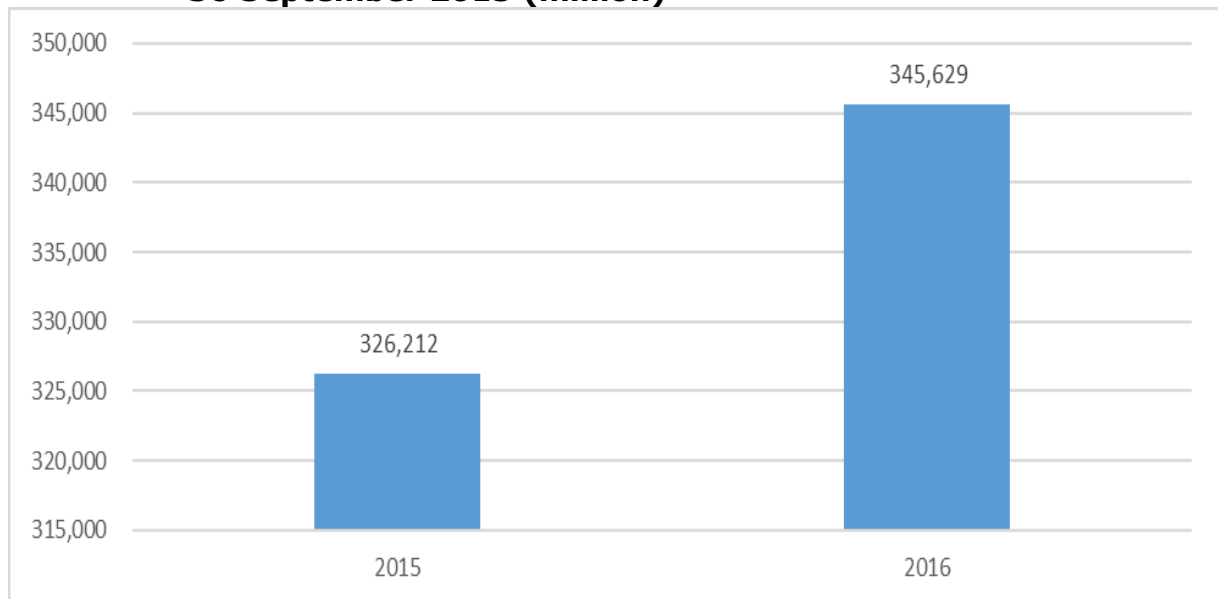


Source: ICASA Electronic Communications Questionnaire, December 2016

4.8.5 International internet bandwidth

International internet bandwidth slightly increased by 6.0% to 345,629.

Graph 20: Mobile traffic in minutes for the 12-month period ending 30 September 2015 (million)

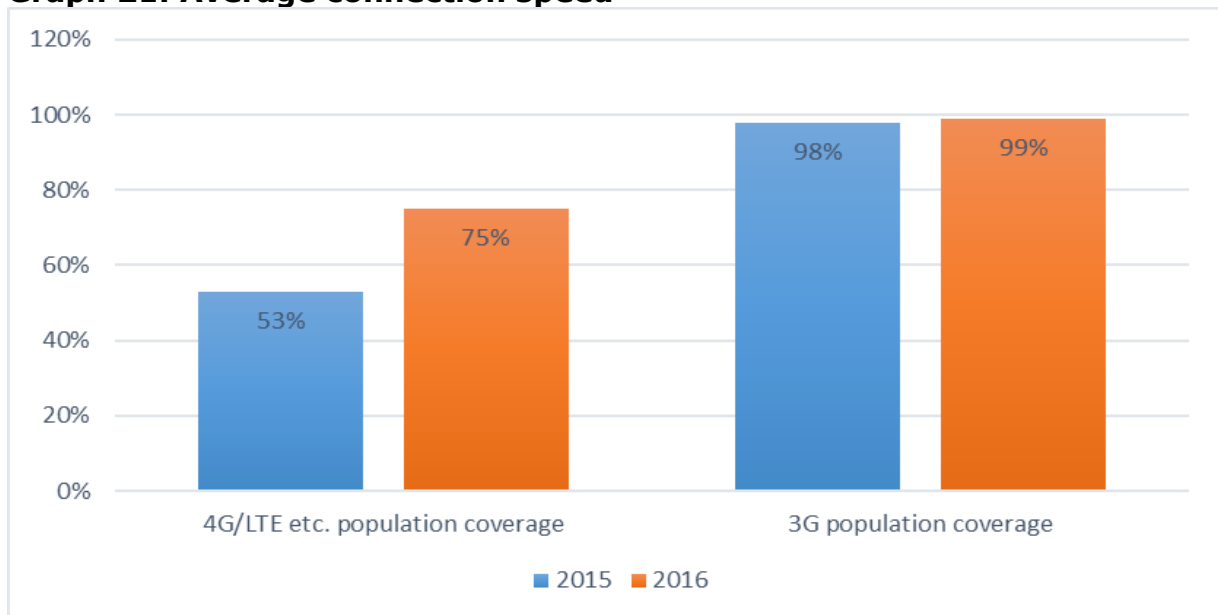


Source: ICASA Electronic Communications Questionnaire, December 2016

4.9 Population coverage

The 4G/LTE population coverage increased significantly by 22 percentage points to 75% in 2016.

Graph 21: Average connection speed



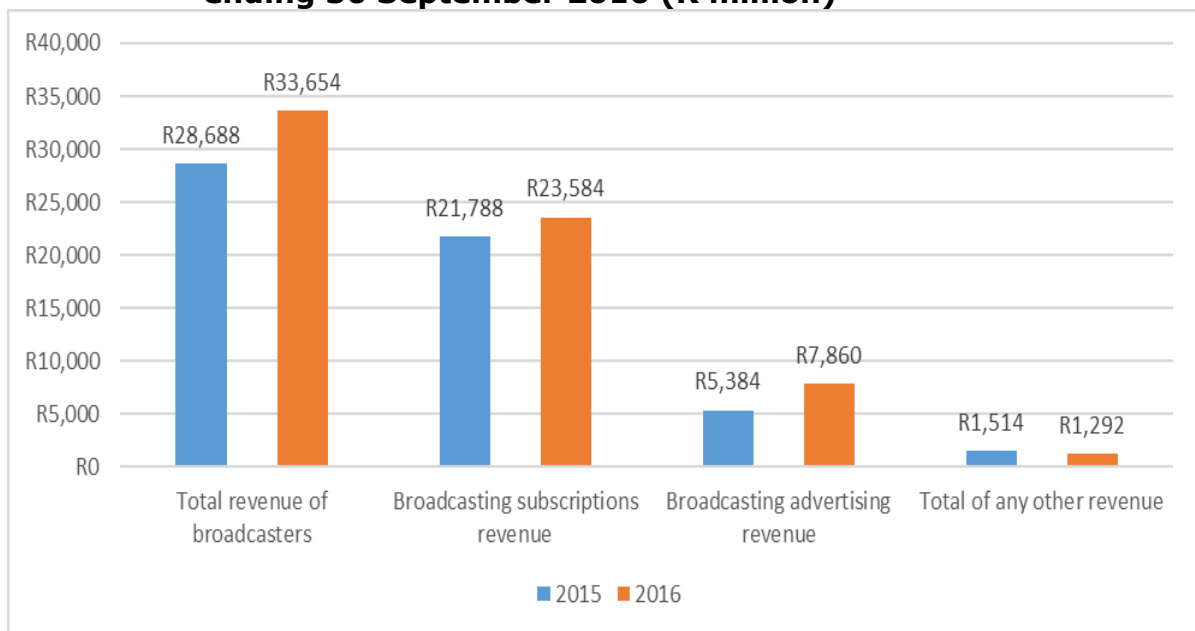
Source: ICASA Electronic Communications Questionnaire, December 2016

5 BROADCASTING

5.1 Broadcasting revenues

South African broadcasting revenue significantly increased by 17.3%, Revenue advertisement has significantly increased by 46.0%.

Graph 22: TV broadcasting revenues for the 12-month period ending 30 September 2016 (R million)



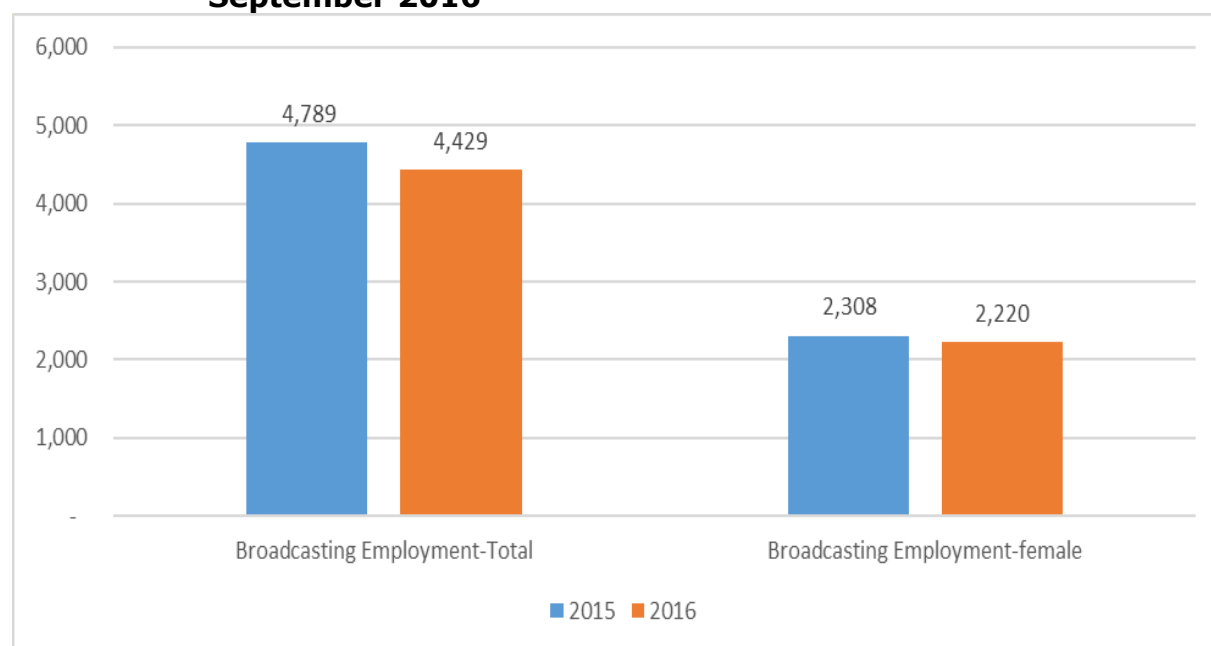
Source: ICASA Broadcasters Questionnaire, December 2016

2016 data includes radio broadcasting

5.2 Broadcasting employment

Employment levels in the broadcasting sector significantly decreased by 7.5%, however female employment decreased by 3.8%.

