

Published by:

Creamer Media's

RESEARCH CHANNEL
A F R I C A

TELECOMMUNICATIONS

DECEMBER **2019**

Sponsored by:

ZEST
WEG Group



A REVIEW OF THE TELECOMMUNICATIONS SECTOR

The material contained in this report was compiled by Martin Zhuwakinyu and the Research Unit of Creamer Media (Pty) Ltd, based in Johannesburg.

The information in this report is correct as of December 2, 2019.

Report edited by Sheila Barradas, David Shepherd and Ria Theron.

Ordering information

To subscribe to *Research Channel Africa* or purchase this report contact:

Creamer Media (Pty) Ltd

Tel +27 11 622 3744

Email subscriptions@creamermmedia.co.za

CONTENTS

| | |
|------------------------------------|----|
| LIST OF ABBREVIATIONS AND ACRONYMS | 4 |
| KEY DEVELOPMENTS | 5 |
| MARKET OVERVIEW | 7 |
| TELECOMMUNICATIONS COMPANIES | 10 |
| ▪ CELL C | 10 |
| ▪ MTN | 12 |
| ▪ Rain | 16 |
| ▪ Telkom | 16 |
| ▪ Vodacom | 19 |
| INDUSTRY TRENDS AND CHALLENGES | 23 |
| ▪ Mobile broadband | 24 |
| ▪ Spectrum crunch | 29 |
| ▪ 5G | 30 |
| ▪ Fixed-line broadband | 32 |
| POLICY AND REGULATORY DEVELOPMENTS | 34 |
| ▪ IMT roadmap | 34 |
| ▪ ICT sector code | 34 |
| ▪ Call termination regulations | 35 |
| ▪ Number portability | 35 |
| ▪ South Africa Connect | 36 |
| INTERNATIONAL CONNECTIVITY | 38 |
| PROSPECTS | 42 |
| MAIN SOURCES | 43 |

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|--------|----------------------------------------------------------------|
| 2G | second generation |
| 3G | third generation |
| 4G | fourth generation |
| 5G | fifth generation |
| BBBEE | broad-based black economic empowerment |
| BEE | black economic empowerment |
| Brics | Brazil, Russia, India, China and South Africa |
| capex | capital expenditure |
| CBN | Central Bank of Nigeria |
| DBSA | Development Bank of Southern Africa |
| DCDT | Department of Communications and Digital Technologies |
| DRC | Democratic Republic of Congo |
| EASSy | Eastern Africa Submarine Cable System |
| Ebitda | earnings before interest, taxes, depreciation and amortisation |
| EUSSC | End-User and Subscriber Service Charter |
| FTTB | fibre-to-the-business |
| FTTbs | fibre-to-the-base-station |
| FTTH | fibre-to-the-home |
| Icasa | Independent Communications Authority of South Africa |
| ICT | information and communication technology |
| IMT | International Mobile Telecommunications |
| ITU | International Telecommunication Union |
| LTE | long-term evolution |
| LTE-A | long-term evolution-advanced |
| Mena | Middle East and North Africa |
| MVNO | mobile virtual network operators |
| OOB | out-of-bundle |
| PoP | point of presence |
| SACS | South Atlantic Cable System |
| SAEx | South Atlantic Express |
| SAFE | South Africa Far East |
| SAT-3 | South Atlantic 3 |
| Seagha | Southern and East Africa and Ghana |
| SITA | State Information Technology Agency |
| USAF | Universal Service and Access Fund |
| WACS | West Africa Cable System |
| Weca | West and Central Africa |
| Woan | Wireless Open-Access Network |





KEY DEVELOPMENTS

September 2018: Telecommunications multinational MTN sells its Cyprus business for €260-million.

February 2019: Mobile network operator Cell C's largest shareholder, Blue Label Telecoms, announces that investment vehicle the Buffet Consortium, which is led by South African billionaire and investor Jonathan Beare, plans to acquire a minority shareholding in Cell C in a move that will bolster Cell C's balance sheet.

February 2019: South African police arrest a former ambassador to Iran on corruption charges related to the award of MTN's licence to operate in Iran in 2005, after it had initially been awarded to Turkey's Turkcell.

March 2019: MTN sells its 53% shareholding in Botswana mobile network operator Mascom Wireless.

March 2019: The Independent Communications Authority of South Africa's (Icasa's) End-User Service and Subscriber Regulations, which require mobile operators to implement several changes, including the roll-over of unused data, come into effect.

March 2019: Icasa publishes the final version of the International Mobile Telecommunications Roadmap 2019, which seeks to ensure universal availability of broadband services and a vibrant and competitive telecommunications sector, while promoting investment in the country.

March 2019: Icasa publishes 'The state of the ICT sector report in South Africa 2019'.

March 2019: Zimbabwe's Finance and Economic Development Minister, Mthuli Ncube, confirms that the Southern African country is working on the unbundling of State-owned mobile network operator NetOne and fixed-line and broadband network provider TelOne to make them attractive to potential investors, adding that the two entities will be sold as a package and that an offer

will be made to South Africa's Telkom and MTN, which previously expressed interest in the two companies, as well as to other potential investors.

April 2019: MTN successfully launches a live fifth-generation (5G) indoor solution at the Kyalami Grand Prix Circuit and International Convention Centre, north of Johannesburg, in Gauteng, to develop a deeper understanding of the capabilities of 5G technology and the use cases it supports, thereby accelerating the deployment of 5G services in South Africa.

April 2019: Cell C petitions the courts for a review of new regulations governing number portability, arguing that the regulations will make it difficult for it to port numbers away from bigger rivals Vodacom and MTN.

May 2019: Mobile network operator Vodacom announces it has achieved the highest broad-based black economic-empowerment (BBBEE) contributor score of Level 1 by ensuring that it exceeded its financial-year targets against all the seven components of the BBBEE scorecard.

May 2019: MTN announces it plans to boost its stake owned by Ugandans from 4% to 20%, adding that it is already engaged in negotiations with a Ugandan pension fund as a potential investor.

May 2019: MTN's Nigeria unit is granted permission to list on the Nigerian Stock Exchange.

May 2019: MTN announces the sale of its interests in investment fund Amadeus and flight-booking site Travelstart to HarbourVest Global Private Equity for R1.20-billion.

July 2019: Department of Communications and Digital Technologies officials inform the National Assembly's Select Committee on Public Enterprises and Communications that the department is



considering entering into partnerships with the private sector to provide universal access to broadband connectivity to South Africans.

July 2019: South Africa's BBBEE Commission says an investigation initiated in 2017 into MTN's Zakhele-Futhi empowerment scheme found the scheme to be contrary to the objectives of the BBBEE Act.

July 2019: The Central Bank of Nigeria grants MTN a licence that will enable it to broaden the range and depth of the financial services it offers.

July 2019: Vodacom demonstrates Africa's first live 5G data session on a commercially ready 5G mobile phone and network at the 2019 Vodacom Durban July horserace.

August 2019: Communications and Digital Technologies Minister Stella Ndabeni-Abrahams releases the long-awaited policy on high-demand spectrum, along with the policy direction on the licensing of a Wireless Open-Access Network.

August 2019: Geographic telephone numbers ported since April 2010 reach 1.71-million.

August 2019: MTN reports that 53 of its base stations in Gauteng have been destroyed by vandals, with a further 89 of its towers elsewhere in the country placed on hold, while awaiting replacement batteries and repairs.

August 2019: Ratings agency S&P Global downgrades Cell C's credit rating to 'D', or default – its lowest-possible junk rating – following the mobile network operator's failure to make interest payments on certain bilateral loan facilities that were due in July 2019.

September 2019: Data-only services provider Rain activates its 5G network – one of the first in the world – serving selected existing customers in Johannesburg and Tshwane, with plans to extend coverage to other major South African metropolitan areas in 2020.

September 2019: The 15-member Broad-Based Black Economic Empowerment Information and Communication Technology Council is appointed for a second four-year term.

October 2019: Communications and Digital Technologies Minister Stella Ndabeni-Abrahams announces that the Development Bank of Southern Africa has been appointed to facilitate a feasibility study that will explore various cost-effective and efficient implementation models, as well as sustainable funding models, for Phase 2 of the South Africa (SA) Connect broadband policy.

October 2019: News agency Bloomberg reports that, owing to its massive debt burden, Cell C is selling its fibre network and base of billed customers and that it is in negotiations with bigger rival MTN to sell access to some of its wireless frequencies.

October 2019: The Department of Communications and Digital Technologies announces that, as at the end of September 2019, a total of 551 government facilities had been connected under the South African government's SA Connect broadband policy.



October 2019: Icasa announces that it will publish an information memorandum on the licensing process for high-demand spectrum before December 31, 2019.

October 2019: MTN's network ranked the best in South Africa for the third consecutive quarter.

October 2019: South African telecoms major MTN abandon's plans to sell its 53% stake in Mascom Wireless Botswana, which was supposed to net the company \$300-million, owing to certain conditions related to the transaction not being met.

November 2019: MTN announces that it will be investing R10-billion a year in its South African operations over the coming five years – a period which coincides with government's goal of attracting more than R1-trillion of fixed investment into the underperforming economy.

November 2019: Telkom, a long-term suitor of Cell C, says it is in talks on an acquisition, sparking speculation that it is seeking to buy the debt-laden rival as part of its plan to break the stranglehold of mobile giants MTN and Vodacom. On November 29, Telkom reports that Cell C has rejected its takeover offer.

December 2019: The Competition Commission publishes its much-anticipated final report on its Data Services Market Inquiry, confirming revelations that South Africa's cost of data services, particularly mobile prepaid data pricing, is high when benchmarked against the country's peers.





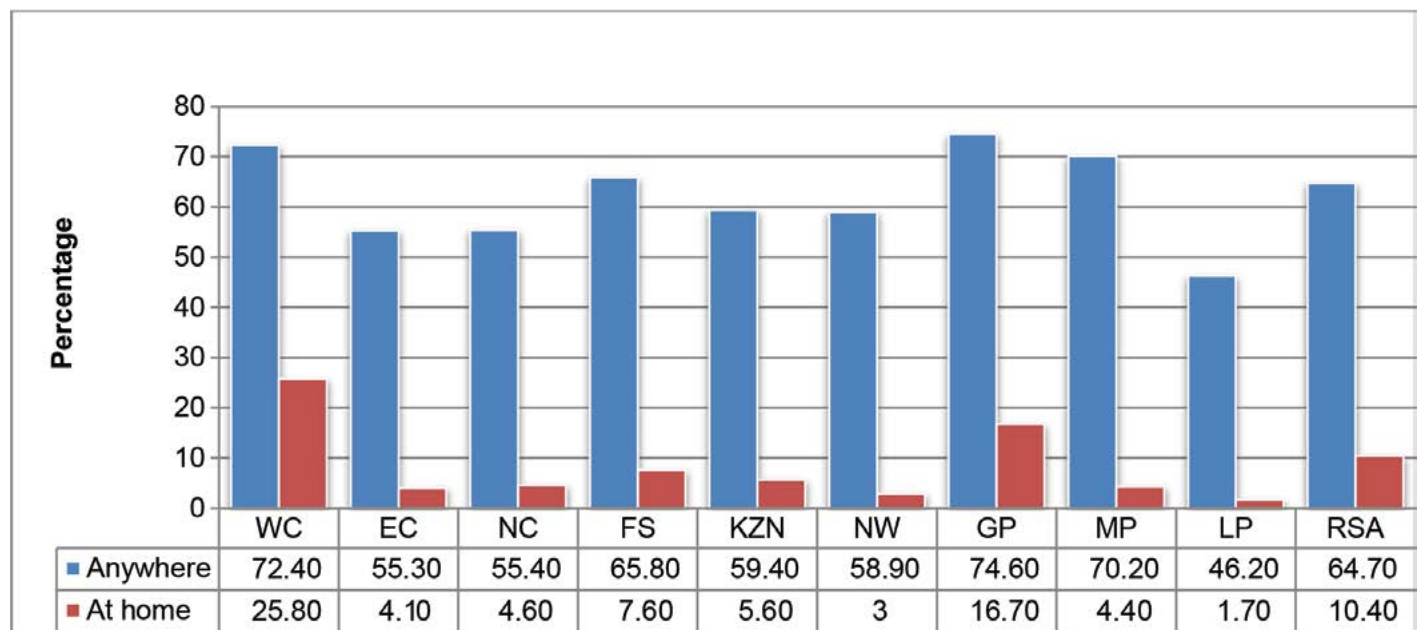
MARKET OVERVIEW

Although South Africa's telecommunication services are based mostly on fourth-generation (4G) and less-developed technologies, the country's telecommunications sector boasts some of the most advanced infrastructure in Africa. The country's mobile companies, other operators and municipal providers have undertaken significant investments as they strive to improve network capabilities. In recent years, the focus has largely been on backhaul capacity, as well as fibre and long-term evolution (LTE) networks to extend and improve Internet connectivity.

According to Statistics South Africa's (Stats SA's) latest General Household Survey, in 2018, which was released in May 2019, about 64.70% of households had at least one member who had access to, or used the Internet, at home, at work, at a place of study or at an Internet café.

Access was highest in Gauteng, at 74.60%, followed by the Western Cape, at 72.40%, and Mpumalanga, at 70.20%. Limpopo had the lowest access rate of 46.20%.

Household Internet access in South Africa during 2018



Statistics South Africa General Household Survey 2018



According to the Stats SA survey, mobile devices have made the Internet much more accessible to households in rural areas. Although the use of mobile Internet devices in rural areas, at 45% in 2018, lagged behind use in metropolitan areas, at 67.50%, and other urban areas, at 63.70%, it was much more common in rural areas than any of the alternative access methods.

Rural areas, however, remain underserved, compared with urban areas. The Independent Communications of South Africa's (Icasa's) 'The state of the ICT sector report in South Africa 2019' shows that, while seven of the country's nine provinces boasted 100% second-generation (2G) population coverage in urban areas in 2018, with the remaining two – the Northern Cape and the Western Cape – boasting 99.60% and 99.99% respectively, only one province, Gauteng, had 100% 2G population coverage in rural areas.

In terms of third-generation (3G) service provision, eight provinces had population coverage of 100% or just under that level in urban areas – the exception being the Northern Cape, which had 92.24%. None of the provinces had 100% population coverage in rural areas.

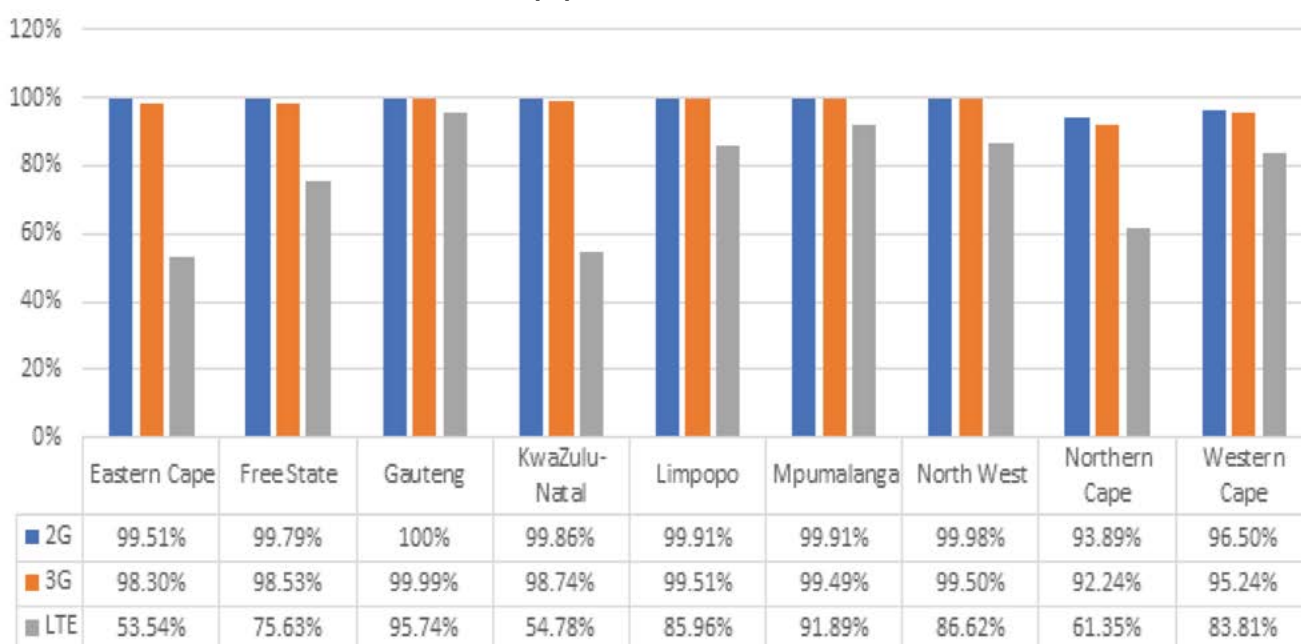
The situation was more skewed when it came to LTE services provision. Whereas all provinces, except the Northern Cape, boasted 90%-plus population coverage in urban areas, only Gauteng and Mpumalanga provided LTE services for more than 90% of the rural population. LTE rural coverage was least in the Eastern Cape, at 53.54%.

Demand continues to grow for mobile communications services, and telecommunications operators are responding by expanding their networks and improving service provision. Their efforts, however, are being hampered by a lack of additional high-demand spectrum to roll out newer technologies. While no new spectrum has been allocated in the past 14 years, there is renewed momentum by the South African government to ensure that the required spectrum is made available. In July 2019, the Department of Communications and Digital Technologies published the long-awaited Policy on High Demand Spectrum, along with the Policy Direction on the Licensing of Wireless Open-Access Network (Woan). These policies require Icasas to assign the high-demand spectrum to Woan and the remaining spectrum to other electronic communications network licensees simultaneously. In November 2019, Icasas published an information memorandum providing guidance on the process and criteria to be applied by the authority when licensing high-demand spectrum. Icasas gave stakeholders until January 31, 2020, to submit comments on the memorandum.

According to Icasas, telecommunications companies invested a combined R46.92-billion in 2018 (2017: R47.63-billion), with the largest share of R19.58-billion (2017: R15.20-billion) earmarked for mobile communication services, R2.22-billion (2017: R480-million) for fixed-telephone services and R5.92-billion (2017: R1.41-billion) for infrastructure.

Meanwhile, telecommunication operators have warned that vandalism and battery theft at base stations across the

Rural population covered in 2018



Independent Communications Authority of South Africa Electronic Communications Questionnaire 2018



country have reached crisis proportions, causing the operators losses amounting to hundreds of millions of rands and threatening a permanent shutdown of sites. Illustrating the severity of the situation, MTN – South Africa’s second-biggest network operator – stated in August 2019 that 53 of its base stations in Gauteng had been completely destroyed and subsequently permanently closed, while a further 89 of its towers elsewhere in the country were on hold, as they awaited replacement batteries and repairs. The hardest-hit areas were Tshwane, Soweto, Tembisa, Vereeniging and the West Rand, all in Gauteng.

MTN’s peers had also been affected, with Vodacom – the country’s biggest network operator – stating during the same month that at least 500 of its base stations were being targeted each month, causing losses and damage worth a combined R140-million a year. Gauteng, Limpopo, Mpumalanga and KwaZulu-Natal were the worst hit provinces, with several arrests having been made and convictions secured.

Cell C, South Africa’s third-biggest mobile network company, also reported in August 2019 that base station vandalism and battery theft were most prevalent in Gauteng, KwaZulu-Natal and along the country’s borders. It added that more than 800 sites

were broken into from January to December 2018, with about 2 300 batteries stolen. Almost 700 of the company’s sites were vandalised from January to June 2019, with 812 batteries stolen.

Telkom, which offers fixed-line voice and data services, as well as mobile voice and data services, broadband solutions and information and communication services, has 5 500 base stations countrywide, with some located in remote areas, which works to the advantage of vandals.

The company said in July 2019 that it experienced about 15 incidents a month, adding that multiple repeat incidents caused it to abandon sites, owing to replacement costs that were not viable.

The base station vandalism and battery theft affect not only the telecommunication operators, mostly in terms of lost revenue, but also consumers, whose services may be cut off completely for days.

The operators have responded to this challenge by improving security at the sites, at significant cost, and increasing cooperation with the South African Police Service.





TELECOMMUNICATIONS COMPANIES

The dominant telecommunication companies in South Africa are locally headquartered multinational mobile network operators Vodacom and MTN. Their smaller peers are mobile operator Cell C and Telkom, formerly a wholly State-owned fixed-line telecommunications provider, which now also offers mobile and other services. The latest addition to the country's telecommunications sector is Rain, which provides data-only mobile offerings.

CELL C

| CELL C | | |
|---------------------------------------------------------|----------------|----------------|
| CEO Douglas Craigie Stevenson/Chairperson Joe Mthimunye | | |
| | FY2018 | FY2019 |
| Revenue | R15.41-billion | R15.22-billion |
| Ebitda | R3.39-billion | R4.18-billion |
| Subscribers | 15.93-million | 16.32-million |
| Capital expenditure | 1.22-billion | 1.87-billion |
| Data | – | – |

Source: Cell C Annual Results for the 12 months ending May 31, 2019

Launched in 2001 with 3C Telecommunications as the sole shareholder, Cell C has been 45%-owned by Blue Label Telecoms since a recapitalisation in August 2017, with 3C Telecommunications – in which the Employee Believe Trust holds 29.40%, Oger Telecoms 45.60% and broad-based black

economic-empowerment group CellSAf 25% – owning a 30% interest. Cell C management and employees own a 10% equity stake in the company.

The recapitalisation was intended to reduce Cell C's net debt to about R6-billion. However, the company stated in September 2019, when it released its financial results for the 12 months to May 31, 2019, that its net debt, excluding finance leases, had increased from R7.44-billion to R8.24-billion year-on-year, driven by increased capital expenditure (capex) and working capital drawdown facilities. CEO Douglas Craigie Stevenson revealed in August 2019 that the company was engaged in negotiations to delay the repayment of this debt, about R2.60-billion of which matures in August 2020. Also in August 2019, Cell C's credit rating was downgraded by ratings agency S&P Global from SD (selective default), to D (default) – its lowest junk rating – after it had failed to make interest payments on certain bilateral loan facilities that were due in July 2019.

On another front, Bloomberg reported in September 2019 that Cell C was seeking increased access to MTN's network, adding that the signing of an extended roaming agreement appeared to be imminent.

Meanwhile, news agency Bloomberg reported in October 2019 that, owing to its debt burden, Cell C was selling its fibre network and base of billed customers and that it was in negotiations with bigger rival MTN to sell access to some of its wireless frequencies. The news agency, which cited unnamed



sources, stated that the planned asset sale had attracted the interest of MTN, Vodacom and Telkom.

On November 15, Telkom confirmed speculation around the possible acquisition of Cell C, when it said that it had made an offer to acquire the mobile operator. Telkom had substantially concluded its due diligence, but discussions were still at a preliminary stage, the company said in a statement. Cell C further confirmed that it had received a nonbinding offer from Telkom.

However, on November 29, Telkom reported that Cell C had rejected its takeover offer.

This is not the first time that the 40% government-owned Telkom has made a bid to buy Cell C. It initially attempted to take over Cell C in 2017, only to be rejected in favour of a recapitalisation plan led by Blue Label.

Cell C also reported in November that it had concluded the long-negotiated expanded roaming deal with MTN. The roaming agreement will increase Cell C's 4G network coverage to 95% of the population. Cell C customers will also have access to more than 12 500 sites, of which 90% are long-term evolution enabled. The deal is considered to be pivotal to Cell C's turnaround strategy.

Using MTN's network will reduce Cell C's capital expenditure costs on building its own network, a windfall for the debt-laden operator still pursuing a recapitalisation that will improve its overall liquidity. The expanded roaming agreement will be implemented in early 2020, with the transition expected to take up to three years to complete.

While Cell C's revenue for the year ended May 31, 2019, totalled R15.41-billion (2018: R15.22-billion), comprising service revenue of R14.13-billion (2018: R13.53-billion) and nonservice revenue of R1.27-billion (2018: R1.70-billion), its net after-tax loss was R8.03-billion (2018: R656-million), attributable largely to impairments of R6.28-billion associated with the carrying value of various assets and trading losses. The company posted earnings before interest, taxes, depreciation and amortisation (Ebitda) of R3.39-billion (2018: R4.18-billion).

Cell C had 15.93-million active subscribers as at May 31, 2019, including mobile virtual network operators (MVNOs), business service provider customers, wholesalers and broadband subscribers. This represented an increase of about 2% on the previous year. However, when MVNOs, business service provider customers, wholesalers and broadband subscribers are excluded, Cell C's subscriber base declines to 13.60-million.

Cell C's significant R8.03-billion after-tax loss for the 2018/19 financial year contributed to Blue Label Telecoms, its majority shareholder, posting a loss of R6.60-billion – more than double its capitalisation of R2.70-billion – for the same period. This has prompted some market watchers to criticise Blue Label Telecoms' decision to invest in Cell C. Before it bought into Cell C, Blue Label Telecom was a profitable distributor of prepaid airtime, starter packs, data and electricity tokens. Currently, besides being lossmaking, it has had to write down its investment in Cell C to zero and has borrowings of more than R1.50-billion, compared with R18-million before the transaction. It has also been forced to sell two assets – stakes in subsidiary Blue Label Mobile, for R450-million, and in cellphones and tablets distributor 3G Mobile, for R544-million – to settle Cell C debt. Blue Label Telecoms' joint CEOs, brothers Mark and Brett Levy, resigned from the Cell C board in October 2019. Their departure was part of a broader reconstitution of the Cell C board that included the appointment of nonexecutive director Joe Mthimunye as chairperson, replacing Ruben Pillay, whose two-year term ended in August 2019.

However, Brett Levy insisted in September 2019 that, owing to an ongoing turnaround at Cell C, the struggling company had a bright future.

The turnaround at Cell C is being led by Craigie Stevenson, who joined the company as COO in October 2017, assuming the CEO's position in August 2019. He had been interim CEO since March 2019 and took over from Jose Dos Santos. Stevenson believes that Cell C can leverage its valuable spectrum and large customer base of about 16-million active users to improve its position. This, however, will depend on the successful completion of negotiations for increased access to MTN's third-generation (3G) and fourth-generation (4G) networks – mostly outside South Africa's metropolitan areas – and on an expected capital injection from investment vehicle the Buffet Consortium.

As at November 2018, Cell C's network service offering, including through MTN infrastructure, stood at 99% second-generation, or 2G, coverage; 96% 3G coverage and 80% 4G coverage. Stevenson told an interviewer in September 2019 that an agreement with MTN for increased access to its infrastructure was expected within a month.

Meanwhile, Blue Label Telecoms announced in February 2019 that the Buffet Consortium, led by South African property billionaire and investor Jonathan Beare, planned to acquire a minority shareholding in Cell C that would bolster the mobile operator's balance sheet. Media reports published in September 2019, citing Blue Label Telecoms and Cell C executives, indicated that negotiations between the parties were making good progress.



MTN

| MTN | | | | |
|---------------------------------------|-----------------|-----------------|----------------|----------------|
| Group president and CEO Robert Shuter | | | | |
| | FY 2018 | FY 2017 | H1 2019 | H1 2018 |
| Revenue | R134.56-billion | R132.87-billion | R72.51-billion | R62.78-billion |
| Ebitda | R48.25-billion | R46.97-billion | R31.25-billion | R22.34-billion |
| Capital expenditure | R26.02-billion | R31.46-billion | R12.24-billion | R11.46-billion |
| Subscribers | 233-million | 217.20-million | 240-million | 223.40-million |
| Data customers | 79-million | 69-million | 82-million | 71.20-million |

Compiled from MTN financial results for the year ended December 31, 2018, and the interim financial results for the six months ended June 30, 2019

Ebitda – earnings before interest, taxes, depreciation and amortisation

Launched in South Africa in 1994, MTN is an emerging markets mobile telecommunications operator that provides voice, data and digital services for customers in 20 countries in Africa and the Middle East.

Its operations are organised into five segments: South Africa, Nigeria, the Southern and East Africa and Ghana (Seagha) region, the West and Central Africa (Weca) region and the Middle East and North Africa (Mena) region.

The Seagha region comprises eSwatini, Zambia, Rwanda, Uganda and Ghana, while the Weca region comprises Benin, Cameroon, Côte d'Ivoire, Guinea-Bissau, Guinea-Conakry, Liberia and Congo Brazzaville. The Mena region includes South Sudan, Sudan, Iran, Afghanistan, Syria and Yemen.

In May 2019, MTN CEO Rob Shuter said the company was considering expansion into Ethiopia, where the telecommunications sector is dominated by a State-owned monopoly. Ethiopian Prime Minister Abiy Ahmed, who came to power in 2018, has stated that he plans to open the telecommunications sector to private investors, prompting interest from operators keen on tapping into Africa's second-most-populous nation.

Shuter believes there is potential for MTN to be the biggest or second-biggest mobile operator in Ethiopia, which fits in with the company's new strategic direction.

MTN has faced legal, regulatory and political challenges in recent years, particularly in Nigeria, its biggest market in Africa, which accounts for about one-third of its revenue. The disputes have resulted in a decline in the company's share price of about 50% over the past four years and allowed rival Vodacom to surpass it in terms of capitalisation.

Although the year to December 31, 2018, was challenging in MTN's key markets – characterised by slow economic growth, volatile currencies, low oil prices and political instability in some instances – the group posted revenue of R134.56-billion (2017: R132.87-billion). Service revenue, at R125-billion, was 10.70% up on the previous year. This was driven by a 7.30% increase in voice revenue to R82.20-billion, a 22% increase in data revenue to R28.45-billion (2017: R25.37-billion), a 46.80% increase in financial technology, or fintech, revenue to R7.83-billion (2017: R5.58-billion) and increases in enterprise and wholesale revenue of 8.40% to R13.40-billion (2017: R12.36-billion) and 63.70% to R2.80-billion (2017: R1.73-billion) respectively. Digital revenue, however, declined by 32.90% year-on-year to R3.90-billion (2017: R6.63-billion).

Operating profit increased to R23.56-billion (2017: R20.57-billion).