Graph 23: People employed in TV broadcasting, as at the 30th September 2016



Source: ICASA Broadcasters Questionnaire, December 2016

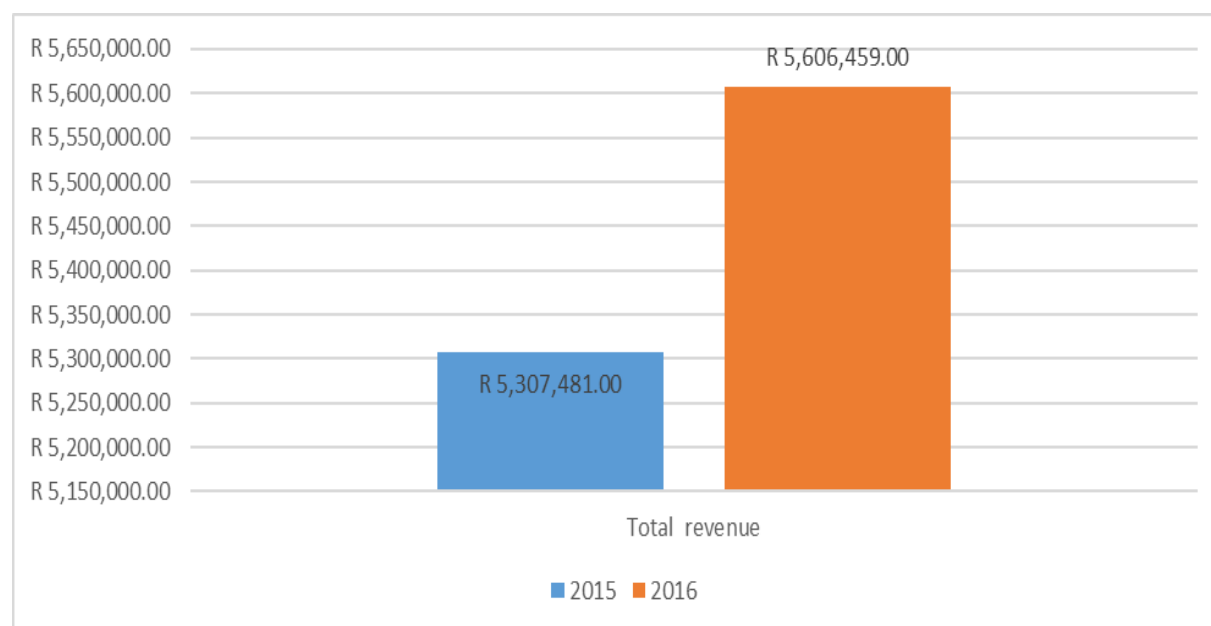
2016 data includes radio broadcasting

6 POSTAL SERVICES

6.1 Postal sector revenue

Postal sector revenue has increased by 5.6%.

Graph 24: Postal sector distribution of revenue, 12-month period ending September 2016



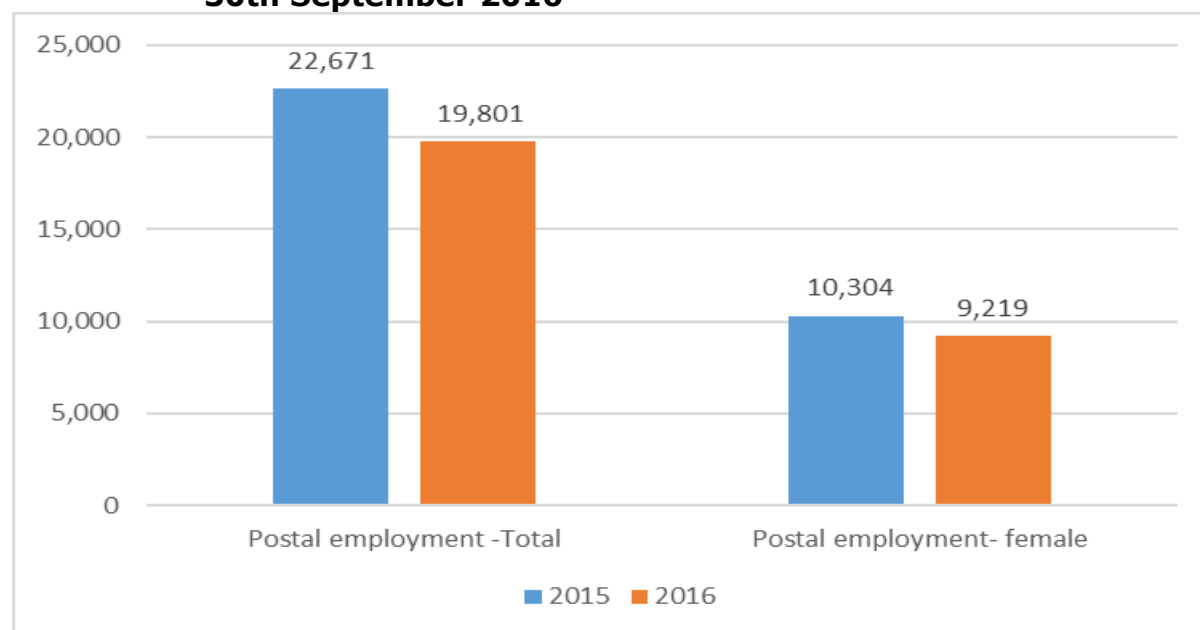
Source: ICASA Postal Questionnaire, December 2016

2016 data includes courier companies

6.2 Postal sector employment

Postal sector employment decreased significantly by 12.7%, and female employment has decreased by 10.5%.

Graph 25: Persons employed in SA Post Office, by gender, as of 30th September 2016



Source: ICASA Postal Questionnaire, December 2016

2016 data includes courier companies

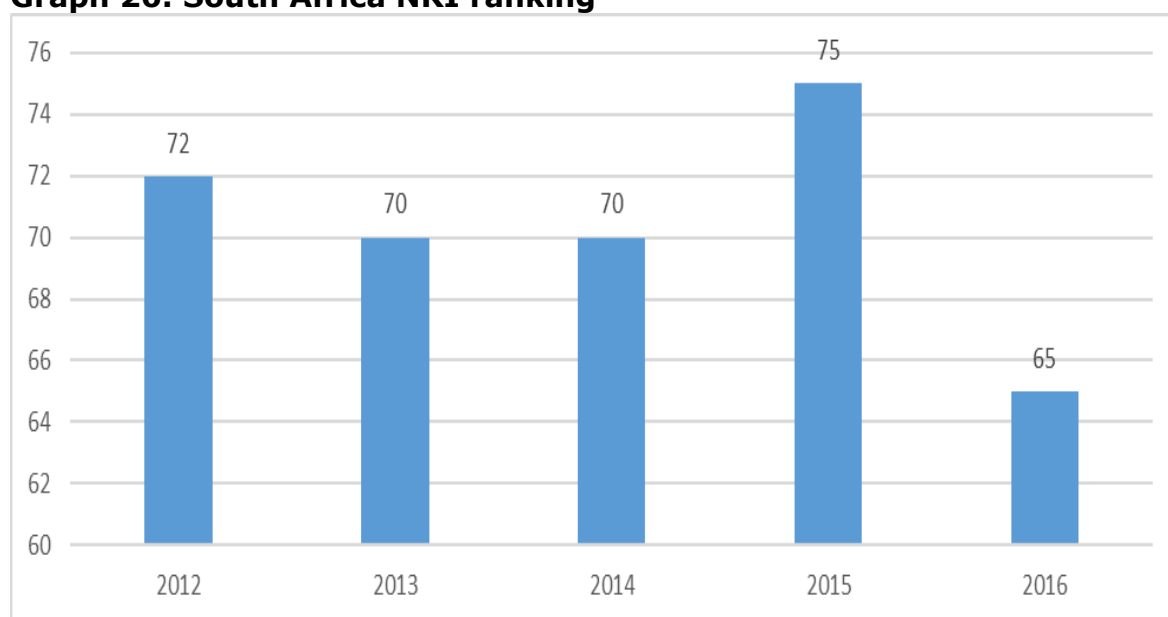
7 INTERNATIONAL BENCHMARKS FOR SOUTH AFRICA

It is insightful to track South Africa's ICT progress compared to other countries to have a better understanding of how it is performing internationally. Two approaches are used to carry out this analysis. The first reviews South Africa's rankings in popular digital indexes. The second compares South African key ICT indicators to other countries.

7.1 Indexes from WEF and ITU

The World Economic Forum ("WEF") publishes an annual Network Readiness Index ("NRI") which measures the ability of economies to leverage information and communication technologies to boost their competitiveness and improve their citizens' well-being. In 2016 the NRI ranking for South Africa was 65, an improvement of 10 places from the previous year's ranking of 75.