MTN's capex in 2018 totalled R26.02-billion (2017: R31.46-billion), with 63% of this amount earmarked for radio and infrastructure, 19% for information technology systems, 13% for transmission, 3% for the core network and 2% for other capex. During the year, the group rolled out 8 295 3G sites and 7 257 4G sites.

Meanwhile, MTN's subscriber base increased to 233-million during 2018 (2017: 217-million), while the number of active Mobile Money users increased by five-million to 27-million and that of active data users from 69-million to 79-million.

The number of subscribers further increased to 240-million during the six months to June 30, 2019, while the number of active Mobile Money users increased to 30-million and that of active data users to 82-million.

For the half-year period, MTN's service revenue increased by 9.70% year-on-year to R67.90-billion, buoyed by growth of 12.20% in Nigeria and 3.30% in South Africa. Data revenue, at R16.10-billion, was 19.80% higher year-on-year, while fintech revenue increased by 30.70% to R4.70-billion. Capex for the half-year – during which MTN rolled out 3 378 3G sites and 6 099 4G sites – totalled R12.24-billion.

Regional performance

MTN South Africa, which is the country's second-biggest mobile operator, increased the number of its subscribers to 31.20-million – or 13.39% of the group's total subscriber base – during 2018. Revenue increased to R44.66-billion (2017: 42.50-billion) on the back of increases of 14.40% or R1.52-billion (2017: R1.77-billion), 12.70% or R12.90-billion (2017: R11.45-billion) and 66.30% or R918-million (2017: R552-million) in digital revenue, data revenue and fintech



revenue respectively. Capex in the South Africa segment declined to R9.45-billion (2017: R11.47-billion) during the year and is expected to further decline to R8.92-billion in 2019.

For the six months to the end of June 30, 2019, the South Africa segment witnessed a 1.90% decline in the total number of subscribers to 29.20-million. The segment's total revenue for the period amounted to R22.39-billion (2017: R21.16-billion). This comprised network services revenue of R13.53-billion, mobile devices revenue of R4.33-billion, interconnection and roaming revenue of R2.52-billion, digital and fintech revenue of R1.05-billion, miscellaneous revenue of R752-million and interest revenue of R209-million. Ebitda for the period was marginally higher, at R7.46-billion. Capex totalled R3.40-billion, down from the previous corresponding period's R3.91-billion. The estimated capex figure for 2019 is R8.92-billion.

MTN South Africa reported in August that, as at June 30, 2019, it had achieved 99% 3G population coverage and 91% 4G population coverage.

Meanwhile, MTN Nigeria, which is the group's biggest segment, increased its subscriber base by 11.30% to 58.20-million – equivalent to 25% of the group total – during the 12 months ended December 31, 2018. Total revenue for the 12 months increased by 5.30% to R37.97-billion.

Data revenue was 25.60% higher year-on-year, at R5.50-billion, while fintech revenue increased by 18% to R1.03-billion. Digital revenue, however, declined by a massive 65.10% to R908-million. Capex declined by 23.10% to R6.89-billion.

MTN Nigeria's subscriber base increased by a further 3.30% to 61.50-million during the six months to the end of June 2019. Total revenue for the half-year amounted to R22.23-billion (R17.23-billion). This comprised network services revenue of R18.72-billion, mobile devices revenue of R43-million, interconnection and roaming revenue of R2.35-billion, digital and fintech revenue of R896-million and miscellaneous revenue of R232-million. Ebitda for the six-month period totalled R9.93-billion (2018: R7.43-billion). Capex for the period amounted to R3.67-billion (2018: R2.32-billion). The Nigerian segment had achieved 73% 3G population coverage by the end of June 2019 and 4G coverage in 39 cities.

Meanwhile, MTN Nigeria was granted a licence by the Central Bank of Nigeria (CBN) in July 2019, which will enable it to broaden the range and depth of the financial services it offers.

The Seagha region's subscriber base as at December 31, 2018, was 43-million, about 18.80% of the group total, with



the figure increasing to 46-million as at June 30, 2019. The region increased its revenue for 2018 by 12% to R22.61-billion, while digital revenue for the year declined by 29.50% to R771-million, data revenue increased by 18.60% to R4.54-billion and fintech revenue increased by 38.30% to R4.28-billion. The Seagha region increased its total revenue for the six months to June 30, 2019, by 22.50% to R12.66-billion (2018: R10.34-billion), made up of network services revenue of R8.57-billion, mobile devices revenue of R160-million, interconnection and roaming revenue of R820-million, digital and fintech revenue of R2.77-billion and revenue from other sources of R343-million. Ebitda totalled R4.61-billion (2018: R3.61-billion), while capex totalled R3.26-billion (2018: R2.22-billion).

The Weca region's subscriber base as at December 31, 2018, stood at 30.76-million, with the figure having increased by 3.10% to 33.80-million as at June 30, 2019. Revenue for the region for the year to December 31, 2018, was R20.22-billion (2017: R20.93-billion). For the half-year to June 30, 2019, total revenue from the Weca region amounted to R10.58-billion (2018: R9.62-billion), comprising network services revenue of R7.89-billion, mobile devices revenue of R79-million, interconnection and roaming revenue of R1.18-billion, digital and fintech revenue of R1.14-billion and miscellaneous revenue of R290-million.

The Mena region, meanwhile, witnessed an increase in subscribers from 68.97-million as at December 31, 2018, to 69.70-million as at June 30, 2019. Revenue for the region for the year to December 31, 2018, was R20.22-billion (2017: R20.93-billion). Revenue for the six months to June 30, 2019, totalled R4.10-billion, comprising network services revenue of R3.41-billion, mobile devices revenue of R18-million, interconnection and roaming revenue of R484-million, digital and fintech revenue of R16-billion and revenue from other sources of R33-million. Ebitda for the half-year totalled R1.10-billion (2018: R1.25-billion), while the capex incurred amounted to 634-million (2018: R572-million).



Regulatory and legal matters

MTN continues to face political, regulatory and legal challenges in some of the markets where it operates, most notably in Nigeria, where, in October 2015, it was ordered to pay \$5.20-billion for failing to deactivate the SIM cards of more than five-million subscribers, amid concerns the SIM cards were being used by Boko Haram insurgents. After a series of negotiations, the fine was reduced to \$1.50-billion, leading to MTN's posting a loss of \$108-million in 2016, its first loss in two decades.

MTN, which has to date paid \$1.10-billion, about three-quarters of the fine, has run into a fresh dispute with Nigeria's Federal Inland Revenue Service, which has disagreed with the company's treatment of the fine as an operating cost. In August 2019, MTN requested a Nigerian tax tribunal to rule on whether it should pay the fine.

As part of the settlement with Nigerian authorities concerning the 2015 SIM card case, MTN decided to list its Nigerian unit on the Nigerian Stock Exchange. Approval for the listing was granted in May 2019. However, when the \$5-billion unit made its debut on that exchange that month, officers from the West African country's Economic and Financial Crimes Commission requested information and documents on the listing, following complaints by brokers that the shares were unavailable for acquisition by investors. Consequently, the shares, which had surged by the daily limit of 10% for the first five days of trading, declined significantly.

MTN is also involved in a dispute with Nigeria's Attorney-General's office concerning a claim for \$2-billion in back taxes and penalties. The case was initially supposed to be heard in June 2019 but was adjourned following a request by lawyers for the Attorney-General's office and will be heard on January 30 and 31, 2020. MTN intends to counter the claim by arguing that the Attorney-General does not have the power to determine unpaid taxes. This matter dates back to May 2018, when Abubaker Malami, Nigeria's Justice Minister and Attorney-General at the time, ordered the company to conduct a self-assessment of its tax obligations over the previous 18 years and to report the findings to the Ministry. MTN protested the request, claiming that the Attorney-General did not have jurisdiction over taxes and that, even if he did, Nigeria's statute of limitations provided only a seven-year window for new investigations.

Meanwhile, in August 2018, the CBN ordered MTN to return \$8.10-billion it claimed the company had illegally repatriated from 2007 to 2008 using improperly issued paperwork. On reviewing additional documentation, the CBN concluded that

MTN appoints international advisory board, new chairperson-designate

Telecommunications group MTN announced in May 2019 that it had established an international advisory board of eminent persons chaired by former South African President Thabo Mbeki.

The board, which was expected to start its work on July 1, 2019, would counsel, guide and support MTN in fulfilling its vision and objective of being one of the premier African corporations with a global footprint in telecommunications, contributing to increased digital inclusion in Africa and the Middle East.

Its other members are former Ghana President John Kufuor, former African Union political affairs commissioner Dr Mohammed ElBaradei, Total France marketing and services president Dr Momar Nguer and outgoing MTN chairperson Phuthuma Nhleko.

MTN has named former South African Deputy Finance Minister Mcebisi Jonas as the replacement for Nhleko, who steps down in December 2019.

Source: Engineering News

MTN was no longer required to reverse the historical dividend payments made to MTN Nigeria shareholders. However, the bank found that a 2008 private placement remittance worth about \$1-billion was based on certificates that did not have final approval. Consequently, the CBN instructed MTN to implement a notional reversal of that transaction by making a \$52.60-million payment. The reversal was effected in December 2018, ending the dispute, which had been ongoing for four months.

Elsewhere, in February 2019, South African police arrested a former ambassador to Iran on corruption charges related to the award of MTN's licence to operate in Iran in 2005, after it had initially been awarded to Turkey's Turkcell. MTN denied that it had offered the ambassador, who has since died, any money.

Turkcell first sued MTN in the US in 2012, but was forced to withdraw the case after the Supreme Court ruled that it could not be heard in the country. The case was later filed in South Africa in 2013, but was delayed following objections by MTN and subsequent amendments. The latest attempt to sue MTN was filed in South Africa's High Court in 2017. The Istanbul-based company is demanding about \$4.20-billion in damages, based on profits it says it could have generated, had it been able to keep the licence, as well as interest.

Iran has been a problematic market for MTN, as US-led sanctions prevent MTN from repatriating funds from that country.



In February 2019, MTN Uganda CEO Wim Vanhelleputte was deported, owing to what Ugandan police said were security concerns. This followed the deterioration of relations between MTN and the host government in 2018, amid alleged use of the company's network for espionage and suspected evasion of taxes through underdeclaration of revenue, among other issues. Vanhelleputte was, however, allowed to return to the country in May 2019. Subsequently, MTN announced that it planned to boost its stake owned by Ugandans from 4% to 20%, adding that it was already engaged in negotiations with a Ugandan pension fund as a potential investor.

Market review

MTN began a review of its business across Africa and the Middle East in 2018, leading to the sale of its Cyprus business. The company also embarked on talks with Econet Wireless Zimbabwe, as part of its R15-billion fund-raising drive, to sell its 53% stake in Botswana Mascom. MTN had identified Mascom as noncore to its operations, as its shareholding did not give it control of Mascom and the power to execute strategy. MTN terminated talks with Econet Wireless Zimbabwe in October 2019, as certain conditions pertaining to the transaction had not been met. The deal was supposed to net MTN \$300-million.

MTN has been reviewing a portfolio of investments under a three-year plan that includes shedding loss-making e-commerce assets and exiting countries where it has no probability of reaching the top two spots in terms of market share. The plan is aimed at streamlining the company and honing its focus on high-growth markets on the continent and in the Middle East after clashes with regulators in Nigeria, Uganda and elsewhere crimped growth.

MTN has also identified various e-commerce assets and stakes in towers businesses for disposal. In May 2019, MTN announced the sale of its interests in investment fund Amadeus and flight-booking site Travelstart to HarbourVest Global Private Equity for R1.20-billion. The telecommunications giant is the biggest shareholder in US-listed, Africa-focused Internet group Jumia Technologies, another e-commerce asset, and also holds a 29% stake in IHS Towers, Africa's biggest telecommunication towers company, as well as 49% in each of wireless infrastructure companies ATC Ghana and ATC Uganda.

MTN CEO Rob Shuter said in May 2019 that about one-third of the assets in capital were not strategic in the long term. He added that MTN's priority was to concentrate on its biggest markets, including Nigeria, where, despite facing regulatory disputes, it had benefited from being the industry leader, with more than 60-million customers.

MTN messaging platform reaches one-million active users

Mobile network operator MTN's messaging platform Ayoba has reached one-million monthly active users.

An advanced communications application localised for African and Middle Eastern users under an independent over-the-top brand with unique features for MTN subscribers, Ayoba supports several languages spoken across the mobile network operator's markets. These include Zulu, Xhosa, Pidgin, Yoruba, Swahili, Hausa, French and English.

Ayoba was launched early in 2019 and is currently available in Cameroon, Congo Brazzaville, Nigeria, Ghana, Guinea, Afghanistan and South Africa. MTN plans to introduce it in the rest of its markets and expects it to go live in Guinea Conakry, Liberia, Benin and Rwanda before the end of 2019.



Source: African News Agency

Growth prospects

Shuter announced in March 2019 that, as part of its BRIGHT strategy, MTN aimed to become a digital operator with a significant focus on the fintech, digital technologies, enterprise and wholesale business areas.

He added that the priorities for 2019 were the launch of the group's own music streaming and instant messaging applications. MTN would also extend its mobile money service from 14 to 18 countries through launches in South Africa, Nigeria, Afghanistan and Sudan.

The group expects to have increased its customer base to 300-million by 2022. This will be achieved by expanding 3G and 4G coverage, besides other initiatives.

Meanwhile, speaking at the second South Africa Investment Conference, in November 2019, Shuter said the company would invest R10-billion in its South African operations in each of the next five years, with this planned investment



aimed mainly at rolling out digital infrastructure, networks and high-speed highways.

Transformation

South Africa's Broad-Based Black Economic Empowerment (BBBEE) Commission said in July 2019 an investigation initiated in 2017 into MTN's Zakhele-Futhi scheme had found the scheme to be contrary to the objectives of the BBBEE Act. Established as a ringfenced, special-purpose vehicle, the scheme holds about 77-million MTN shares, equating to about 4% of the company's issued share capital.

The commission issued remedial recommendations to address the defects that had been identified, including changes to governing documents such as the memorandum of incorporation and the relationship agreement, to grant black shareholders effective rights, control, participation and economic benefits in respect of their stake.

While MTN denied engaging in any practice, conduct or arrangement contrary to the BBBEE Act, it expressed willingness to cooperate with the commission and to implement the recommended changes to address the concerns that had been raised.

Changing the governing documents, the commission stated, would enable MTN Zakhele-Futhi to exercise the right to nominate representatives on the MTN board and to remove the veto power that MTN had in respect of the trickle dividend and the general dividend that would accrue to black shareholders. The changes would also enable MTN Zakhele-Futhi to appoint its own board members who need not be MTN appointees or nominees.

RAIN

Rain, which made its debut on the South African telecommunications landscape in July 2018, is 20%-owned by businessperson Patrice Motsepe's African Rainbow Capital, with the other shareholders including well-known South African bankers Paul Harris and Michael Jordaan. It offers data-only SIM cards and has become a disruptive force in South Africa's telecommunications market, where consumers have consistently complained about high mobile data costs.