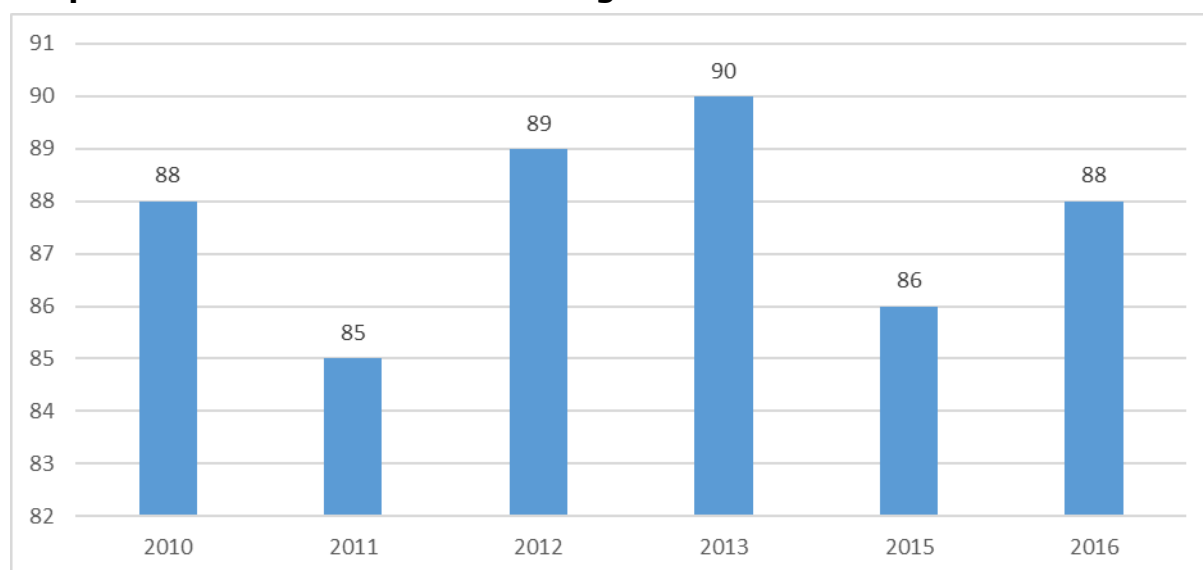
Graph 26: South Africa NRI ranking



Source: WEF NRI, 2012- 2016

South Africa's 2016 ranking on the International Telecommunication Union's ("ITU") *ICT Development Index* ("IDI") has decreased to position 88.

Graph 27: South Africa's IDI ranking



Source: ITU IDI 2010-2015

2015 ranking has been recalculated by ITU

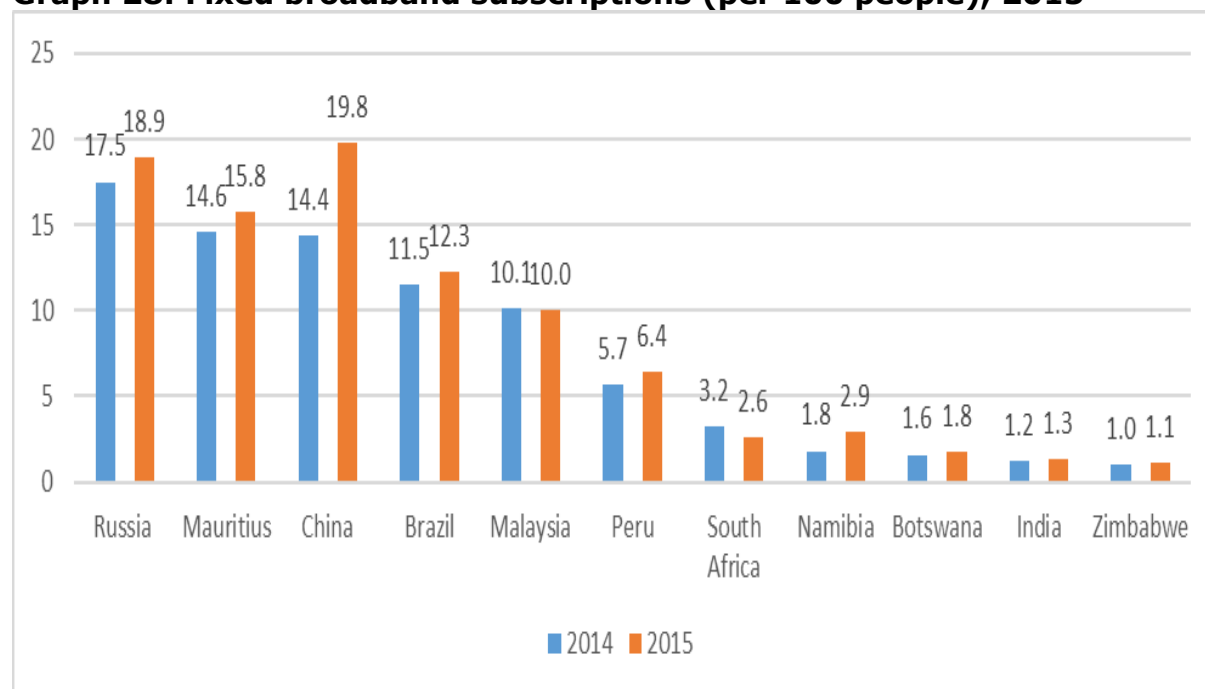
7.2 Comparison with other countries

A group of countries has been selected to benchmark South Africa's ICT performance to. This includes the other "BRICS" countries (Brazil, Russia, India and China), neighbouring countries that we could find adequate data on (Botswana, Namibia and Zimbabwe) and upper-middle-income peers (Malaysia, Mauritius and Peru). Comparisons are based on the core indicators on ICT infrastructure and access and usage by individuals and households as contained in the report titled *Partnership on Measuring ICT for Development*⁴ published by the United Nations ("UN"). Please note that the information contained in this report is sourced from various organizations and therefore the figures for South Africa may differ to those compiled by ICASA.

7.2.1 Core indicators on ICT infrastructure and access

South Africa's fixed broadband subscriptions per 100 people decreased from 3.2 in 2014 to 2.6 in 2015.

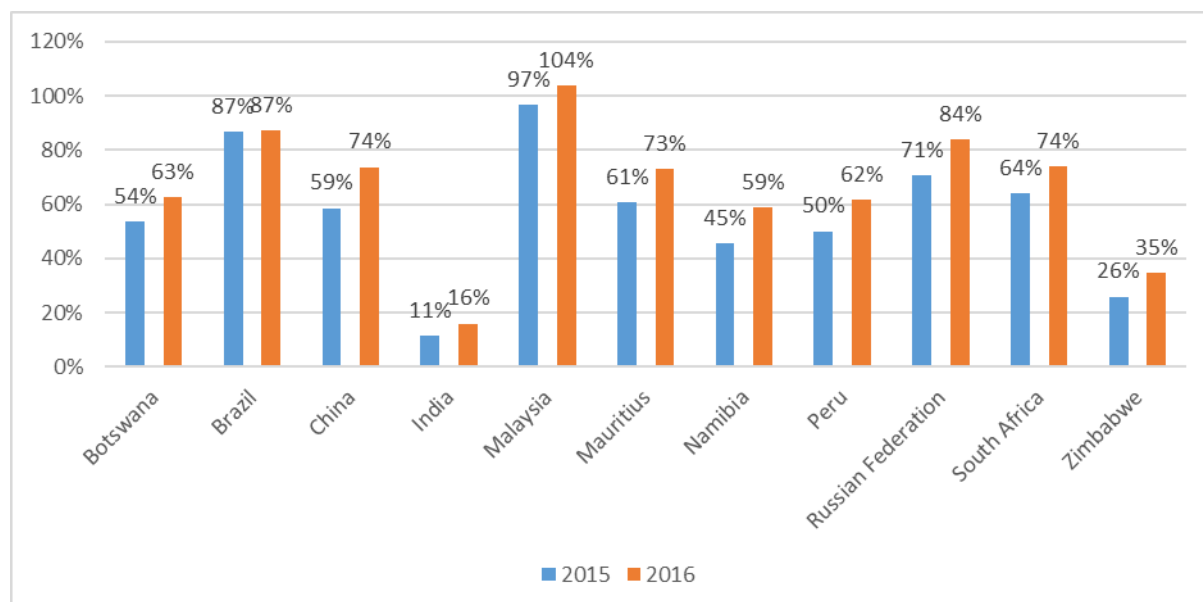
Graph 28: Fixed broadband subscriptions (per 100 people), 2015



Source: ITU

South Africa mobile broadband connections has increased by 10% in 2016.

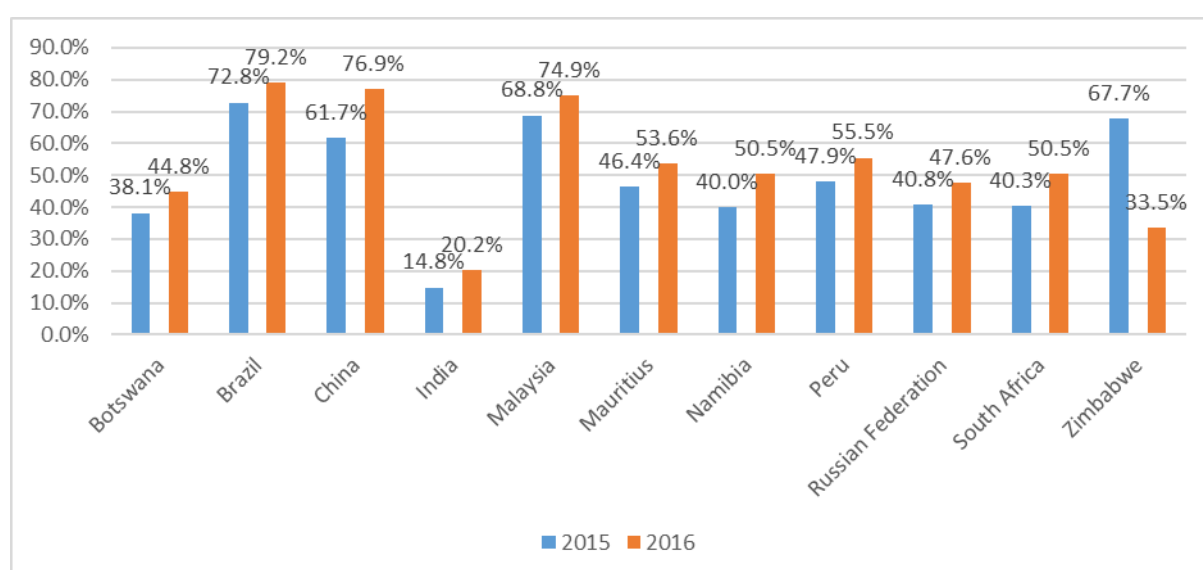
Graph 29: Mobile broadband connections (subscriptions) (per 100 people)



Source: GSMA Intelligence

South Africa mobile broadband connections excluding m2m has increased to 50.5% in 2016.

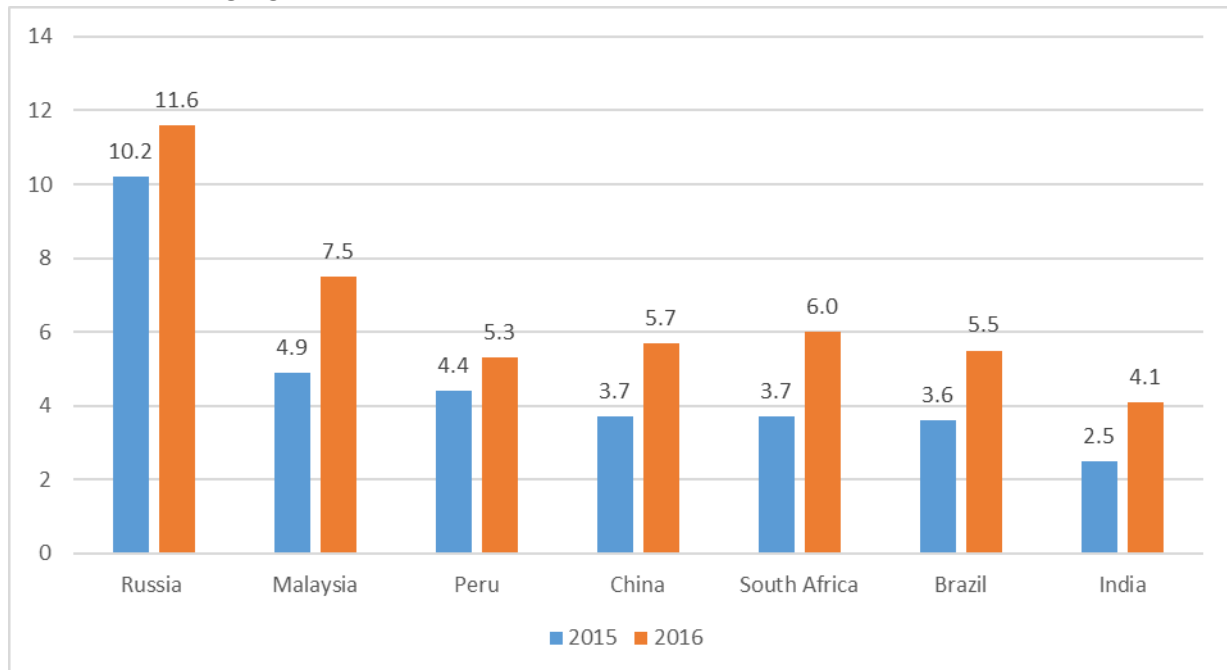
Graph 30: Mobile broadband connections (subscriptions) excluding cellular M2M (per 100 people)



Source: GSMA Intelligence

In quarter 3 of 2016 the average internet connection speed in South Africa was at 6 Mbps, which was an improvement of 2.3 Mbps from the 2015 level of 3.7 Mbps.

Graph 31: Average internet connection speed (Mbps), September 2016



Source: Akamai

<https://www.akamai.com/us/en/multimedia/documents/state-of-the-internet/q3-2016-state-of-the-internet-connectivity-report.pdf>

8 CONCLUSION

The following highlights are worth noting:

- The total revenue reported for the three sectors that ICASA regulates has increased by 3.5% compared to 2015.
- Total number of employees for the three sectors that ICASA regulates decreased significantly by 13.0% since the last report. The drop in numbers was experienced by all three sectors.
- The revenue from telecommunication services increased slightly by 1% in 2016, with the main contributor to this increase being mobile services with an increase of 4.3%. In addition, revenue from fixed line voice and fixed internet services decreased significantly by 13.1% and 7.5%, respectively.
- Mobile data revenue for the 12-month period ending 30 September 2016 increased significantly by 25.4%, while mobile voice revenue decreased by 5.9%.
- The population coverage of 4G/LTE services significantly increased by 26%.
- Mobile data traffic increased significantly by 55.0%.
- South Africa moved up 10 places on its ranking on the Network Readiness Index (NRI) to number 65.
- Mobile broadband connections (subscriptions) per 100 people increased by 10% in 2016.

APPENDICES

Appendix 1: ICASA questionnaire respondents, December 2016

ICASA questionnaire respondents, December, 2016	
Electronic Communications Licensees	
1	Afrihost (Pty) Ltd
2	AT&T South Africa (Proprietary) Limited
3	Backspace Technologies (Pty) Ltd
4	BitCo
5	Border Internet PTY LTD
6	BushGuru CC
7	Cape Pc Services CC
8	Cell C
9	CMC Networks
10	Comtel Communications Pty Ltd
11	Connection Telecom (Pty) Ltd
12	Cybersmart
13	Dube Tradeport
14	eNetworks Pty Ltd
15	Enyuka Internet Access
16	EOH MTHOMBO (PTY) LTD
17	Extim Pty Ltd
18	FFG Connection CC
19	Fusion Wireless Pty Ltd t/a Sonic Wireless Solutions
20	Hymax Talking Solutions (Pty) Ltd
21	iConnectSA Pty Ltd
22	InfoStream Technologies CC
23	Internet Solutions
24	KCS GROUP (PTY) LTD
25	Lasernet Pty Ltd
26	LinkAfrica (Pty) Ltd
27	MTN (PTY) LTD

28	Multisource Telecoms (Pty) Ltd
29	MWEB
30	Mzansi Lisetta Media & Printing CC
31	Neotel (Pty) Ltd
32	Nepic
33	Olive Tree Technologies
34	Park Motors and Marine
35	River End Trading t/a Compnet
36	Scan RF Projects
37	Simigenix Pty Ltd
38	Sybaweb Pty Ltd
39	Telkom
40	Vangibuzz (Pty) Ltd t/a True Communications
41	Vlocity Communications Pty Ltd
42	Vodacom Pty Ltd
43	WIOCC Africa Pty Ltd
44	Wireless Associate Service Providers CC
45	Wireless Business Solutions (Pty) Ltd
46	Xtranet Internet Services
Broadcaster Licensees	
1	Multichoice
2	SABC
3	e.tv
4	Christelike Radiodienste NPC t/a Radio Tygerberg
5	Lekoa FM Station
6	Radio Rippel FM Stereo NPC t/a Groot FM
7	Rocasat NPC Ltd t/a 100 5fm
Postal	
1	South African Postal Service
2	Freight Care Logistics Pty Ltd

Appendix 2: Definitions of Telecommunications categories

Definitions of Telecommunications categories
Telecommunications sector
The telecommunications sector comprises fixed and mobile telecommunications services as well as the provision of Internet access.
<i>Total telecommunication investment</i>
Total annual investment in telecommunication services, also referred to as annual capital expenditure, refers to the investment during the financial year in telecommunication services (including fixed, mobile and Internet services) for acquiring or upgrading property and networks. Property includes tangible assets such as plant, intellectual and non-tangible assets such as computer software. The indicator is a measure of investment in telecommunication infrastructure in the country, and includes expenditure on initial installations and additions to existing installations where the usage is expected to be over an extended period of time. It excludes expenditure on research and development (R&D), annual fees for operating licences and the use of radio spectrum, and investment in telecommunication software or equipment for internal use.
<i>Annual investment in fixed-telephone services</i>
Refers to investment in fixed-telephone services for acquiring and upgrading property and networks within the country. This refers to annual investment in assets related to fixed-telephone networks and the provision of services.
<i>Annual investment in fixed (wired) broadband services</i>
Refers to investment in fixed (wired)-broadband services for acquiring and upgrading property and networks within the country. This refers to annual investment in assets related to fixed (wired)-broadband networks and the provision of services.
<i>Annual investment in mobile communication services</i>
Refers to investment in mobile services for acquiring and upgrading property and networks within the country. It should include investments made for mobile-broadband services. This refers to annual investment in assets related to mobile communication networks and the provision of services. It should include investment in mobile-broadband networks.

<i>Other annual investment in telecommunication services</i>
Refers to investment in other telecommunication services, such as fixed wireless-broadband, satellite and leased lines.
<i>Total telecommunications revenue</i>
The aggregated revenue includes the total telecommunications services revenue and any other revenue.
<i>Total telecommunication services revenue</i>
The sum of revenue from all telecommunication services (in local currency at current prices). Revenue from all telecommunication services refers to revenue earned from retail fixed-telephone, mobile-cellular, Internet and data services offered by telecommunication operators (both network and virtual, including resellers) offering services within the country during the financial year under review. It includes retail revenues earned from the transmission of TV signals, but excludes revenues from TV content creation. Exclude: (i) wholesale revenues (e.g. termination rates), (ii) revenues from device sales and rents, (iii) VAT and excise taxes. Any deviation from the definition should be specified in a note, including clarifications on what TV revenues are included/excluded (e.g. IPTV, cable TV, pay satellite and free-to-air TV).
<i>Total fixed line services revenue</i>
This aggregate value is defined as the sum of Fixed line voice revenue, Fixed (wired) internet revenue, Other fixed (wireless) broadband revenue and Other fixed telecommunications services revenue as defined below.
<i>Total fixed line voice revenue</i>
Sum of revenue from retail fixed-telephone services refers to revenue received for the connection (installation) of fixed-telephone services, revenue from recurring charges for subscription to the PSTN and revenue from fixed-telephone calls.
<i>Revenue from fixed-telephone connection charges</i>
Revenue from fixed-telephone connection charges refers to retail revenue received for connection (installation) of fixed- telephone services. This may include charges for transfer or cessation of services.
<i>Revenue from fixed-telephone subscription charges</i>
Revenue from fixed-telephone subscription charges refers to revenue from

recurring charges for subscriptions to the PSTN, including Internet access if it cannot be separated from fixed-telephone.
<i>Revenue from fixed-telephone calls</i>
Revenue from fixed-telephone calls refers to retail fixed-telephone revenue received from charges for local, national long-distance and international calls.
<i>Fixed (wired) internet revenue</i>
Revenue from fixed (wired) Internet services refers to retail revenue received from the provision of fixed (wired) Internet services such as subscriptions, traffic and data communication. It excludes the provision of access lines used to connect to fixed (wired) Internet (such as fixed-telephone lines used to access DSL connections). This includes revenue from fixed (wired)-broadband services (previously a separate indicator under ITU code i7311_fb, but for reporting purposes here counted together with any small residual narrowband internet revenue in a single indicator, viz. fixed wired internet).
<i>Other (wireless) broadband services revenue</i>
Revenue from other wireless-broadband services refers to the retail revenue received from the provision of high-speed (at least 256 Kbit/s) data connectivity and related services over a wireless infrastructure other than mobile cellular, such as satellite or terrestrial fixed wireless broadband infrastructures.
<i>Other fixed telecommunication services revenue, including leased lines revenue and fixed value-added telecommunication services</i>
Revenue from leased lines refers to retail revenue received from the provision of leased lines.
Revenue from fixed value-added telecommunication services refers to the retail revenue generated by the telecommunication service sector for fixed value-added telecommunication services, such as call forwarding, itemized billing, conference calls and voice-message services.
Value-added means additional services beyond the basic telephone service line rental and calls
Other telecommunication revenue refers to any other retail telecommunication services revenue received but not accounted for elsewhere.
<i>Total mobile services revenue (retail)</i>
Revenue from mobile networks refers to retail revenue earned from the provision of mobile-cellular communication services, including all voice, SMS and data