According to the Independent Communications Authority of South Africa's (Icasa's) tariff analysis report for the period from July 1, 2018, to December 31, 2018, Rain had the cheapest 1 GB data bundle in South Africa, priced at R50, about half the price of the next cheapest 1 GB bundle from Telkom.

Rain, which is based in Stellenbosch, in South Africa's Western Cape province, operates in all the major metropolitan areas in the country, where it has about 2 000 long-term evolution-advanced (LTE-A) towers, with plans to expand to more than 5 000 towers in the next two years.

Rain announced in September 2019 that it had activated its fifth-generation (5G) network – one of the first in the world – by making it available to selected existing customers in Johannesburg and Tshwane, in Gauteng, with plans to extend coverage to other major South African metropolitan areas in 2020.

Rain's initial 5G offering will provide fast, affordable and easy-to-install wireless connectivity to homes and businesses as an alternative to asymmetrical digital subscriber line and fixed long-term evolution (LTE) services.

The 5G network was supplied by Chinese information and communication technology solutions provider Huawei.

Meanwhile, commentators have said Rain's activation of its 5G network demonstrates that the launch of 5G technology in South Africa is feasible, even without government intervention. Rain leveraged its existing 4G network infrastructure to build the 5G network in its regulated 3 600 MHz spectrum band. Licensing of the higher 5G frequencies – 24.25 GHz to 86 GHz – would be considered by the South African government only after the World Radio Communication Conference in November 2019.

TELKOM

| TELKOM | | | | |
|-------------------------------------------------|----------------|----------------|----------------|----------------|
| Group CEO Sipho Maseko/Chairperson Sello Moloko | | | | |
| | FY2019 | FY2018 | H1 2020 | H1 2019 |
| Revenue | R41.77-billion | R39.66-billion | R21.48-billion | R20.51-billion |
| Ebitda | R11.31-billion | R10.42-billion | R5.04-billion | R5.27-billion |
| Capital expenditure | R7.67-billion | R7.91-billion | R4.24-billion | R3.28-billion |
| Mobile subscribers | 9.67-million | 5.21-million | 11.50-billion | 6.56-million |
| Mobile broadband subscribers | 6.38-million | 3.63-million | 7.82-million | 4.75-million |

Source: Compiled from Telkom Group provisional annual results for the year ended March 31, 2019, and interim results for the six months ended September 30, 2019

Ebitda – earnings before interest, taxes, depreciation and amortisation

Telkom is a former wholly State-owned company whose service offering includes fixed-line voice and data services, mobile voice and data services and broadband solutions across copper and fibre infrastructure, as well as information



and communication technology (ICT) services, such as cloud services, besides others.

As at March 31, 2019, Telkom's shareholders comprised the South African government, with a 40.50% interest; institutional investors, with 51.60%; and noninstitutional investors, with 5.10%. Treasury shares accounted for 2.80% of the total equity.

Telkom comprises two divisions – Telkom Consumer and Openserve – as well as three subsidiaries, BCX, Gyro and Yellow Pages (known as Trudon).

Telkom Consumer provides fixed-line and broadband services, as well as voice services, while Openserve is a connectivity provider that runs high-speed broadband networks linking banking systems, hospitals and schools, besides others. Openserve has South Africa's biggest open-access network. BCX, a wholly owned subsidiary, is an end-to-end digital solutions provider that helps enterprises to futureproof their business. Gyro, which is also wholly owned by the company, manages Telkom's masts and towers, as well as its property development and property management services. Yellow Pages, which is 64.90%-owned by Telkom, provides commercial search solutions and integrated advertising and marketing services in South Africa and Namibia, especially for small and medium-sized enterprises.

For the year ended March 31, 2019, Telkom posted group revenue of R41.77-billion (2018: R39.67-billion), driven mainly by an increase in mobile service revenue to R8.16-billion (2018: R5.15-billion). Information technology revenue increased to R6.76-billion (2018: R6.37-billion). Fixed-service revenue, however, declined to R21.17-billion (2018: R23.22-billion). Openserve's revenue decreased to R16.94-billion (2018: R17.53-billion), while BCX's revenue declined to R19.58-billion (2018: R20.26-billion).

In the half-year to September 30, 2019, group revenue increased by 4.70% year-on-year to R21.48-billion (2018: R20.51-billion), with the main driver being a 56.60% year-on-year increase in mobile service revenue to R5.60-billion (2018: R3.58-billion) as subscriber numbers increased by 75% to 11.50-million. Fixed service continued its decline during the half-year, falling by 11.90% to R9.53-billion (2018: R10.81-billion). Openserve's revenue for the period declined by 8.50% to R7.93-billion and BCX's was 3.30% lower year-on-year, at R9.56-billion.

Owing to declining voice revenue as a result of customers migrating from legacy to next-generation technologies, Openserve is focused on modernising its network. Group CEO Siphos Maseko said in November 2019, when he presented the company's results for the six months ended September 30, 2019, that 300 000 customers had migrated from copper-based services to fibre and LTE services over the preceding 18 months.

Telkom cuts 12.50% jobs

Telecommunications company Telkom cut 12.50% of its permanent employees during the 2018/19 financial year, reducing the headcount to 15 296 (2017/18: 17 472).

The job cuts were attributable to voluntary severance and early retirement packages and other lay-offs permitted by South African labour legislation.

Some of the job cuts were at Telkom's BCX information and communication technology subsidiary, where the number of permanent employees declined by 13.40% to 5 782. The retrenchments at BCX were part of a restructuring process that aims to stabilise the business by arresting a decline in financial performance, simplifying the company structure to enhance efficiencies and reducing the cost to serve.

Source: TimesLive and Telkom provisional annual results 2019

He previously said that Openserve had invested in its local optical and national optical transport networks, which would enable Telkom to carry data traffic from 10 GB to 100 GB without having to incrementally invest significantly more capex. The network modernisation programme would be completed in the next two to three years, providing Telkom with a footprint that would enable it to carry both 4G and 5G traffic across the country.

As at March 31, 2019, Openserve had 163 800 km of fibre deployed, with fibre-to-the-cabinet – a connectivity technology that is based on a combination of fibre-optic cable and copper cable – having reached nearly 2.40-million cabinets. Fibre-to-the-home had reached 430 659 homes and fibre-to-the-premises 2.89-million premises.

Maseko stated in the company's provisional annual results for the 2018/19 financial year that, despite the solid performance, evolving technology remained a key challenge, evidenced by a 7.90% decline in the fixed-services business's revenue, attributed to customer migration to new technologies.

Meanwhile, Telkom incurred capex of R7.67-billion during the 2018/19 financial year as its ongoing investment programme progressed, with the aim of generating new revenue in evolving technologies to offset revenue shrinkage in traditional technologies. Mobile infrastructure accounted for R3-billion of this amount, with the core network, fibre and service-on-demand representing about R1.20-billion each.

The 2018/19 capex, which equated to 18.40% of revenue for the financial year, resulted in a 58.30% increase in revenue from mobile services. The company stated that mobile and fibre infrastructure would remain key investment areas in the future.



During the six months to September 30, 2019, the company's capex totalled R4.24-billion (2018: R3.28-billion, with the bulk, R2.25-billion, invested in mobile. Other major expenditure items were service on demand (R551-million), the core network (R459-million), fibre (R381-million) and the business support system (R81-million). A total of R76-million was spent on network rehabilitation and sustenance.

Meanwhile, Telkom has identified fintech as one of the sectors it will diversify into, amid mounting pressure on its fixed business. The company revealed when it released its financial results for the year to March 31, 2019, that it had appointed a group chief digital and fintech officer to progressively expand the fintech and business opportunities across Africa. Most South African mobile operators are already making inroads into the fintech market to boost revenues.

Corporate activity

News service Bloomberg, citing the Zimbabwe State Enterprise Restructuring Agency, reported in October 2018 that the Zimbabwe government was considering selling the country's second-largest mobile network operator, State-owned NetOne, to Telkom. Further, in March 2019, Zimbabwe Finance and Economic Development Minister Mthuli Ncube confirmed that the country was working on the unbundling of NetOne and fixed-line and broadband network provider TelOne to make them attractive to potential investors.

Ncube said that NetOne and TelOne would be sold as a package, adding that an offer would be made to Telkom and MTN, which had previously expressed interest in the two State-owned companies, as well as to other potential investors. He explained that the plan was to sell 60% of the two entities' shareholding, with the Zimbabwe government retaining the balance.

The Zimbabwe government expects to have identified a suitable investor by the end of 2019.

In South Africa, Telkom confirmed in November 2019 that it was engaged in negotiations regarding the potential acquisition of Cell C. On November 29, Telkom reported that Cell C had rejected its takeover offer. Telkom's initial bid in 2017 failed after Cell C opted for a recapitalisation plan led by Blue Label Telecoms.

Meanwhile, Maseko told an interviewer in May 2019 that the company was searching for an equity partner to help build more mobile network towers as it sought new ways to increase revenue away from its core fixed-line business. He said that the company might sell some of its 1 332 properties to raise funds for the project.

Following the expiry of its roaming agreement with MTN, Telkom subscribers have, since June 2019, been able to access Vodacom's network, which covers an estimated 99.97% of South Africa's population. The agreement with Vodacom includes 2G, 3G and 4G networks. Vodacom's 4G network covers about 80% of the country's population.

Regulatory and policy developments

Telkom has criticised the reforms for the information and communication technology (ICT) sector proposed in a paper published by the National Treasury in August 2019.

In an article published in the Sunday Times, Telkom CEO Siphso Maseko argues that the proposals contradict existing government policy. He cites the National Treasury's suggestion that spectrum be released through an auction, with a portion of the resource set aside for a government-controlled network.

This is at odds with the Department of Communication and Digital Technologies' (DCDT's) policy, in terms of which a proposed wireless open-access network will not be controlled by government. Maseko argues that this contradiction has the potential to result in policy uncertainty, thus negatively impacting on investor confidence.

The Telkom CEO also criticises the National Treasury's proposals for dealing with outdated concepts, such as the copper network, which, he suggests, indicates that the authors of the document are not familiar with the current state of the ICT sector or the technologies driving it.

Maseko's views are shared by independent analyst Arthur Goldstuck, who believes that the National Treasury's proposals will not have a significant impact on the ICT sector, adding that the DCDT's policy direction is more relevant to the sector.

Transformation

The breakdown of Telkom's permanent employees during the 2018 financial year comprised 64% black South Africans, 33% white South Africans and 3% non-South Africans. Maseko stated in the company's provisional annual results document that achieving gender equality remained a challenge, noting that women represented 31% of the staff complement.

Meanwhile, former Trade and Industry Minister Dr Rob Davies announced in May 2019 that Telkom's shares held by government would count as having black economic-empowerment (BEE) facilitator status. This would improve Telkom's BEE rating and enable it to compete fairly in the market.



VODACOM

| VODACOM | | | | |
|---------------------------------------------------------------|----------------|----------------|----------------|----------------|
| CEO Shameel Aziz Joosub/Chairperson Phillip Jabulani Moleketi | | | | |
| South Africa | FY2019 | FY2018 | H1 2000 | H1 2019 |
| Revenue | R71.33-billion | R69.97-billion | R33.65-billion | R33.45-billion |
| Ebitda | R27.72-billion | R28.09-billion | R13.92-billion | R13.81-billion |
| Capex | R9.58-billion | R8.88-billion | R4.78-billion | R4.04-billion |
| Subscribers | 43.17-million | 41.64-million | 43.86-million | 44.09-million |
| Data customers | 19.95-million | 20.35-million | 21.42-million | 20.54-million |
| International | FY 2019 | FY 2018 | H1 2020 | H1 2019 |
| Revenue | R19.98-billion | R17.46-billion | R10.74-billion | R9.26-billion |
| Ebitda | R6.25-billion | R4.93-billion | R4.30-billion | R2.91-billion |
| Capex | R3.38-billion | R2.71-billion | R1.57-billion | R1.29-billion |
| Subscribers | 34.62-million | 32.41-million | 36.59-million | 34.72-million |
| Data customers | 17.66-million | 16.57-million | 19.68-million | 17.96-million |

Source: Compiled from Vodacom Group's integrated report for the year ended March 31, 2019, and interim results for the six months ended September 30, 2019.

Ebitda – earnings before interest, taxes, depreciation and amortisation

Vodacom, which is majority-owned by telecommunications multinational Vodafone, is South Africa's biggest mobile operator and also has a presence in the Democratic Republic of Congo (DRC), Mozambique, Lesotho, Kenya and Tanzania.

For the fiscal year ended March 31, 2019, the group's revenue increased to R90-billion (2018: R86.37-billion) on the back of strong international growth, which offset a slowdown in South Africa.

During the half-year to September 30, 2019, the group's revenue increased by 3.90% year-on-year to R44.39-billion (R42.71-billion), supported by a 4.20% surge in service revenue to R36-billion (2018: R34.55-billion). During the period, the number of subscribers further increased to 80.44-million in the South African and international segment. Including 34.57-million subscribers at Safaricom, the Vodacom group had a total of 115-million subscribers as at September 30, 2019.

South Africa

Vodacom stated in its integrated report for 2018/19 that its South African segment – its largest – had continued to operate satisfactorily, with service revenue increasing by 2.10% year-on-year to R55.75-billion (2018: R54.62-billion), despite the implementation of deliberate pricing transformation and low economic growth in the country. Data revenue increased by 3.90% to R24.28-billion (2018: R23.36-billion), contributing 43.50% to service revenue. Data bundle purchases increased by 13.10% to 866-million as more affordable data bundles with

shorter validity periods became available to customers.

Meanwhile, Vodacom's Financial Services business continued to accelerate during the year to March 31, 2019, contributing R1.60-billion of revenue, increasing by 67.10% and delivering R1-billion in profit before tax.

The group added 1.50-million new subscribers in South Africa during the period, increasing the total to about 43.20-million. This, however, was lower than the 43.80-million customers it had as at December 31, 2018, and 44-million as at September 30, 2018.

Ongoing efforts to improve customer experience through pricing transformation, modernisation of information technology systems and sustained investment in network infrastructure, continue to pay dividends. This is evidenced by the additional 691 000 customers who joined Vodacom in the six months to September 30, 2019. There are now 43.90-million customers connected through Vodacom's network, each enjoying access to a wide array of financial and digital services.

In its interim results for the six months ended September 30, 2019, Vodacom reported service revenue of R25.80-billion (2018: R25.72-billion), supported by an increase in data elasticity in the second quarter, following the implementation of the End-User and Subscriber Services Charter regulations in March. Data purchases, meanwhile, increased by 7.10% to 472-million. The company's strategic focus on financial services also resulted in a strong performance, increasing by 37.1% to R972-million.



The End-User and Subscriber Service Charter Amendment Regulations 2018

The End-User and Subscriber Service Charter (EUSSC) Amendment Regulation 2018 pertains to the data regulations, which include data transfer, data rollover, out of bundle usage and depletion notifications. The regulations are minor amendments made by the Independent Communications Authority of South Africa (Icasa) after consumer groups conveyed general concerns regarding usage notifications, the option to rollover data, the option to transfer data and conditions regarding out-of-bundle billing. The regulations came in force on May 30, 2018.