(narrowband and broadband) services offered by mobile operators offering services within the country during the financial year under review. Revenues from value added services (e.g. premium SMS) should be included. Data reported should exclude: (i) wholesale revenues (e.g. termination rates), (ii) revenues from device sales and rents, (iii) VAT and excise taxes.
<i>Revenue from mobile voice services</i>
Refers to all mobile-cellular retail revenue from the provision of voice services. It includes voice revenues from national and international calls, but excludes revenues from roaming services.
<i>Revenue from outbound mobile cellular roaming</i>
Refers to all mobile-cellular retail roaming revenue from own subscribers roaming abroad. It does not cover foreign mobile subscribers roaming into the country and international calls originating or terminating on the country's mobile networks.
<i>Revenue from mobile data services</i>
Refers to revenue from the provision of non-voice services including messaging (other than SME and MMs), data and Internet services, including M2M/telemetry. It excludes other mobile-cellular services and wireless Internet access services not relating to mobile networks (e.g. satellite or terrestrial fixed wireless technologies).
<i>Revenue from text and multimedia messaging services</i>
Refers to revenue from text messaging and multimedia messaging (SMS and MMS). Some countries may account for this in different ways. For example, some mobile plans include free SMS or MMS that are liable to be classified as voice revenue rather than mobile-messaging revenue. The treatment of premium messages – where users pay an additional amount over the regular messaging rate – can vary among operators, since they typically share the revenue with a premium-service provider. Operators may also include revenue from international messaging in other categories. The preference is to include all revenue earned by the operator from the provision of messaging services to retail customers.
<i>Other mobile services revenue</i>
Any other mobile revenue, like banking
Total of any other revenue
Sum of interconnection revenue, equipment sale revenue and any other revenue

<i>Interconnection revenues</i>
Revenues from terminating voice and messaging traffic coming from outside the operator's own network
<i>Equipment revenue</i>
Revenues from equipment sales
<i>Any other revenue</i>
Any other revenue which could include: wholesale revenues, excluding voice termination (interconnection); IT type services; revenue of a capital nature. E.g. sale of assets or a business.
Telecommunications employment
<i>Persons employed in full-time equivalents</i>
Persons employed in full-time equivalents refers to the total number of persons, in full-time equivalent (FTE) units, employed by telecommunication operators in the country for the provision of telecommunication services, including fixed-telephone, mobile-cellular, Internet and data services. This indicator excludes staff working in broadcasting businesses that offer only traditional broadcasting services. Part-time staff should be expressed in terms of full-time staff equivalents (FTE).
<i>Telecoms employment- female</i>
Persons employed by all telecommunication operators, female should be expressed in terms of full-time staff equivalents.
Telecommunication Subscriptions
<i>Fixed-telephone subscriptions</i>
Fixed-telephone subscriptions refers to the sum of active analogue fixed-telephone lines, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, ISDN voice-channel equivalents and fixed public payphones. This indicator was previously called Main telephone lines in operation.
<i>Analogue fixed-telephone lines</i>
Analogue fixed-telephone lines refers to the number of active lines connecting subscribers' terminal equipment to the PSTN and which have a dedicated port in the telephone-exchange equipment. It includes all postpaid lines and those prepaid lines that have registered an activity in the past three months. This term is synonymous with the terms 'main station' and 'direct exchange line' (DEL) that are commonly used in telecommunication documents.

<i>VoIP subscriptions</i>
VoIP subscriptions refers to the number of voice-over-Internet protocol (VoIP) fixed-line subscriptions. It is also known as voice over broadband (VoB), and includes VoIP subscriptions through fixed wireless, DSL, cable, fibre optic and other fixed-broadband Internet platforms that provide fixed telephony using IP. It excludes software-based VoIP applications (e.g. VoIP with Skype using computer-to-computer or computer-to-telephone). Those VoIP subscriptions that do not imply a recurrent monthly fee should only be counted if they have generated inbound or outbound traffic within the past three months.
<i>Fixed wireless local loop subscriptions</i>
Fixed wireless local loop (WLL) subscriptions refers to subscriptions provided by licensed fixed-line telephone operators that provide 'last-mile' access to the subscriber using radio technology and where the subscriber's terminal equipment is either stationary or limited in its range of use.
<i>ISDN voice-channel equivalents</i>
ISDN voice-channel equivalents refers to the sum of basic-rate and primary-rate voice-channel equivalents (B-channel equivalents). Basic-rate voice-channel equivalents is the number of basic-rate ISDN subscriptions multiplied by 2, and primary-rate voice-channel equivalents is the number of primary-rate ISDN subscriptions multiplied by 23 or 30, depending on the standard implemented.
<i>Fixed public payphones</i>
Fixed public payphones refers to payphones that are available to the public using the fixed network.
<i>Mobile cellular subscriptions</i>
Mobile-cellular telephone subscriptions, by postpaid and prepaid Mobile-cellular telephone subscriptions refers to the number of subscriptions to a public mobile-telephone service that provide access to the PSTN using cellular technology.
<i>Prepaid mobile-cellular telephone subscriptions</i>
Refers to the total number of mobile-cellular telephone subscriptions that use prepaid refills. These are subscriptions where, instead of paying an ongoing monthly fee, users purchase blocks of usage time. Although the definition of prepaid subscribers from the ITU definition is 3 month active subscribers (those used at least once in the last three months for making or receiving a call or carrying out a non-voice activity such as sending or reading an SMS or accessing

the Internet), some South African operators do not have this metric available but rather count SIMs that have not been disconnected within a 90 day window, reporting, implying that the number may be overstated according to the strict definition. The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

Postpaid mobile-cellular telephone subscriptions

Refers to the total number of mobile-cellular subscriptions, including top up bundles, where subscribers are billed after their use of mobile services, at the end of each month. The postpaid service is provided on the basis of a prior arrangement with a mobile-cellular operator. Typically, the subscriber's contract specifies a limit or allowance of minutes, text messages, etc. The subscriber will be billed at a flat rate for any usage equal to or less than that allowance. Any usage above that limit incurs extra charges. Theoretically, a subscriber in this situation has no limit on use of mobile services and, as a consequence, unlimited credit. M2M mobile-network subscriptions are included in postpaid subscriptions

M2M mobile-network subscriptions

M2M subscriptions is a subset of postpaid mobile cellular subscriptions and refers to the number of mobile-cellular machine-to-machine subscriptions that are assigned for use in machines and devices (cars, smart meters, consumer electronics) for the exchange of data between networked devices, and are not part of a consumer subscription. For instance, SIM-cards in personal navigation devices, smart meters, trains and automobiles should be included. Mobile dongles and tablet subscriptions should be excluded.

Internet and data subscriptions

Fixed broadband subscriptions

Fixed-broadband subscriptions refers to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 Kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile-cellular networks. It should

include fixed WiMAX and any other fixed wireless technologies. It includes both residential subscriptions and subscriptions for organizations.
<i>DSL Internet subscriptions</i>
Refers to the number of Internet subscriptions using digital subscriber line (DSL) services to access the Internet, at downstream speeds greater than or equal to 256 Kbit/s. DSL is a technology for bringing high-bandwidth information to homes and small businesses over ordinary copper telephone lines. It should exclude very high-speed digital subscriber line (VDSL) subscriptions if these are provided using fibre directly to the premises.
<i>Fibre-to-the-home/building Internet subscriptions</i>
Refers to the number of Internet subscriptions using fibre-to-the-home or fibre-to-the-building, at downstream speeds equal to, or greater than, 256 Kbit/s. This should include subscriptions where fibre goes directly to the subscriber's premises or fibre-to-the-building subscriptions that terminate no more than 2 metres from an external wall of the building. Fibre-to-the-cabinet and fibre-to-the-node are excluded.
<i>Other fixed (wired) broadband subscriptions</i>
Refers to Internet subscriptions using other fixed (wired) broadband technologies to access the Internet (other than DSL, cable modem, and fibre), at downstream speeds equal to, or greater than, 256 Kbit/s. This includes technologies such as ethernet LAN, and broadband-over-powerline (BPL) communications. Ethernet LAN subscriptions refer to subscriptions using IEEE 802.3 technology. BPL subscriptions refer to subscriptions using broadband-over-powerline services. Users of temporary broadband access (e.g. roaming between PWLAN hotspots), users of WiMAX and those with Internet access via mobile-cellular networks are excluded.
<i>Wireless broadband subscriptions</i>
Wireless-broadband subscriptions refers to the sum of satellite broadband, terrestrial fixed wireless broadband and active mobile-broadband subscriptions to the public Internet. The indicator does not cover fixed (wired) broadband or Wi-Fi subscriptions.
<i>Satellite broadband subscriptions</i>
Satellite broadband subscriptions refers to the number of satellite Internet subscriptions with an advertised download speed of at least 256 Kbit/s. It refers

to the retail subscription technology and not the backbone technology.
<i>Terrestrial fixed wireless broadband subscriptions</i>
Terrestrial fixed wireless broadband subscriptions refers to the number of terrestrial fixed wireless Internet subscriptions with an advertised download speed of at least 256 Kbit/s. This includes fixed WiMAX and fixed wireless subscriptions, but excludes occasional users at hotspots and Wi-Fi hotspot subscribers. It also excludes mobile-broadband subscriptions where users can access a service throughout the country wherever coverage is available."
<i>Mobile data subscriptions</i>
Number of prepaid and postpaid mobile subscriptions that were used to access the Internet the last 3 months, regardless of speed.