- 1) The usage notifications require that operators send usage depletion notifications to consumers, with regard to voice and SMS services, at depletion levels of 50%, 80% and 100%.
- 2) In terms of the roll-over of data, operators are required to give consumers an option to rollover unused data before the date of expiry. Where unused data is rolled over, operators will be required to first apply data usage against the rolled over data, until the data is depleted, and thereafter against any allocated data.
- 3) In addition to the roll-over of data, operators are required to give consumers the choice to transfer data to other users on the same network. During the public hearings, concerns were expressed regarding this provision, as technical and integrated functionality would need to be deployed by operators to support this option.
- 4) With regards to out-of-bundle billing, operators are no longer allowed to charge consumers out-of-bundle rates for data without the consumer's prior consent and Icasa has determined that operators' out-of-bundle data charges can no longer be set as the default position.

International

During the 2018/19 financial year, Vodacom was awarded a 4G licence in the Democratic Republic of Congo, unified and renewed its licences in Mozambique for 20 years and acquired 2 x 10 MHz of 800 MHz spectrum in the former Portuguese colony, while it acquired an additional 2 x 10 MHz of 700 MHz 4G spectrum in Tanzania.

Meanwhile, the international business division's service revenue for the 2018/19 financial year increased by 15.60% year-on-year to R19.45-billion (2018: R16.83-billion), driven by the roll-out of 4G services, which are now available in all operations.

International operations added 2.20-million subscribers during the 2018/19 financial year, a 6.80% year-on-year

increase. The number of data customers increased by 6.60% to 17.66-million (2018: 16.57-million) as the company continued to make affordable data devices available across all operations. Data revenue of R3.06-billion for the period (2018: R2.43-billion) accounted for 15.70% of the international division's service revenue.

In Kenya, Safaricom reported a 7.10% increase in revenue to KSh250.96-billion (2018: KSh234-billion). This solid performance was made possible by strong recovery in the growth of Safaricom's customer base, with the total number of customers increasing by 7.70% to 31.90-million.

Meanwhile, during the six months to September 30, 2019, Vodacom's international business segment posted revenue of R10.74-billion, up from R9.26-billion for the corresponding period in the previous year, while Safaricom increased its revenue from R16.30-billion to R18.44-billion during the period.

On a year-on-year basis, the number of subscribers and data customers in the international segment increased from 34.72-million to 36.59-million and from 17.96-million to 19.68-million respectively. Safaricom expanded its customer base from 29.94-million to 34.57-million, while increasing the number of its data customers from 17.94-million to 20.19-million.

In the six months to September 30, 2019, Vodacom added two-million customers to its international operations (outside South Africa and Safaricom), boosting the total number of international customers to 36.60-million.

Mobile money

The M-Pesa money transfer service posted a 32.20% increase in revenue to R3.10-billion (2018: R2.33-billion) as Vodacom continued to expand the service to include microloans, merchant payment systems and further interconnection with banks and other operators. During the 12-month period, the Vodacom international division added 1.70-million new M-Pesa customers, taking the total to 13.50-million. The number of M-Pesa customers totalled 36.14-million (2018: 32.30-million). About 11-billion transactions valued at R2.20-trillion were processed during the year.

At Safaricom, the number of M-Pesa customers increased from 20.55-million to 22.64-million during the 2018/19 financial year, with M-Pesa revenue increasing by 19.20% to constitute 31.20% of Safaricom's service revenue, up from 28% in the previous year.

In the half year to September 30, 2019, 797 000 customers



M-Pesa among top 10 most influential financial projects in past 50 years

Kenyan mobile network operator Safaricom's M-Pesa money transfer service was named among the top ten most influential finance projects of the past 50 years by the Project Management Institute in October 2019.

M-Pesa was one of the more than 1 000 projects considered by 400 leaders in the global project management community.

The 12-year-old mobile-phone-based service has resulted in a 50% increase in financial inclusion in Kenya and lifted more than 195 000 families in the East African country out of extreme poverty by empowering customers with the agency to receive money from any other phone user in the country.



Source: African News Agency

were added to the M-Pesa service increasing its total number of subscribers to 14.30-million. This resulted in a revenue increase over the period of 37.40% to R1.90-billion, contributing 18% to service revenue. Vodacom's M-Pesa customers now process more than \$2.80-billion a month in transactions through the service.

Meanwhile, Kenyan mobile operator Safaricom continued to perform in line with Vodacom's expectations having reported strong interim results at the beginning of November. It reported a 5.30% rise in service revenue growth, largely on the back of an 18.20% increase in revenue from M-Pesa and an overall increase in market share for the first time since 2017.

M-Pesa now contributes 33.80% to service revenue. M-Pesa customers increased by 12.40% to 23.60-million. Safaricom continues to invest significantly in its network and infrastructure while accelerating its pricing transformation strategy.

Network expansion

Vodacom reported capex of R12.96-billion in the year to March 31, 2019.

During the year it spent R9.60-billion (2018: R8.88-billion) to extend its rural and deep-rural 4G LTE coverage in South Africa.

The company extended 4G to more than 90% of the population, and added 139 rural sites, connecting rural communities that had never previously had coverage.

Its 3G network is now available to 97% of South Africans based in rural areas. In the past two years alone, the mobile operator has built deep-rural coverage sites in more than 400 villages.

Chief technology officer Andries Delpont said in May 2019 that, given that rural land comprised 98.60% of South Africa's land area, Vodacom had prioritised connectivity in these regions. However, further expansion of the company's 4G footprint and a possible roll-out of 5G technology, as well as a faster reduction in cost to carry data, continue to be hampered by spectrum constraints.

The international division's capex for the 2018/19 financial year totalled R3.38-billion (2018: R2.71-billion). This was used to roll out 4G services, improve capacity, widen network reach and improve service quality. In total, 984 4G sites and 371 3G sites were added across international operations.

Safaricom's capex totalled KSh37.30-billion, increasing 3G capacity by 17.30% and 4G capacity by 69.40%, while more than doubling the number of houses passed with fibre to 300 000.

The group's capex was R6.30-billion in the six months to September 30, 2019, representing 14.30% of revenue. In South Africa, capex, which totalled R4.78-billion, was directed at modernising the network and enhancing Vodacom's information technology system. Vodacom's international operations' capex totalled R1.57-billion over the reporting period. The focus remained on increasing coverage and capacity, as well as increasing 4G roll-out. From March 2019, Vodacom added 212 2G sites, 218 3G sites and 590 4G sites.

Safaricom's capex totalled Sh18.10-billion in the half year to September 2019, driven by accelerated 4G roll-out, with 4G sites having increased 49.7% and coverage estimated at 63% of the population.

Regulatory and policy developments

Vodacom has raised concerns about regulatory issues in the markets in which it operates. In South Africa, it is unhappy about the continued delay in the licensing of spectrum. It is



also concerned about Icasa and Competition Commission inquiries into the data service markets, which, it contends, will exert further pressure to lower prices.

Causes for concern in Tanzania include a drive for biometric-based SIM card registration integrated with the country's National Identification Agency system, draft regulations on cost-based pricing on tariffs and promotions, and the outcome of a review of mobile termination rates.

In the DRC, Vodacom states, there is uncertainty about the timing and eventual nature of a Communications Bill that seeks to change the licensing regime, as well as the potential for new taxes. Meanwhile, in April 2019, the DRC government suspended Vodacom's 2G licence on the basis that the company had not followed the correct procedure when it paid \$16-million to renew the licence in 2015.

However, the standoff was resolved in June 2019, when Vodacom agreed to comply with the demands of the authorities.

While the details of the agreement were not released, the DRC Telecommunications Ministry had previously stated that the cost of renewing the licence was \$65-million. The dispute did not affect Vodacom's 3G and 4G licences in the country.

Vodacom has also highlighted the implications of the

anticipated introduction of SIM registration regulations in the DRC, Mozambique and Lesotho as areas of concern.

Transformation

Of the 5 197 employees that Vodacom had in South Africa as at March 31, 2019, 76% were black, while 43.40% were women. Further, blacks comprised 59% of the company's senior managers and 64% of members of its executive committee.

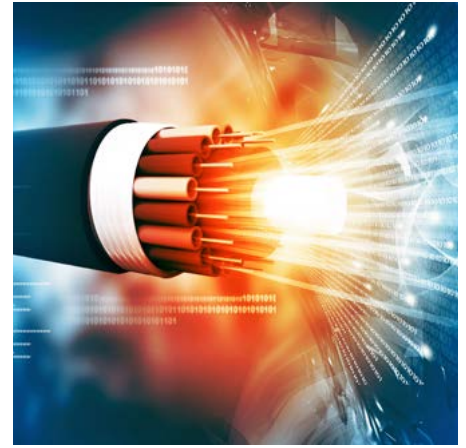
In June 2018, Vodacom announced the biggest-ever BEE transaction in the South African ICT sector, worth up to R16.40-billion.

The deal cost the company R1.15-billion and included all its existing BEE partners, the existing YeboYethu Employee Share Ownership Plan and a new staff scheme called Siyanda.

The transaction contributed to Vodacom announcing in May 2019 that it had achieved the highest BEE contributor score of Level 1 by ensuring that it exceeded its financial-year targets against all the seven components of the BBBEE scorecard.

The company spent R2.30-billion to implement its BEE strategy, moving from Level 3 to Level 1 in one year.





INDUSTRY TRENDS AND CHALLENGES

Mobile device penetration worldwide had reached 5.10-billion people – about 67% of the world's population – by the end of 2018, according to research group GSMA Intelligence's 'The Mobile Economy 2019' report. The report predicts a yearly increase of 1.90% from 2018 to 2025, when 5.80-billion people are expected to be mobile service users.

According to the Independent Communications Authority of South Africa's (Icasa's) 'The state of the ICT sector report in South Africa 2019', published in March 2019, South Africa had 91.70-million mobile cellular phone voice subscriptions in 2018 (2017: 87.20-million).

Vodacom and MTN continue to dominate the mobile phone market, with a market share of 42.39% and 29.44% respectively, according to a report for the first quarter of 2019 that was published by GSMA Intelligence in May 2019. Cell C had a market share of 16.88% and Telkom 9.52%.

South Africa also has several mobile virtual network operators (MVNOs), which use the mobile network infrastructure of a mobile network operator to offer their products and services, with a 1.77% share of the mobile market between them in the first quarter of 2019.

Cell C is the dominant network provider to MVNOs. It reported in August 2018 that 1.80-million subscribers in South Africa used MVNO services on its network, with the number expected to increase.

The biggest MVNO in South Africa is financial services group First National Bank's FNB Connect, which launched in 2015 and had 670 000 active users at the end of 2018. Standard Bank became South Africa's first major bank to offer its customers mobile communication services using Cell C's infrastructure. Other MVNOs include Blue Label Connect, Big World Mobile, Virgin Mobile, MRP Mobile, me&you Mobile, Hello Mobile and P n P.

According to Icasas, while the telecommunications sector's total revenue has been on an upward trend – increasing from R155.73-billion in 2015 to R187.59-billion in 2018 – fixed Internet and data revenues declined from R22-billion in 2015 to R15.33-billion in 2016, before increasing to R20.43-billion in 2017 and then falling to R19.08-billion in 2018.

In 2018, mobile services revenue totalled R99.57-billion, compared with R90.74-billion in 2017, R82.21-billion in 2016 and R78.84-billion in 2015. The Icasas report further revealed that revenue from mobile data services had been increasing – from R30.22-billion in 2015 to R37.88-billion in 2016, R43.19-billion in 2017 and R47.07-billion in 2018.

Apart from a decline from R41.99-billion in 2015 to R39.50-billion in 2016, revenue from voice services showed a general upward trend during the past four years, totalling R43.76-billion in 2018. Revenue from text and multimedia messaging services declined from R5.19-billion in 2015 to R3.91-billion in 2016 and R3.50-billion in 2017, before increasing to R3.96-billion in 2018.



MOBILE BROADBAND

The South African telecommunications industry, like other telecommunications markets on the rest of the African continent, is providing greater access to smartphones, which is driving demand for data. According to Icas statistics, smartphone penetration in South Africa increased from 43.50% in 2016 to 74.20% in 2017 and 81.70% in 2018. During the three-year period, mobile data subscriptions increased from 50.27-million in 2016 to 61.40-million in 2017 and 65.76-million in 2018.

According to financial services firm PwC's 2019 Global Consumer Insights Survey, for many consumers, smartphones have become the preferred technology for online shopping, with 51% of those surveyed globally saying they used a smartphone to pay bills and invoices online and as many respondents saying they transferred money online.

The PwC survey found that, in South Africa, 63.20% of consumers had used digital channels to pay their bills and invoices in the preceding 12 months, while 67% had transferred money online.

For the first time in the ten years that the professional services firm has conducted the Global Consumer Insights Survey, it found that consumers were using smartphones instead of other mobile devices to shop online. Twenty-four per cent of consumers globally and 23.10% in South Africa were using a smartphone to shop online on a weekly basis.

Meanwhile, an article written by Price Check CEO Ken Tucker and published in April 2019 paints an optimistic picture of the future of e-commerce in South Africa, auguring well for data sales in the country. According to Tucker, there are 18.43-million e-commerce users in South Africa currently, with an additional 6.36-million users expected by 2021.

New report suggests possible spectrum-sharing trial

A new White Paper avers that new forms of spectrum sharing could enable many more people to benefit from broadband connectivity and digital services.

The authors of the document, titled 'Enhanced Connectivity Through Spectrum Sharing', state that, in South Africa, key industry and policy stakeholders expressed a willingness to participate in or support trials of spectrum sharing, which could help connect the estimated two-million South Africans who do not yet have coverage from a third-generation or fourth-generation network.

Colombia and Malaysia were also included in the study.

Source: Engineering News

Network performance

MTN operates the best mobile network in South Africa, according to surveys conducted by MyBroadband Insights.

To determine the ranking of a network, a Network Quality Score – ranging from 0 to 10 – is calculated using download and upload speeds, as well as latency.

MTN achieved a score of 10 in MyBroadband's 'Mobile Network Quality Report' for the third quarter of 2019, during which 314 751 speed tests were conducted by thousands of MyBroadband Android Speed Test App users across South Africa. Vodacom was ranked second, with a score of 8.72, followed by Telkom (6.23), Rain (5.88) and Cell C (5.58).

MTN achieved average download and upload speeds of 35.31 Mb/s and 14.05 Mb/s respectively and average latency of 32 ms. Vodacom's download speed averaged 31.19 Mb/s, with its upload speed averaging 11.35 Mb/s and its latency 36 ms. Telkom achieved average download and upload speeds of 22.42 Mb/s and 4.93 Mb/s respectively and average latency of 37 ms, compared with Rain's average download speed of 16.71 Mb/s, average upload speed of 7.66 Mb/s and average latency of 33 ms. Bottom-placed Cell C's download speed averaged 17.18 Mb/s, its upload speed 8.08 Mb/s and latency 42 ms.

According to the report, South Africa had an average download speed of 24.68 Mb/s and an average upload speed of 17.18 Mb/s during the three-month period.

MTN's network was also ranked South Africa's best in MyBroadband Insights' surveys for the last quarter of 2018 and the first and second quarters of 2019.

Meanwhile, there has been a significant improvement in network performance from MTN, Vodacom and Telkom since the beginning of 2019, attributable to long-term evolution (LTE) coverage and better high-speed packet access in rural areas.

Mobile network quality ranking for the third quarter of 2019

| Network operator | Download speed (Mb/s) | Upload speed (Mb/s) | Latency (ms) | Network quality score |
|------------------|-----------------------|---------------------|--------------|-----------------------|
| MTN | 35.31 | 14.05 | 32 | 10.00 |
| Vodacom | 31.19 | 11.35 | 36 | 8.72 |
| Telkom | 22.42 | 4.93 | 37 | 6.23 |
| Rain | 16.71 | 7.66 | 33 | 5.88 |
| Cell C | 17.18 | 8.08 | 42 | 5.58 |

Source: Broadband Insights



Icasa tables mobile broadband services inquiry discussion document

The Independent Communications Authority of South Africa (Icasa) published its discussion document on the mobile broadband services inquiry for public comment in December 2019.

Interested stakeholders had 45 working days from the date of publication to provide input on the preliminary findings of Icasas definition of relevant mobile broadband services markets and the effectiveness of competition within these relevant markets.

"It is the authority's view that this inquiry will contribute positively to the broader government initiatives aimed at ensuring universal access to and affordable broadband services for all South Africans, as contemplated in the National Development Plan," Icasas said in an update released on November 29.

The authority in late 2018 launched an inquiry into the mobile broadband market as part of its efforts and interventions to reduce the high cost to communicate in the country.

It marked the third intervention by Icasas following the amendment and final publication of the End-User and Subscriber Service Charter regulations and the call termination regulations in 2018.

"The market inquiry is seeking to assess the state of competition and determine whether or not there are markets or market segments within the mobile broadband services value chain, which may require regulation in the context of a market review in terms of Section 67(4) of Electronic Communications Act," Icasas councillor Botlenyana Mokhele said at the time.

In 2018, Icasas concluded its Priority Markets Inquiry, which identified broad markets for mobile services, including the retail market for mobile services and the wholesale supply of mobile network services, for prioritisation for a market review.

The discussion document, informed by information and data received from licensees, identifies licensees that may have significant market power in the identified markets and proposes procompetitive remedies.

In addition, the authority believes the pending licensing of high-demand spectrum will also provide much-needed relief in reducing the cost for provision of broadband services to South Africans.

"The authority is also aware that the Competition Commission announced that it will be releasing its final report on data services market inquiry on December 2," it said.

"There will be continued engagement between Icasas and the Competition Commission on the outcomes and recommendations of the data services market inquiry, in line with the provisions of the memorandum of understanding between the two entities."

Source: Engineering News

Rain was the only mobile network operator that experienced a decline in performance during the second quarter of 2019, which MyBroadband Insights director Marius Hollenbach said was likely the result of more users joining the network.

Data costs

The cost of data in South Africa is perceived by consumers and other stakeholders to be exorbitant. This has prompted a public campaign under #DataMustFall, as well as Parliamentary hearings. The South African government agrees that there is a need for cheaper data. When he delivered his State of the Nation Address in May 2019, President Cyril Ramaphosa called on telecommunication companies to bring the cost of data down so that it is in line with cost structures in other countries.

In a presentation to the National Assembly's Portfolio Committee on Telecommunications and Postal Services in February 2019, Icasas stated that South Africa's highest price for a 500 MB prepaid data bundle of \$7.90 was the third-highest

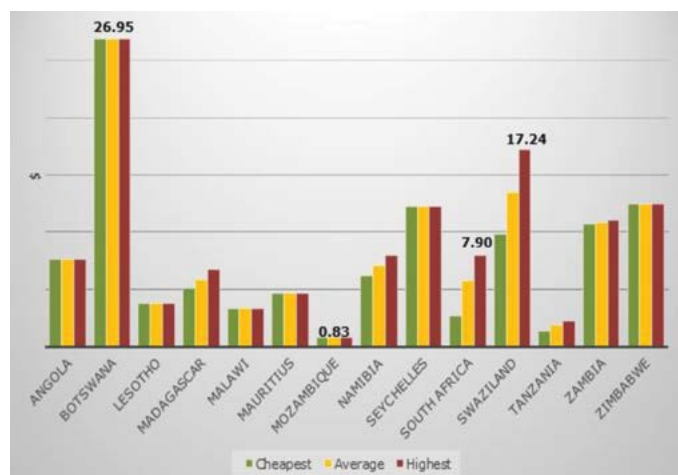
in the Southern African Development Community (SADC) region, after Botswana's and eSwatini's, which are priced at \$26.95 and \$17.24 respectively. Mozambique had the cheapest 500 MB prepaid data bundle price in the region, at \$0.83, Icasas stated.

However, the authority added that South Africa's highest 1 GB prepaid data bundle price of \$11.07 was lower than Zimbabwe's and eSwatini's highest price of \$30, Seychelles' \$23.50, Angola's \$22.71, Namibia's \$17.69 and Botswana's \$12.79. The only SADC countries whose highest price for a 1 GB prepaid data bundle was lower than South Africa's were Mauritius (\$7.74), Lesotho (\$7.53), Malawi (\$4.87), Mozambique and Tanzania (\$4.50) and the DRC (\$1.29).

According to the report on tariff notifications submitted to Icasas for the period from July 1 to December 31, 2018, MTN and Vodacom charged R149 for a 1 GB bundle and R299 for a 3 GB bundle, while Telkom charged R100 for a 1 GB bundle and R201 for a 3 GB bundle. Cell C had discontinued its 1 GB bundle offering, replacing it with a 1.5 GB bundle that cost



SADC prices in US dollars for a 500 MB prepaid data bundle



Source: Operators' websites (converted on July 10, 2018)

R149, the same price as the discontinued 1 GB offering. Rain's 1 GB prepaid data bundle, priced at R50, remained the cheapest, compared with offers from other mobile network operators in the prepaid mobile data services market.

Meanwhile, in the preliminary findings of its Data Services Market Inquiry, released in April 2019, the Competition Commission noted that data prices in South Africa were higher than in the country's peers in the Brazil, Russia, India, China and South Africa – or Brics – bloc and that multinational mobile network operators Vodacom and MTN were charging more for data in South Africa than in the other countries where they operated.

The Competition Commission's market inquiry into high data costs started in August 2017 to investigate the general state of competition in data services, examine any features that prevent, distort or restrict competition and review the cause of high data prices.

Similar to the Independent Communications Authority of South Africa's previous observations, the commission's findings and recommendations report, based on an analysis of the market and a variety of submissions, reveals that South Africa currently performs poorly relative to other countries, with prices generally at the more "expensive end".

Using 2017 data, the commission stated that Vodacom charged \$11.06 for a 1 GB data bundle in South Africa, compared with \$2.77 for the same amount of data in Nigeria and the \$8, \$7.54, \$4.86, \$3.32 and \$1.12 that its parent, Vodafone, charged in the DRC, Lesotho, Albania, Angola and Egypt respectively. During the same year and for the same amount of data, MTN charged \$11.95 in South Africa, \$8.34 in

Uganda, \$7.17 in Benin, \$4.43 in Ghana, \$4.32 in Afghanistan, \$3.41 in Zambia, \$3.37 in Côte d'Ivoire, \$3.15 in Nigeria, \$2.32 in Rwanda and \$0.14 in Iran. The only markets where MTN charged higher prices for a 1 GB data bundle were Cyprus (\$18.88) and Botswana (\$12.53); the company has since divested from both countries.

Commenting on the finding that it charged more for data in South Africa than in its other markets, MTN contended that the Competition Commission did not consider that it cost much less to build a mobile network in a small country with a relatively concentrated population, where the topography was largely flat.

Vodacom argued that countries with large populations could leverage economies of scale, while a more urbanised population was easier to cover from an infrastructure perspective. It further clarified that Vodacom had operations in South Africa, Tanzania, Mozambique, the DRC and Lesotho only, and not in Angola, Nigeria and Egypt as well, contrary to what the Competition Commission stated in its preliminary findings.

Further, MTN and Vodacom contended that the finding that they charged exorbitantly for data was outdated, as the commission did not take into account price reductions that had been effected in 2018 and 2019.

Meanwhile, the commission noted in its preliminary findings that an assessment of the headline data retail prices of all South Africa's mobile network operators showed that buyers of small data bundles, who were generally poor, paid more for data on a megabyte or gigabyte basis.

It found that, for instance, relative to a 1 GB data bundle, a consumer who bought a 100 MB data bundle paid roughly twice the price on a per megabyte basis for the same data period validity. A consumer who bought a 50 MB bundle paid up to three times more, while a consumer who bought a 20 MB bundle paid up to four times more.

The commission was also critical of the lack of transparency around data pricing, which, it said, inhibited price competition, as consumers were not aware of the effective rates. It added that consumers might mistake the occasional promotion or free data that went unused as providing lower rates than might actually be the case.

The commission also found that punitive out-of-bundle (OOB) rates were more frequently imposed on buyers of small data bundles or those who did not commit to a bundle at all, and the majority of such buyers were low-income earners.



However, to comply with Icas's new End-User and Subscriber Service regulations, which came into effect on March 1, 2019, and require mobile operators to implement several changes, all the operators have implemented some form of transfer or roll-over of unused data. Telkom became the first mobile operator to do so, announcing in November 2018 that its customers on all plans could transfer data to other Telkom mobiles, with the data being valid for longer. Further, Telkom's prepaid customers who bought smaller bundles – from 25 MB to 500 MB – could keep their data for six months after buying it.

Also in November 2018, Cell C introduced a function that enables its customers to access the self-service option on the Cell C app, on the operator's website or through unstructured supplementary service data that allows them to set their OOB voice, data or SMS threshold to any rand value or to 'unlimited'. The roll-over service gives customers the option to extend the validity date of their data by one, seven or 30 days at a time. Customers with 100 MB or less can roll over for free for an additional one or seven days, while those who roll over 101 MB to 500 MB of data can roll over free for an additional day. However, a nominal fee is payable for larger bundle balances and extensions.

In January 2019, MTN announced that it would introduce reduced OOB rates of R0.29 for customers who were nonbundle users and R0.49 for customers who used data bundles. Unused data would automatically roll over, provided the user bought another bundle before the previous one expired.

Vodacom announced in February 2019 that, from April 2019, it would lower its OOB rates from R0.99/MB for prepaid customers and R0.89/MB for hybrid and contract customers to R0.49/MB across the board, equating to a 50% reduction. Customers who signed up for Vodacom's Data Refill would have an effective OOB rate of R0.30/MB once their bundle was depleted. Additionally, subscribers whose packages included data would continue to have data rolled over for one month free of charge, and the remaining data on bundle purchases by all customers would be rolled over at no additional charge if a customer bought the same bundle.

In December 2019, the competition watchdog gave MTN and Vodacom two months to cut Internet connectivity prices or face prosecution. The commission concluded that there was scope to reduce prices by 30% to 50%.

This came as the Competition Commission on December 2 published its much-anticipated final report on its Data Services Market Inquiry, confirming revelations that South Africa's cost of data services, particularly mobile prepaid data pricing, was high when benchmarked against the country's peers.



The Competition Commission's 'Final Findings and Recommendations of the Data Services Market Inquiry' report, found that the combination of a highly concentrated market and the duopoly of the two leading operators, Vodacom and MTN, had resulted in excessively high data prices.

"We have noted that there have been recent price reductions, but the duopoly must reach an agreement with the commission on a significant reduction of prices," Competition Commission commissioner Tembinkosi Bonakele said.

The report showed that price-based competition in the mobile markets was inadequate, with the retail mobile market remaining stubbornly concentrated.

Trade and Industry Minister Ebrahim Patel, welcomed the report, stating that the 378 pages of analysis, findings and recommendations, confirmed the basic thrust of the results previously released.

"We have a competition problem in the market for data services, the prices are higher than they should be," he said, noting that the final report would be carefully studied, with the department backing the actions necessary to help bring the data prices down.

Patel further added that data prices and data service mattered enormously for the economy and were critical for the digitisation of economic activity. "We need competitive prices and enhanced access to boost the economy."

The report has been handed to Patel and Communications and Digital Technologies Minister Stella Ndabeni-Abrahams, the latter adding that the department would review the report and revert.





Final findings

“The benchmark and analysis finds that South Africa’s prices are high,” the Competition Commission chief economist and acting deputy commissioner James Hodge has said.

The Competition Commission found that the retail pricing structure for mobile data was antipoor and lacked transparency, with an assessment of all mobile operators’ headline retail prices demonstrating that consumers of small data bundles pay “inexplicably” more on a per megabyte/gigabyte basis.

Further, South Africa’s postpaid packages, while still high, were better priced than its prepaid offers, indicating a potential structural problem with retail prices in South Africa.

Another finding by the commission was that price-based competition in mobile markets can be improved materially.

The findings in the retail market, also point to potential challenges in the wholesale market, where roaming arrangements and terms have been unfavourable and have constrained price competition.

The wholesale market has failed to provide wholesale network access for purposes of retail competition in the form of mobile virtual network operators.

Finally, the inquiry found that addressing the fixed-line supply gap – the backbone in the supply of household and business access – will be critical to the provision of alternative data services, such as WiFi.

Recommendations

The Competition Commission identified a series of final immediate and intermediate packages of recommendations to address the high cost of data across the value chain.

Several recommendations and measures, if implemented immediately, will have an immediate impact for low-income consumers, combining with initiatives to improve mobile price competition and greater infrastructure alternatives to bring consumers relief over the medium term.

Within two months, Vodacom and MTN are required to reduce their tariff levels and align their headline prepaid sub-500 MB, 30-day prices with that of similar postpaid packages, in agreement with the commission, failing which the commission will pursue prosecution for excessive pricing.

All mobile operators are required to offer all prepaid subscribers a “lifeline package” of daily free data to ensure data access on a continual basis.

Further, all mobile operators are required to reach an agreement with the Competition Commission, within three months, on an industrywide approach to the zero-rating of content from public benefit organisations and educational institutions.

Beyond the immediate measures, an intermediate programme is focused on enhancing priced-based mobile competition through wholesale market interventions and promoting the development of alternative infrastructure to provide data services in lower income areas and smaller secondary towns and cities nationally.

In addition, the commission recommended a series of policy and legislative reforms to support the ongoing drive for lower data prices.

Meanwhile, the Competition Commission’s preliminary findings of its Data Service Market Inquiry identified a lack of high-demand spectrum in South Africa, owing to delays in digital migration, as one of the reasons for the high data costs.

The commission explained that, to compensate for the lack of spectrum, mobile operators increased the number of base stations, raising capital and operating costs.

This preliminary finding by the commission echoes a view that has long been voiced by the mobile operators. A Vodacom spokesperson reiterated this when he told an interviewer in July 2019 that having to build a 4G network that used spectrum other than the 700 MHz to 800 MHz spectrum band – the most efficient carrier of a 4G network – had resulted in the company needlessly building a big number of towers.

In April 2019, the company said it had spent R26.70-billion on its network over the preceding three years and had committed



MTN fined R5m over WhatsApp bundle price increase

The Independent Communications Authority of South Africa (Icasa) fined MTN R5-million in September 2019 for failing to comply with the law when it increased the price of one of its data bundles. However, R2-million of this amount was suspended for three years, provided the telecommunications company did not contravene the same regulation during that period.