Traffic
<i>Fixed line voice traffic</i>
<i>This aggregated value is the sum of Fixed line traffic (i.e. fixed-to-fixed) and all other fixed line originated traffic (Fixed to mobile and International outgoing).</i>
<i>Fixed line traffic</i>
Refers to domestic fixed-to-fixed telephone traffic, in minutes. Domestic fixed-to-fixed telephone traffic refers to completed local and domestic long-distance fixed-telephone voice traffic. The indicator should be reported as the number of minutes of traffic during the reference quarter. This exclude minutes used for dial-up Internet access.
<i>Local fixed-to-fixed telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone line voice traffic exchanged within the local charging area in which the calling station is situated. This is the area within which one subscriber can call another on payment of the local charge (if applicable). This is reported in the number of minutes, which should exclude minutes used for dial-up Internet access.
<i>Long-distance fixed-to-fixed telephone traffic, in minutes</i>
Refers to effective (completed) fixed national long-distance telephone voice traffic exchanged with a station outside the local charging area in which the calling station is situated. This is reported as the number of minutes of traffic. It excludes local calls, calls to mobile networks, calls abroad, and calls to special service numbers such as ISPs for Internet dial-up.

<i>Fixed-to-mobile telephone traffic</i>
Refers to total traffic from all fixed-telephone networks to all mobile-cellular networks within the country.
<i>International incoming and outgoing fixed-telephone traffic</i>
Refers to the sum of international incoming and outgoing fixed-telephone voice traffic.
<i>International outgoing fixed-telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone voice traffic originating in a given country to destinations outside that country. This should include traffic to mobile phones outside the country. This is reported in number of minutes of traffic. It excludes calls originating in other countries. It should include VoIP traffic.
<i>International incoming fixed-telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone voice traffic originating outside the country with a destination inside the country, irrespective of whether the call was from a fixed or mobile subscriber. It excludes minutes of calls terminating in other countries, but includes VoIP traffic
<i>Mobile voice traffic</i>
<i>This aggregated value is the sum of Total national mobile traffic, as defined below, and International outgoing from mobile.</i>
<i>Total national mobile traffic</i>
Domestic mobile-telephone traffic refers to the total number of minutes of calls made by mobile subscribers within a country (including minutes to fixed-telephone and minutes to mobile-phone subscribers).
<i>Outgoing mobile traffic to same mobile network</i>
Refers to the number of minutes of calls made by mobile subscribers to the same mobile network (within the country). This refers to the number of minutes originating on mobile networks and terminating on the same mobile network (on-net). It does not cover minutes of calls from mobile to fixed or mobile to other mobile networks.
<i>Mobile to other mobile networks</i>
Outgoing mobile traffic to other mobile networks, in minutes refers to the number of minutes of calls made by mobile subscribers to other mobile networks (within the country). The indicator refers to the number of minutes originating on mobile networks and terminating on different domestic mobile networks (off-

net). It does not cover minutes of calls from mobile to fixed or mobile to the same mobile networks.
<i>Outgoing mobile traffic to fixed networks</i>
Refers to the number of minutes of calls made from mobile-cellular networks to fixed-line telephone networks within the country. The indicator refers to the number of minutes originating on mobile networks and terminating on fixed-line telephone networks within the country.
<i>International outgoing from mobile</i>
Outgoing mobile traffic to international refers to the number of mobile minutes originating in a country to any destinations outside that country.
<i>Incoming international traffic to mobile network</i>
Refers to the number of incoming minutes (fixed and mobile) received by mobile networks originating in another country.
<i>Mobile data traffic</i>
Mobile data traffic (within the country) refers to data traffic originated within the country from mobile networks. Download and upload traffic should be added up and reported together. Traffic should be measured at the end-user access point. Wholesale and walled-garden traffic should be excluded. The traffic should be reported in terabytes.
<i>SMS traffic</i>
SMS sent refers to the total number of mobile short-message service (SMS) messages sent, both to national and international destinations. This should exclude messages sent from computers to mobile handsets or to other computers.
<i>SMS international traffic</i>
SMS international refers to the total number of mobile short-message service (SMS) messages sent to international destinations. This should exclude messages sent from computers to mobile handsets or to other computers.
<i>Population coverage</i>
<i>3G population coverage</i>
Percentage of the population covered by at a 3G mobile network refers to the percentage of inhabitants that are within range of a 3G mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by a 3G mobile-cellular signal by the

total population and multiplying by 100.
<i>4G/LTE etc. population coverage</i>
Percentage of the population covered by a 4G/LTE mobile network refers to the percentage of inhabitants that are within range of a 4G/LTE mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by a 4G/LTE mobile-cellular signal by the total population and multiplying by 100. Note that all LTE variants are included.
Internet bandwidth
International Internet bandwidth
<i>International outgoing Internet bandwidth</i>
Refers to the total outgoing used capacity of international Internet bandwidth, in Mbit/s. This is measured as the sum of outgoing (uplink) capacity of all Internet exchanges offering international bandwidth.
<i>International incoming Internet bandwidth</i>
<i>Refers to the total incoming used capacity of international Internet bandwidth, in Mbit/s. This is measured as the sum of incoming (downlink) capacity of all Internet exchanges offering international bandwidth.</i>
<i>Smartphone subscriptions</i>
A smartphone is a mobile phone with advanced features: it has WiFi connectivity, web browsing, capabilities, a high-resolution touchscreen display and the ability to use apps. The majority use one of the following mobile operating systems: Android, Symbian, iOS, Blackberry OS and Windows Mobile.
Fixed postpaid local telephone services prices
<i>Installation fee for residential telephone service</i>
Installation fee for residential telephone service refers to the one-off charge involved in applying for a basic residential postpaid fixed-telephone service. Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Monthly subscription for residential telephone service</i>
Monthly subscription for residential telephone service refers to the recurring fixed charge for subscribing to a residential postpaid fixed-telephone service. The charge should cover the rental of the line but not the rental of the terminal (e.g. telephone set). If the rental charge includes any allowance for free or reduced

rate call units, this should be indicated in the note. Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Price of a three-minute local call to a fixed-telephone line, peak rate</i>
Price of a three-minute local call (peak-rate) to a fixed-telephone line refers to the price of a three-minute peak local call from a residential fixed-telephone line, including any call set-up charges, within the same exchange area using the subscriber's own terminal (i.e. not from a public telephone). Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Price of a three-minute local call to a fixed-telephone line, off-peak rate</i>
Price of a three-minute local call to a fixed-telephone line refers to the price of a three-minute off-peak local call from a residential fixed-telephone line, including any call set-up charges, within the same exchange area using the subscriber's own terminal (i.e. not from a public telephone). Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Mobile-cellular prepaid prices</i>
<i>Mobile-cellular prepaid-price of a one-minute local call (peak, on-net)</i>
Refers to the price per minute of a peak prepaid call from a mobile-cellular telephone with a prepaid subscription to another subscriber in the same network. Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Mobile-cellular prepaid-price of a one-minute local call (off-peak, on-net)</i>
Refers to the price per minute of a prepaid call from a mobile-cellular telephone with a prepaid subscription made to the same mobile-cellular network during off-peak time. Off-peak refers to the cheapest rate before mid-night. If the only off-peak period is after mid-night, the peak price should be used. Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.
<i>Mobile-cellular prepaid-price of SMS (on-net)</i>
Mobile-cellular prepaid – price of SMS refers to the price of sending a short-message service (SMS) message from a mobile-cellular telephone with a prepaid subscription to a mobile-cellular number of the same network (on-net). Taxes should be included. If not included, it should be specified in a note including the applicable tax rate.

ICT Sector Black Economic Empowerment Measures
<i>Telecoms employment -Black Top Management</i>
Persons employed by all telecommunication operators, Black Top Management, should be expressed in terms of full-time staff equivalents. This should include Exco and other Executives.
<i>Procurement Spend from all suppliers</i>
Total spend on all goods and services procured by an Entity.
<i>Procurement Spend from all suppliers based on the B-BBEE Procurement Recognition Levels</i>
Total spend on all goods and services procured by an Entity based on the B-BBEE Procurement Recognition Levels.
<i>Number of Schools connected based on obligations imposed by ICASA</i>
Total number of Schools connected based on obligations imposed by ICASA to operators.

<i>Total fixed line voice revenue</i>
Sum of revenue from retail fixed-telephone services refers to revenue received for the connection (installation) of fixed-telephone services, revenue from recurring charges for subscription to the PSTN and revenue from fixed-telephone calls.
<i>Revenue from fixed-telephone connection charges</i>
Revenue from fixed-telephone connection charges refers to retail revenue received for connection (installation) of fixed- telephone services. This may include charges for transfer or cessation of services.
<i>Revenue from fixed-telephone subscription charges</i>
Revenue from fixed-telephone subscription charges refers to revenue from recurring charges for subscriptions to the PSTN, including Internet access if it cannot be separated from fixed-telephone.
<i>Revenue from fixed-telephone calls</i>
Revenue from fixed-telephone calls refers to retail fixed-telephone revenue received from charges for local, national long-distance and international calls.
Fixed (wired) internet revenue
Revenue from fixed (wired) Internet services refers to retail revenue received from the provision of fixed (wired) Internet services such as subscriptions, traffic

and data communication. It excludes the provision of access lines used to connect to fixed (wired) Internet (such as fixed-telephone lines used to access DSL connections). This includes revenue from fixed (wired)-broadband services (previously a separate indicator under ITU code i7311_fb, but for reporting purposes here counted together with any small residual narrowband internet revenue in a single indicator, viz. fixed wired internet).
<i>Other (wireless) broadband services revenue</i>
Revenue from other wireless-broadband services refers to the retail revenue received from the provision of high-speed (at least 256 Kbit/s) data connectivity and related services over a wireless infrastructure other than mobile cellular, such as satellite or terrestrial fixed wireless broadband infrastructures.
<i>Other fixed telecommunication services revenue, including leased lines revenue and fixed value-added telecommunication services</i>
Revenue from leased lines refers to retail revenue received from the provision of leased lines.
Revenue from fixed value-added telecommunication services refers to the retail revenue generated by the telecommunication service sector for fixed value-added telecommunication services, such as call forwarding, itemized billing, conference calls and voice-message services.
Value-added means additional services beyond the basic telephone service line rental and calls
Other telecommunication revenue refers to any other retail telecommunication services revenue received but not accounted for elsewhere.
<i>Total mobile services revenue (retail)</i>
Revenue from mobile networks refers to retail revenue earned from the provision of mobile-cellular communication services, including all voice, SMS and data (narrowband and broadband) services offered by mobile operators offering services within the country during the financial year under review. Revenues from value added services (e.g. premium SMS) should be included. Data reported should exclude: (i) wholesale revenues (e.g. termination rates), (ii) revenues from device sales and rents, (iii) VAT and excise taxes.
<i>Revenue from mobile voice services</i>
Refers to all mobile-cellular retail revenue from the provision of voice services. It includes voice revenues from national and international calls, but excludes

revenues from roaming services.