The contravention for which MTN was fined was committed in July 2018, when it increased to R30 the price of a 1 GB monthly WhatsApp bundle, which it had launched in April at a price of R10, before the lapse of the required seven-day notice to Icasa.

Source: ITWeb

R50-billion over the next three years, with part of this amount earmarked for connecting rural areas. MTN said during the same month that it had spent R77-billion over ten years on its urban and rural network infrastructure as it sought to boost coverage in the face of limited spectrum. The two companies were responding to the criticism that they charged exorbitant prices for data, levelled against them in the preliminary findings of the Competition Commission's market inquiry.

Commentators have, however, cautioned that the release of more spectrum would not automatically lead to a reduction in data costs, pointing out that the cost of the new spectrum would be key. Acquiring spectrum at a significantly higher price than its fair value, for example, would impact on input costs, thereby limiting the ability to reduce effective data prices.

Further, the imposition of conditions, for example that mobile operators deliver 4G connectivity to the entire population, would necessitate significant investment in the network, thereby increasing input costs and, in turn, the price of data.

Meanwhile, a Cell C spokesperson said in July 2019 that, to maximise the potential data price reductions from the release of new spectrum, South Africa should allocate the spectrum in such a way that smaller operators would be able to effectively compete against their bigger peers. Cell C and Telkom have long lamented the lack of competition in the South African telecommunications sector.

The Competition Commission noted in the preliminary findings of its market inquiry that, with the exception of MTN and Vodacom, there was consensus from the submissions by the rest of the operators that price-based competition among the mobile operators was inadequate, with the networks of Cell C and Telkom being unable to constrain the two first-movers.

SPECTRUM CRUNCH

South Africa's mobile network operators have been pleading for years for the allocation of key bands of spectrum to enable them to provide faster and more widespread high-speed data services. The country has not allocated new spectrum in the past 14 years.

Owing to a lack of spectrum, Vodacom has had to partner with Rain, and MTN with Liquid Telecom, to access more spectrum through roaming agreements.

Vodacom CEO Shameel Joosub said in January 2019 that, if more spectrum was available, data prices could be reduced by almost 50%, while MTN said during the same month that, if it had access to spectrum in the 2.6 GHz as well as 700 MHz and 800 MHz bands, and assuming that everything else remained the same, a lower cost base for data would be feasible, with the savings passed on to consumers.

Telkom product development executive Erna Korff said during the same month that a shortage of spectrum also impacted on service quality and customer experience. She added that a shortage of spectrum also prevented operators from being more aggressive. If this affected volumes, it could impact on the ability to reduce prices. MTN chief legal services officer Graham de Vries said South African mobile operators had had to densify their networks by building a large number of base stations to compensate for the inadequate spectrum.

Meanwhile, South African Reserve Bank deputy governor Kuben Naidoo said in August 2019 that the allocation of new spectrum would immediately boost the country's ailing economy and reduce unemployment. He spoke only days before the Department of Communications and Digital Technologies (DCDT) released the long-awaited policy on high-demand spectrum, along with the policy direction on the licensing of a Wireless Open-Access Network (Woan).

The new policy requires Icasa to assign the high-demand spectrum to the Woan, with the remaining spectrum allocated to other electronic network service licensees. Communications and Digital Technologies Minister Stella Ndabeni-Abrahams explained that the creation of the Woan would encourage licensees to work together as far as possible, adding that sharing and collaboration would result in more effective spectrum use.

It is unclear how much of the spectrum will be allocated to the Woan. However, a Council for Scientific and Industrial Research study commissioned by Ndabeni-Abrahams' predecessor, Siyabonga Cwele, recommended that the



Woan be allocated the following spectrum, based on an assumed 20% market share: 2 x 25 MHz blocks in the 800 MHz band, 2 x 20 MHz blocks in the 2.6 GHz band (for the so-called Frequency Division Duplex technology) and 25 MHz, also in the 2.6 GHz band (for the so-called Time Division Duplex technology).

According to the new policy, at least 70% of the Woan's equity has to be held by South Africans and the entity must comply with the BEE rules set out in the Electronic Communication Act. It may include public entities as shareholders but may not be a public entity itself as defined in the Public Management Finance Act.

Other operators that are granted high-demand spectrum, to be allocated using a method that will be designed by Icasa, will be required to buy at least 30% of their national capacity from the Woan to support it for at least five years. The percentage to be procured by each licensee may be proportionate to the amount of high-demand spectrum assigned to the licensee.

Ndabeni-Abrahams announced that the assignment of spectrum for 5G networks would be held in abeyance until after the International Telecommunication Union's (ITU's) 2019 World Radio Conference, held in Sharm el-Sheikh, Egypt, from October 28 to November 22, 2019.

Opposition political party the Democratic Alliance's Shadow Minister for Communications and Digital Technologies, Cameron MacKenzie, lauded the policy as a pragmatic approach by government, adding that it would balance the competing interests of the large network operators with the interests of those calling for easier access and greater inclusivity for emerging and small businesses. However, he said uncertainty remained concerning the composition of the Woan, its operating model, funding and time to market.

Consultancy Ellipsis Regulatory Solutions owner and regulatory expert Dominic Cull told an interviewer in August 2019 that implementation of the Woan and then finalising applications for licences could delay actual spectrum assignment by another year or two. Arthur Goldstuck, of consulting firm World Wide Works, concurred, adding that the new policy introduced further processes before spectrum could be allocated.

Commenting after the release of the new policy, the Competition Commission noted that high-demand spectrum was a scarce resource, calling for its allocation to be done in a way that ultimately benefited all citizens. It argued that, given that the South African government was under financial pressure, it could be tempted to try to maximise revenue by auctioning spectrum to the highest bidder. For this reason, the commission said it

would be involved in the assignment of spectrum to ensure that the process allowed for expanded coverage, in addition to improved access.

Consultancy Fitch Solutions cautioned against the risk of the Woan receiving preference over other market players in the allocation of spectrum, adding that the spectrum allocation process could face significant delays, owing to factors such as stringent local ownership and empowerment requirements for the consortium that would comprise the Woan.

Fitch stated that the advent of the Woan would be positive for smaller mobile network operators, including Telkom and Cell C, but would raise the operating costs of larger players Vodacom and MTN, owing to the conditions they would have to meet to be allocated additional spectrum, such as network roll-out into rural and underserved areas.

Meanwhile, Icasa released its information memorandum for the high-demand spectrum licensing process in October 2019, giving stakeholders until January 31, 2020, to submit any comments they might want to make.

5G

5G promises low latencies and high-speed mobile connections; however, the allocation of spectrum to operators remains the biggest obstacle to its wide-scale deployment, with all mobile networks in South Africa calling for spectrum to be made available as soon as possible.

Data-only network operator Rain is the only telecommunications company that has rolled out a 5G network in South Africa, while the two dominant operators, Vodacom and MTN, are conducting trials, with the aim of eventually launching their own 5G networks in the country. This next-generation technology – to which attention is increasingly turning in developed markets – will be a major boost for the Fourth Industrial Revolution, given the high speeds of up to 20 Gb/s that it facilitates, compared with the 4G LTE technology's maximum speed of 1 Gb/s.

During the early years of its deployment, 5G technology will likely be used primarily for two major applications: mobile connectivity for devices, such as smartphones, and 5G mobile modems, and fixed-wireless access, thereby providing homes and businesses with broadband Internet instead of a wired asymmetric digital subscriber line or fiber optic connection.

Rain's 5G network, which was commissioned in September 2019, with services initially available to customers only in Johannesburg and Tshwane, uses the company's regulated 3 600 MHz





5G cellular repeaters

spectrum band. Bigger mobile operators are currently unable to launch 5G services, but Communications Minister Stella Ndabeni-Abrahams said in July 2019 that the South African government was involved in a multilateral process under the auspices of the ITU to identify and allocate radio frequency spectrum for 5G technology. Ndabeni-Abrahams, who was responding to a question in the National Assembly, said this process would be concluded at the ITU World Radio Conference, which took place in Egypt from October 28 to November 22, 2019. She said the South African government expected commercial deployment of 5G technology in the country to start in 2020.

Meanwhile, consulting firm Frost & Sullivan information and communication technology head for the Middle East and Africa Saurabh Verma told journalists in February 2019 that the roll-out of 5G services in South Africa would take a little longer than initially expected. He argued that 3G services were adequate for South Africa's current needs, predicting that 3G would continue to be the dominant technology for at least the next three years. According to Verma, 5G technology was taking off in mature markets with strong ecosystems where appropriate use cases had been identified.

In the absence of those use cases, he added, it would be difficult to justify investment in 5G infrastructure, the cost of which was up to three times the cost of 3G or 4G infrastructure. Consultancy International Data Corporation's sub-Saharan Africa senior research and consulting manager, Sabelo Dlamini, shares this sentiment, saying at a conference in Johannesburg in February 2019 that the few 5G launches globally, that were expected during 2019, would focus on enhanced mobile

broadband only, instead of offering a full portfolio of 5G services, which also included hyper-reliable low latency and enhanced machine-type communication.

Nevertheless, Rain says it will extend its 5G coverage to other metropolitan centres in South Africa during 2020, while the other mobile network operators are preparing for 5G deployment. MTN, for example, partnered with Huawei and Ericsson on 5G trials in South Africa in 2018, and announced in April 2019 that it had successfully launched a live 5G indoor solution at the Kyalami Grand Prix Circuit and International Convention Centre, north of Johannesburg, in Gauteng. That was the first time it had deployed a trial 5G network in an indoor business environment, with standards-based commercial-grade 5G network equipment and devices. The company said at the time that the trial would assist in developing a deeper understanding of the capabilities of 5G technology and the use cases it supported, thereby accelerating the deployment of 5G services in South Africa. In November 2019, the company announced that it had partnered with Huawei to launch C-band 5G trials. Comprising a frequency range of 3.30 GHz to 3.80 GHz, C-band is a highly valuable slice of spectrum and many countries around the world are deploying it to deliver 5G services. The trials undertaken by MTN and Huawei included speed tests, with throughputs of up to 1.6 Gb/s and a series of 5G demonstration, such as Cloud virtual reality gaming, a robotic arm guessing platform and augmented reality sunglasses.

Vodacom, which launched a commercial 5G service in Lesotho in August 2018 and demonstrated Africa's first live 5G data session on a commercially ready 5G mobile phone and network at the 2019 Vodacom Durban July horse race,



says it is ready to launch 5G services in South Africa, but is being held back by a lack of the necessary spectrum. The company's executive for technology strategy, architecture and innovation, Nicholas Naidu, said during a media interview in August 2019 that there was no reason spectrum between 3.4 GHz and 3.6 GHz should not be allocated for 5G service before the 2019 World Radio Conference, as these bands had already been set aside for 5G by the ITU. He argued that the conference would deal specifically with allocations in millimetre-wave bands, which could be assigned later.

Telkom CEO Sipho Maseko said in May 2019 that the company's 4G LTE network had been designed with the eventual deployment of 5G fixed-wireless solutions and widespread coverage in mind. Describing the network's capabilities as "4.5G", he said Telkom was closer than any other mobile operator in South Africa to deploying 5G services in the country, provided it is supplied with enough spectrum.

Cell C has said that it does not have immediate plans for the release of 5G spectrum in South Africa.

FIXED-LINE BROADBAND

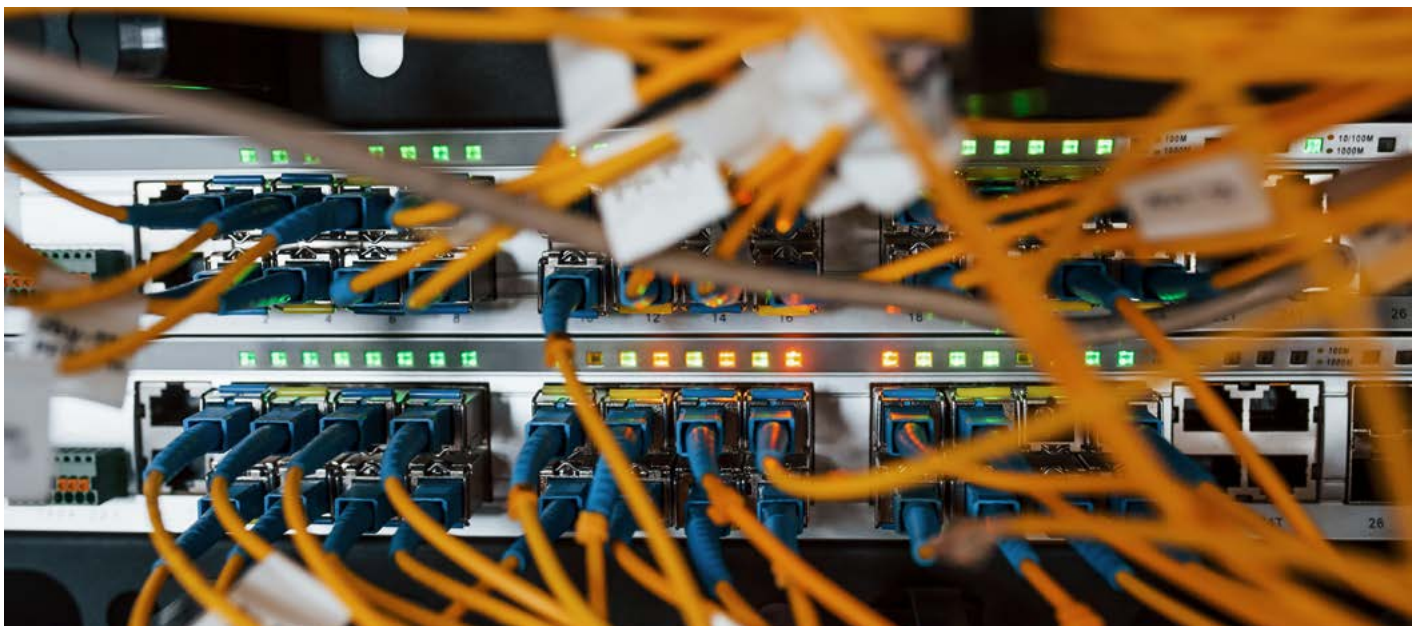
Fixed lines from Telkom were once the primary channel through which South Africans called one another or connected to the Internet. However, owing to the proliferation of smartphones and Voice-over-Internet Protocol devices, coupled with poor service from Telkom, consumers are abandoning

copper-wire-based means of communication in large numbers. The result has been a significant decline in fixed-line revenue. According to Icasa's 'The state of the ICT sector report in South Africa 2019', the decline has been experienced in all revenue categories, including fixed-telephone subscription charges, fixed telephone calls and retail fixed-telephone services.

The report states that total fixed-line revenue declined from R15.81-billion in 2015 to R13.74-billion in 2016, R13.42-billion in 2017 and R11.93-billion in 2018. During the same four-year period, fixed charges declined from R8.35-billion in 2015 to R6.60-billion in 2018, calls revenue from R7.10-billion in 2015 to R5.14-billion in 2018, and services revenue from R350-million in 2015 to R192-million in 2018.