<i>Revenue from outbound mobile cellular roaming</i>
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Refers to all mobile-cellular retail roaming revenue from own subscribers roaming abroad. It does not cover foreign mobile subscribers roaming into the country and international calls originating or terminating on the country's mobile networks.
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<i>Revenue from mobile data services</i>
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Refers to revenue from the provision of non-voice services including messaging (other than SME and MMs), data and Internet services, including M2M/telemetry. It excludes other mobile-cellular services and wireless Internet access services not relating to mobile networks (e.g. satellite or terrestrial fixed wireless technologies).

<i>Revenue from text and multimedia messaging services</i>
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Refers to revenue from text messaging and multimedia messaging (SMS and MMS). Some countries may account for this in different ways. For example, some mobile plans include free SMS or MMS that are liable to be classified as voice revenue rather than mobile-messaging revenue. The treatment of premium messages – where users pay an additional amount over the regular messaging rate – can vary among operators, since they typically share the revenue with a premium-service provider. Operators may also include revenue from international messaging in other categories. The preference is to include all revenue earned by the operator from the provision of messaging services to retail customers.

<i>Other mobile services revenue</i>

Any other mobile revenue, like banking
--

<i>Total of any other revenue</i>
--

Sum of interconnection revenue, equipment sale revenue and any other revenue
--

<i>Interconnection revenues</i>

Revenues from terminating voice and messaging traffic coming from outside the operator's own network
--

<i>Equipment revenue</i>

Revenues from equipment sales

<i>Any other revenue</i>
Any other revenue which could include: wholesale revenues, excluding voice termination (interconnection); IT type services; revenue of a capital nature. E.g. sale of assets or a business.
<i>Telecommunications employment</i>
<i>Persons employed in full-time equivalents</i>
Persons employed in full-time equivalents refers to the total number of persons, in full-time equivalent (FTE) units, employed by telecommunication operators in the country for the provision of telecommunication services, including fixed-telephone, mobile-cellular, Internet and data services. This indicator excludes staff working in broadcasting businesses that offer only traditional broadcasting services. Part-time staff should be expressed in terms of full-time staff equivalents (FTE).
<i>Telecoms employment- female</i>
Persons employed by all telecommunication operators, female should be expressed in terms of full-time staff equivalents.
<i>Telecommunication Subscriptions</i>
<i>Fixed-telephone subscriptions</i>
Fixed-telephone subscriptions refers to the sum of active analogue fixed-telephone lines, voice-over-IP (VoIP) subscriptions, fixed wireless local loop (WLL) subscriptions, ISDN voice-channel equivalents and fixed public payphones. This indicator was previously called Main telephone lines in operation.
<i>Analogue fixed-telephone lines</i>
Analogue fixed-telephone lines refers to the number of active lines connecting subscribers' terminal equipment to the PSTN and which have a dedicated port in the telephone-exchange equipment. It includes all postpaid lines and those prepaid lines that have registered an activity in the past three months. This term is synonymous with the terms 'main station' and 'direct exchange line' (DEL) that are commonly used in telecommunication documents.
<i>VoIP subscriptions</i>
VoIP subscriptions refers to the number of voice-over-Internet protocol (VoIP) fixed-line subscriptions. It is also known as voice over broadband (VoB), and includes VoIP subscriptions through fixed wireless, DSL, cable, fibre optic and

other fixed-broadband Internet platforms that provide fixed telephony using IP. It excludes software-based VoIP applications (e.g. VoIP with Skype using computer-to-computer or computer-to-telephone). Those VoIP subscriptions that do not imply a recurrent monthly fee should only be counted if they have generated inbound or outbound traffic within the past three months.

Fixed wireless local loop subscriptions

Fixed wireless local loop (WLL) subscriptions refers to subscriptions provided by licensed fixed-line telephone operators that provide 'last-mile' access to the subscriber using radio technology and where the subscriber's terminal equipment is either stationary or limited in its range of use.

ISDN voice-channel equivalents

ISDN voice-channel equivalents refers to the sum of basic-rate and primary-rate voice-channel equivalents (B-channel equivalents). Basic-rate voice-channel equivalents is the number of basic-rate ISDN subscriptions multiplied by 2, and primary-rate voice-channel equivalents is the number of primary-rate ISDN subscriptions multiplied by 23 or 30, depending on the standard implemented.

Fixed public payphones

Fixed public payphones refers to payphones that are available to the public using the fixed network.

Mobile cellular subscriptions

Mobile-cellular telephone subscriptions, by postpaid and prepaid Mobile-cellular telephone subscriptions refers to the number of subscriptions to a public mobile-telephone service that provide access to the PSTN using cellular technology.

Prepaid mobile-cellular telephone subscriptions

Refers to the total number of mobile-cellular telephone subscriptions that use prepaid refills. These are subscriptions where, instead of paying an ongoing monthly fee, users purchase blocks of usage time. Although the definition of prepaid subscribers from the ITU definition is 3 month active subscribers (those used at least once in the last three months for making or receiving a call or carrying out a non-voice activity such as sending or reading an SMS or accessing the Internet), some South African operators do not have this metric available but rather count SIMs that have not been disconnected within a 90

day window, reporting, implying that the number may be overstated according to the strict definition. The indicator applies to all mobile-cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

Postpaid mobile-cellular telephone subscriptions

Refers to the total number of mobile-cellular subscriptions, including top up bundles, where subscribers are billed after their use of mobile services, at the end of each month. The postpaid service is provided on the basis of a prior arrangement with a mobile-cellular operator. Typically, the subscriber's contract specifies a limit or allowance of minutes, text messages, etc. The subscriber will be billed at a flat rate for any usage equal to or less than that allowance. Any usage above that limit incurs extra charges. Theoretically, a subscriber in this situation has no limit on use of mobile services and, as a consequence, unlimited credit. M2M mobile-network subscriptions are included in postpaid subscriptions

M2M mobile-network subscriptions

M2M subscriptions is a subset of postpaid mobile cellular subscriptions and refers to the number of mobile-cellular machine-to-machine subscriptions that are assigned for use in machines and devices (cars, smart meters, consumer electronics) for the exchange of data between networked devices, and are not part of a consumer subscription. For instance, SIM-cards in personal navigation devices, smart meters, trains and automobiles should be included. Mobile dongles and tablet subscriptions should be excluded.

Internet and data subscriptions

Fixed broadband subscriptions

Fixed-broadband subscriptions refers to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 Kbit/s. This includes cable modem, DSL, fibre-to-the-home/building, other fixed (wired)-broadband subscriptions, satellite broadband and terrestrial fixed wireless broadband. This total is measured irrespective of the method of payment. It excludes subscriptions that have access to data communications (including the Internet) via mobile-cellular networks. It should include fixed WiMAX and any other fixed wireless

technologies. It includes both residential subscriptions and subscriptions for organizations.
<i>DSL Internet subscriptions</i>
Refers to the number of Internet subscriptions using digital subscriber line (DSL) services to access the Internet, at downstream speeds greater than or equal to 256 Kbit/s. DSL is a technology for bringing high-bandwidth information to homes and small businesses over ordinary copper telephone lines. It should exclude very high-speed digital subscriber line (VDSL) subscriptions if these are provided using fibre directly to the premises.
<i>Fibre-to-the-home/building Internet subscriptions</i>
Refers to the number of Internet subscriptions using fibre-to-the-home or fibre-to-the-building, at downstream speeds equal to, or greater than, 256 Kbit/s. This should include subscriptions where fibre goes directly to the subscriber's premises or fibre-to-the-building subscriptions that terminate no more than 2 metres from an external wall of the building. Fibre-to-the-cabinet and fibre-to-the-node are excluded.
<i>Other fixed (wired) broadband subscriptions</i>
Refers to Internet subscriptions using other fixed (wired) broadband technologies to access the Internet (other than DSL, cable modem, and fibre), at downstream speeds equal to, or greater than, 256 Kbit/s. This includes technologies such as ethernet LAN, and broadband-over-powerline (BPL) communications. Ethernet LAN subscriptions refer to subscriptions using IEEE 802.3 technology. BPL subscriptions refer to subscriptions using broadband-over-powerline services. Users of temporary broadband access (e.g. roaming between PWLAN hotspots), users of WiMAX and those with Internet access via mobile-cellular networks are excluded.
<i>Wireless broadband subscriptions</i>
Wireless-broadband subscriptions refers to the sum of satellite broadband, terrestrial fixed wireless broadband and active mobile-broadband subscriptions to the public Internet. The indicator does not cover fixed (wired) broadband or Wi-Fi subscriptions.
<i>Satellite broadband subscriptions</i>
Satellite broadband subscriptions refers to the number of satellite Internet subscriptions with an advertised download speed of at least 256 Kbit/s. It refers

to the retail subscription technology and not the backbone technology.
<i>Terrestrial fixed wireless broadband subscriptions</i>
Terrestrial fixed wireless broadband subscriptions refers to the number of terrestrial fixed wireless Internet subscriptions with an advertised download speed of at least 256 Kbit/s. This includes fixed WiMAX and fixed wireless subscriptions, but excludes occasional users at hotspots and Wi-Fi hotspot subscribers. It also excludes mobile-broadband subscriptions where users can access a service throughout the country wherever coverage is available."
<i>Mobile data subscriptions</i>
Number of prepaid and postpaid mobile subscriptions that were used to access the Internet the last 3 months, regardless of speed.

Traffic
<i>Fixed line voice traffic</i>
<i>This aggregated value is the sum of Fixed line traffic (i.e. fixed-to-fixed) and all other fixed line originated traffic (Fixed to mobile and International outgoing).</i>
<i>Fixed line traffic</i>
Refers to domestic fixed-to-fixed telephone traffic, in minutes. Domestic fixed-to-fixed telephone traffic refers to completed local and domestic long-distance fixed-telephone voice traffic. The indicator should be reported as the number of minutes of traffic during the reference quarter. This exclude minutes used for dial-up Internet access.
<i>Local fixed-to-fixed telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone line voice traffic exchanged within the local charging area in which the calling station is situated. This is the area within which one subscriber can call another on payment of the local charge (if applicable). This is reported in the number of minutes, which should exclude minutes used for dial-up Internet access.
<i>Long-distance fixed-to-fixed telephone traffic, in minutes</i>
Refers to effective (completed) fixed national long-distance telephone voice traffic exchanged with a station outside the local charging area in which the calling station is situated. This is reported as the number of minutes of traffic. It excludes local calls, calls to mobile networks, calls abroad, and calls to special service numbers such as ISPs for Internet dial-up.

<i>Fixed-to-mobile telephone traffic</i>
Refers to total traffic from all fixed-telephone networks to all mobile-cellular networks within the country.
<i>International incoming and outgoing fixed-telephone traffic</i>
Refers to the sum of international incoming and outgoing fixed-telephone voice traffic.
<i>International outgoing fixed-telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone voice traffic originating in a given country to destinations outside that country. This should include traffic to mobile phones outside the country. This is reported in number of minutes of traffic. It excludes calls originating in other countries. It should include VoIP traffic.
<i>International incoming fixed-telephone traffic, in minutes</i>
Refers to effective (completed) fixed-telephone voice traffic originating outside the country with a destination inside the country, irrespective of whether the call was from a fixed or mobile subscriber. It excludes minutes of calls terminating in other countries, but includes VoIP traffic
<i>Mobile voice traffic</i>
<i>This aggregated value is the sum of Total national mobile traffic, as defined below, and International outgoing from mobile.</i>
<i>Total national mobile traffic</i>
Domestic mobile-telephone traffic refers to the total number of minutes of calls made by mobile subscribers within a country (including minutes to fixed-telephone and minutes to mobile-phone subscribers).
<i>Outgoing mobile traffic to same mobile network</i>
Refers to the number of minutes of calls made by mobile subscribers to the same mobile network (within the country). This refers to the number of minutes originating on mobile networks and terminating on the same mobile network (on-net). It does not cover minutes of calls from mobile to fixed or mobile to other mobile networks.
<i>Mobile to other mobile networks</i>
Outgoing mobile traffic to other mobile networks, in minutes refers to the number of minutes of calls made by mobile subscribers to other mobile networks (within the country). The indicator refers to the number of minutes

originating on mobile networks and terminating on different domestic mobile networks (off-net). It does not cover minutes of calls from mobile to fixed or mobile to the same mobile networks.
<i>Outgoing mobile traffic to fixed networks</i>
Refers to the number of minutes of calls made from mobile-cellular networks to fixed-line telephone networks within the country. The indicator refers to the number of minutes originating on mobile networks and terminating on fixed-line telephone networks within the country.
<i>International outgoing from mobile</i>
Outgoing mobile traffic to international refers to the number of mobile minutes originating in a country to any destinations outside that country.
<i>Incoming international traffic to mobile network</i>
Refers to the number of incoming minutes (fixed and mobile) received by mobile networks originating in another country.
<i>Mobile data traffic</i>
Mobile data traffic (within the country) refers to data traffic originated within the country from mobile networks. Download and upload traffic should be added up and reported together. Traffic should be measured at the end-user access point. Wholesale and walled-garden traffic should be excluded. The traffic should be reported in terabytes.
Population coverage
<i>3G population coverage</i>
Percentage of the population covered by at a 3G mobile network refers to the percentage of inhabitants that are within range of a 3G mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by a 3G mobile-cellular signal by the total population and multiplying by 100.
<i>4G/LTE etc. population coverage</i>
Percentage of the population covered by a 4G/LTE mobile network refers to the percentage of inhabitants that are within range of a 4G/LTE mobile-cellular signal, irrespective of whether or not they are subscribers. This is calculated by dividing the number of inhabitants that are covered by a 4G/LTE mobile-cellular signal by the total population and multiplying by 100. Note that all LTE variants are included.

Internet bandwidth
International Internet bandwidth
<i>International outgoing Internet bandwidth</i>
Refers to the total outgoing used capacity of international Internet bandwidth, in Mbit/s. This is measured as the sum of outgoing (uplink) capacity of all Internet exchanges offering international bandwidth.
<i>International incoming Internet bandwidth</i>
Refers to the total incoming used capacity of international Internet bandwidth, in Mbit/s. This is measured as the sum of incoming (downlink) capacity of all Internet exchanges offering international bandwidth.

Appendix 3: Aggregated data from ICASA questionnaires

The table below lists the aggregated figures from the three ICASA questionnaires to the electronic communications licensees, the TV broadcasting licensees and the SA Post Office, for the period of 1 October 2014 -30th September 2015. For definitions please refer to the Appendix 2 above, and for more clarification please refer to the notes accompanying the associated figures in the report.

Telecommunications	
Total telecommunications revenue	R 148 849 340 077
Total telecommunication services revenue	R 108 554 094 298
Fixed line revenue	R 26 344 382 539
Fixed line voice revenue	R 13 736 287 016
Fixed telephone services	R 343 782 425
Fixed telephone subscription charges	R 6 832 868 171
Fixed telephone calls	R 6 559 636 420
Fixed internet and data revenue	R 12 608 095 523
Fixed (wired) internet revenue	R 2 719 683 999
Fixed (wired) broadband services	R 8 888 078 923
Other fixed (wireless) broadband services	R 1 694 134 347
Other fixed telecommunication services: leased lines revenue; and value-added telecommunication services	R 2 025 882 253
Mobile services revenue	R 82 209 711 759
Mobile voice services	R 39 498 579 909
Mobile outbound roaming	R 455 532 639
Mobile data	R 37 881 274 945

Text and multimedia messaging services	R 3 910 993 637
Other mobile services	R 463 330 629
Other revenue	R 40 295 245 779
Interconnection	R 5 050 300 075
Equipment	R 23 640 951 488
Any other revenue	R 11 603 994 216
Telecoms employment	26 669
Telecoms employment- female	9 598
Telecoms employment -male	17 071
Fixed line subscriptions	3 515 607
Analogue fixed-telephone line subscriptions	2 185 750
VoIP subscriptions	344 208
Fixed wireless local loop subscriptions	9 961
ISDN voice-channel equivalents	949 264
Fixed public payphones	26 424
Mobile cellular subscriptions	81 314 463
Prepaid mobile-cellular telephone subscriptions	68 710 864
Postpaid mobile-cellular telephone subscriptions	12 603 599
M2M mobile-network subscriptions	4 971 928
Internet and mobile data subscriptions	9 237 614
Fixed internet subscriptions	1 890 832
DSL Internet subscriptions	1 781 519
Fibre-to-the-home/building internet subscriptions	44 895
Other fixed (wired) internet subscriptions	64 418
Wireless internet subscriptions	7 070 218
Satellite internet subscriptions	159 588
Terrestrial fixed wireless internet subscriptions	6 910 630
Mobile data subscriptions	50 270 969
Traffic (Minutes)	
Local fixed line traffic	6 307 793 790
Local fixed-to-fixed telephone traffic	3 994 718 204
Local long-distance fixed-to-fixed telephone traffic	2 756 822 474
Local fixed-to-mobile telephone traffic	5 814 736 657
International incoming and outgoing fixed traffic	439 496 456
International outgoing fixed-telephone traffic	180 546 579
International incoming fixed-telephone traffic	293 591 561
Total mobile traffic	90 916 193 323
Local outgoing mobile traffic to same mobile network	77 143 274 980
Local mobile to other mobile networks	11 456 090 048
Local mobile to fixed networks	2 316 828 295

International incoming and outgoing mobile traffic	2 774 076 378
International outgoing from mobile	1 413 202 095
International incoming to mobile	1 360 874 283
Mobile data traffic (Terabytes)	292 454
Population coverage	
3G population coverage	99%
4G/LTE etc. population coverage	75%
International internet bandwidth (Mbps) capacity	345 629

Telecommunication investment	R 28,089,695,881
Annual investment in fixed-telephone services	R 430,713,855
Annual investment in fixed (wired) broadband services	R 4,348,617,012
Annual investment in mobile communication services	R 10,773,379,404
Other annual investment in telecommunication services	R 3,478,418,766

TV Broadcasting	
Total revenue of broadcasters	R 33 654 700 572.28
Total broadcasting revenue	R 33 654 696 222.28
Broadcasting advertising revenue	R 7 860 473 602.64
Broadcasting subscriptions revenue	R 23 584 825 897.00
Revenue from broadcasting promotions	R 535 015 543.66
Revenue from sponsorships	R 680 926 353.08
Revenue from government or state grant	R 6 557 650.60
Revenue from donations	R 3 746.00
Revenue from infomercials	R 69 854 929.30
Revenue from licence or membership fees	R 10 000.00
Total of any other revenue	R 917 747 350.00
Program expenditure	R 9 835 166 251.00
Subscriber and registered viewership numbers	5 529 330
ICT Sector Black Economic Empowerment Measures	
Broadcasting Empowerment-Total	4 429
Broadcasting Empowerment-female	2 220
Broadcasting Empowerment-Black Top Management	37
Procurement Spend from all suppliers	4 152 173 779
Procurement Spend from all suppliers based on the BBBEE Procurement Recognition Levels	2 924 877 628
SA Post Office	
Total SA Post Office revenue	R 5 606 459.00
Postbank revenue	R 216 588.00
Postbank interest revenue	R 380 827.00
Retail products revenue	R 22 388.00
Services rendered - postal	R 3 378 175.00

Agency and money transfer	R 454 896.00
Services rendered - courier	R 1 013 578.00
Total of any other revenue	R 140 007.00
Other information	
Points of presence	
Postal employment-Total	19 801
Postal employment-female	9 219
Postal employment-Black Top Management	26
Procurement Spend from all suppliers	R 555 395 857.00
Procurement Spend from all suppliers based on the B-BBEE Procurement Recognition Levels	R 555 395 857.00

Source: ICASA Telecommunications, TV Broadcasting and Postal Questionnaires, December 2016