Telkom, South Africa's dominant fixed-line services provider, reported when it released its financial results for the financial year to March 31, 2019, that its fixed subscriber base had declined by 13.60% to 848 000 (2018: 981 000), with the number of fixed lines decreasing by 15.30% to 2.27-million (2018: 2.68-million), while revenue per fixed line fell by 3.40% to R4 545 (2018: R4 703).

However, Telkom's broadband customer base, which includes fixed-LTE services, increased by 8.40% to 1.70-million. This implies that consumers are moving away from legacy copper-based services, such as asymmetrical digital subscriber line, as Telkom switches off fixed-line services in areas where these services are not economically feasible or where copper theft has become endemic, they are not



Consumers are abandoning copper-wire-based means of communications



necessarily abandoning Telkom. Instead, they are signing up for fixed replacement services such as LTE.

Despite the decline in the number of Telkom's traditional fixed-line subscribers, the subscribers continued to use more data during the financial year, consuming 1.02-million terabytes (2018: 848 314 TB).

The performance of fixed voice services, however, was far less satisfactory, with voice usage and subscription revenue declining by 14.70% to R10.45-billion (2018: R12.25-billion), driven by migration to new technologies and a 15.30% decline in the number of fixed access lines. Further, fixed interconnection revenue decreased by 8.80% to R792-million (R2018: R868-million), mainly as a result of lower traffic volumes.

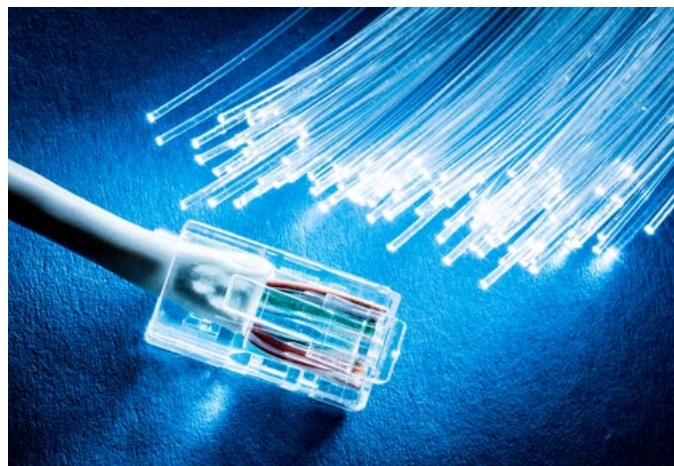
While Telkom, through Openserve, owns the biggest fibre network in South Africa, many service providers have in recent years entered the fibre-to-the-home (FTTH) market. The roll-out and adoption is being driven by several factors, including the construction of several undersea cables, ending Telkom's monopoly on international bandwidth, starting with Seacom in 2009.

The second factor has been Dark Fibre Africa's installation, in the country's major cities, of the fibre backhaul required to connect suburbs to the wider Internet and provide the national backhaul to data centres and submarine cables. The third factor has been the construction by Teraco of operator-neutral data centres.

At least 25 operators are active in South Africa's FTTH market, including Dark Fibre Africa, FibreCo Telecommunications, Frogfoot, MetroFibre Network, Octotel, Seacom, Teraco and Vumatel.

In March 2019, 1.39-million South African homes had access to an FTTH connection and 453 000 were connected, according to a presentation by Cipherwave MD Wayne D'Sa at a MyBroadband Fibre Conference hosted in July 2019. He said Gauteng-focused Vumatel had overtaken Openserve in terms of the number of homes passed where there was also a breakout, with a market share of 36.60%, compared with Openserve's 30.90%. He emphasised, however, that Openserve still had the biggest FTTH network in South Africa, with 146 000 km in the ground. In terms of houses connected, Openserve has a market share of 36.50%, compared with Vumatel's 30.50%.

Telkom's financial results for the 2018/19 financial year indicated that, despite facing competition from FTTH network operators like Vumatel and Octotel – whose network is



Network cables and optical fibres

focused on Cape Town and surrounding areas, where it has connected more than 30 000 homes since its inception in 2015 – it has elected to scale back its investment in FTTH.

Instead of doubling down on its fibre network investment, Telkom cut its capital expenditure on its fibre network over the 2018/19 financial year from about R2.11-billion to R1.22-billion.

Telkom has also cut the share that FTTH gets and is now directing most of its money into fibre-to-the-base-station (FTTBs) to support its mobile ambitions.

Telkom has said in its latest annual report that it has a strong focus on fibre-to-the-business (FTTB) and FTTBs because they have significantly higher average revenue per user than FTTH.

Telkom maintains that it is still the dominant fibre operator in South Africa, arguing that the company's focus is on the entire fibre access ecosystem, which is a combination of FTTBs, FTTB, and FTTH.

South African mobile network operators Cell C, MTN and Vodacom are also active in the FTTH market.

Cell C has said it is expanding its C-Fibre FTTH offering, while MTN launched its FTTH offering in September 2018 and Vodacom announced in November 2018 that it was considering acquiring existing fibre infrastructure, partnering with other providers, as well as investing in its own infrastructure.

Another provider, BitCo, which launched its FTTH offering in September 2018 using the Vumatel network, announced in March 2019 that it had also partnered with Openserve, South Africa's largest FTTH infrastructure provider, with the move justified by a significant increase in demand.





POLICY AND REGULATORY DEVELOPMENTS

IMT ROADMAP

The Independent Communications Authority of South Africa (Icasa) published its final International Mobile Telecommunications (IMT) Roadmap 2019 – following submissions from, as well as public hearings with, stakeholders – in March 2019.

The IMT roadmap seeks to ensure universal availability of broadband services and a vibrant and competitive telecommunications sector, while promoting investment in the country. It sets out Icasas findings regarding the radio frequency spectrum required for IMT for 2020 and beyond.

Further, the roadmap identifies the bands for IMT deployment and the migration of a number of current licensees out of, or within, bands identified for IMT services.

IMT 2020 is the next generation of mobile technologies designed to provide greater capacity for wireless networks, offer greater reliability and deliver fast data speeds, enabling innovative services across different sectors.

Potential uses of IMT 2020 fall into three categories, namely enhanced mobile broadband, with 5G expected to provide faster and more reliable mobile broadband; machine-type communications, including the Internet of Things; ultrareliable and low-latency communications that will, for example, enable connected and driverless vehicles to communicate with one another, other road users and even road infrastructure.

ICT SECTOR CODE

An amended version of the Information and Communication Technology (ICT) Sector Code for Black Economic Empowerment, published in November 2016, set a black ownership target of 30% for the ICT sector.

The code also requires that 5% of ICT companies' net after-tax profit be spent on enterprise development initiatives that aim to develop black-owned ICT enterprises and that a further 1.50% be invested in socioeconomic development programmes.

The then Department of Telecommunications and Postal Services established a Broad-Based Black Economic Empowerment (BBBEE) ICT Sector Council in May 2015.

The council is responsible for developing, reviewing and publishing the BBBEE Amended ICT Sector Code and is mandated to monitor the implementation of the ICT Sector Code and report its progress to Communications and Digital Technologies Minister Stella Ndabeni-Abrahams, President Cyril Ramaphosa's Advisory Council on BEE, Trade, Industry and Competition Minister Ebrahim Patel, and BBBEE commissioner Zodwa Ntuli.

The 15-member council, which is chaired by Andile Thoele, was reappointed for a second four-year term – from October 2019 – following the expiry of its initial term.





CALL TERMINATION REGULATIONS

Icasa's latest call termination regulations – which determine the rates that telephony service providers pay each other to terminate voice calls made by a subscriber of one service provider to a subscriber of another service provider – came into effect on October 1, 2018.

The new regulations replaced Icasa's 2014 Call Termination Regulations and aim to reduce the cost to communicate and enhance competition in the telecommunications industry.

The new regulations' glide path for operators with a more-than-20% share of total minutes terminated in the wholesale voice market from a call at a fixed location is as follows: 9c from October 2018 to September 2019, followed by 7c from October 2019 to September 2020 and 6c from October 2020 onwards.

The charge for terminating a call from a mobile device was set at 12c from October 2018 to September 2019, 10c from October 2019 to September 2020, and 9c from October 2020 onwards.

For fixed operators with a market share of 20% or less, the charge for terminating a call from a fixed location was 10c from October 2018 to September 2019 and will be 8c from September 2019 to October 2020 and 6c from October 2020 onwards. For mobile operators with a share of 20% or less of total minutes terminated in the wholesale voice market, the glide path period is as follows: 18c from October 2018 to September 2019, 16c from October 2019 to September 2020, and 13c from October 2020 onwards.

Mobile companies locking handsets to their own networks again

Three of South Africa's mobile network operators – Vodacom, MTN and Cell C – had started releasing network-locked handsets for the first time in nearly a decade, the media reported in October 2019.

The companies argued that the network-locked phones – which would not work with a SIM card from a rival operator – were subsidised and sold at a lower cost to increase accessibility. Therefore, it would not make any business sense to sell the phones below cost without the prospect of recovering some of the investment, which would be the case where buyers defected to other networks.

It is, however, only entry-level handsets that are currently network locked.

Network locking was common in South Africa until it fell out of favour about ten years ago, owing to threats by the Independent Communications Authority of South Africa to ban the practice and a rise in services that helped consumers unlock their phones.

South Africa does not have legislation that prevents network locking.

Source: Business Insider

NUMBER PORTABILITY

Mobile number portability was launched by Icasa in 2006 to enable customers to "port" their number between cellular networks Vodacom, MTN, Cell C and Telkom, thereby boosting competition in the telecommunications sector.

In 2010, Icasa announced the implementation of geographic number portability, or fixed-line number portability, leading to further competition and enabling individual consumers and businesses to port their landline numbers to Voice-over-Internet Protocol, regardless of location.

Also in 2010, the Number Portability Company was established by Vodacom, MTN, Cell C, Telkom and Liquid Telecom to administer and track all porting processes. According to the company, from April 26, 2010, to the end of August 2019, a total of 1 707 944 geographic numbers had been ported, which works out to an average geographic port of 15 387 numbers a month.

According to Icasa, more than eight-million mobile phone subscribers have ported their numbers to date, with the reasons for doing so including unhappiness with the service provided by their network or better offers from rival networks.



The regulator adds that, from April 2010 to March 2017, about 921 009 numbers were ported at an average of 11 000 a month.

Aware of some irregularities in the implementation of the Number Portability Act, Icasa conducted public hearings into the Act in 2017 and amended it in 2018, introducing new number portability regulations. However, Cell C, arguing that some provisions in the new regulations made it difficult for it to port numbers away from bigger competitors Vodacom and MTN, approached the courts in April 2019, requesting a review of aspects of the regulations. Cell C's move has been criticised by the Internet Service Providers Association, which contends that this has delayed the implementation of the new regulations.

Meanwhile, news website ITWeb reported in September 2019 that South African companies and call centres would imminently be able to port their nongeographic numbers with 080, 086 and 087 prefixes to alternative network operators. Citing a media release from telecommunications consulting, training and talent acquisition firm The Telecoms Academy, ITWeb stated that all nongeographic numbers, also known as virtual numbers, had been successfully tested.

This meant it was only a matter of time before organisations that held these numbers – mostly enterprises with large in-bound call centres – could officially port to alternative network operators that offered better deals.

According to The Telecoms Academy founder Felicity Menge, once nongeographic number porting was implemented, these numbers would become Internet Protocol numbers, reducing end-users' per-line cost for each simultaneous call. This would provide significant potential savings for companies holding these numbers.

SOUTH AFRICA CONNECT

First announced in 2013, South Africa (SA) Connect is the national broadband policy identified by the South African government to meet the technology goals of the National Development Plan to create an inclusive information society.

At its launch, government stated that the policy aimed to deliver 100% broadband connectivity to government facilities by 2020, broadband access for 90% of the country's population by 2020 and for the entire population by 2030.

Owing to the magnitude of the policy, the South African government decided to implement it in two phases, with the



first focusing on connecting schools, health facilities, government offices, Thusong Centres (which provide information and services for community members) and post offices in eight rural district municipalities.

The policy's roll-out, however, has been plagued by delays. In 2015, then President Jacob Zuma proclaimed that year as "the year of broadband" in the hope that the implementation of Phase 1 of SA Connect would start during that year. Progress since then has been limited and characterised by various uncoordinated initiatives.

The delays are attributable mainly to concerns about the policy's procurement model. To remedy this, a new model was developed in 2017 in collaboration with parastatals the State Information Technology Agency (SITA) and Broadband Infraco, as well as other State-owned enterprises and private companies. This followed the cancellation by SITA of the first tender for a service provider to implement Phase 1.

The agency said at the time that none of the six companies that had responded to the tender had met all the six technical requirements to enable them to proceed to the pricing evaluation phase.

Implementation of the new model started in the 2018/19 fiscal year. In February 2019, the then Department of Telecommunications and Postal Services – which was renamed the Department of Communications and Digital Technologies (DCDT) after the general elections in May 2019 – stated that, in the medium term, SITA would address long-standing service delivery and internal inefficiency challenges by implementing revised business and operating models.

Owing to budgetary constraints, the scope of Phase 1 has been revised to connect 970 government facilities – from an



SA Connect timeline

2013: The long-awaited South Africa (SA) Connect broadband policy is approved by Cabinet.

2014: A National Broadband Advisory Council, comprising independent technical experts and representatives of business, labour and civil society, is appointed to advise the Minister of Communications on the implementation of SA Connect.

2015: Telkom is named the lead agency for SA Connect implementation.

2016: The media reports that six companies are vying to roll out South Africa's broadband project.

2017: Former Finance Minister Pravin Gordhan allocated R1.90-billion over the medium term for broadband implementation.

May 2018: Former Telecommunications and Postal Services Minister Siyabonga Cwele says government aims to connect 570 facilities by the end of 2018, with 327 of the facilities to be connected by June 2018.

July 2018: The Department of Telecommunications and Postal Services confirms that it has missed its target of connecting 327 facilities, stating that only 187 facilities have been connected.

January 2019: Communications and Digital Technologies Minister Stella Ndabeni-Abrahams initiates the process to roll out broadband services to 1 210 schools, health facilities and Thusong Centres in the Vhembe district of Limpopo.

July 2019: Department of Communications and Digital Technologies officials inform the National Assembly's Select Committee on Public Enterprises and Communications that the department is considering entering into partnerships with the private sector to provide universal access to broadband connectivity.

Source: ITWeb

initial target of 6 235. The DCDT announced in October 2019 that, as at the end of September 2019, 551 of the 970 government facilities had been connected, with these being mainly schools and health facilities. It added that work on the remaining facilities would be completed by the end of the 2019/20 financial year.

Meanwhile, Communication and Digital Technologies Minister Stella Ndabeni-Abrahams said at a conference of the FTTX Council, in October 2019, that the Development Bank of Southern Africa (DBSA) was facilitating a feasibility study that would explore various cost-effective and efficient implementation models, as well as sustainable funding models for Phase 2 of SA Connect. This phase had an initial target of connecting 35 211 government facilities. The 2019/20 Budget Review document, released in February 2019, indicates that the funds allocated for the Phase 2 project will be confirmed in South Africa's 2020/21 National Budget, to be announced in February 2020.

The decision to conduct a feasibility study for Phase 2 has, however, been criticised by some commentators. Consultancy World Wide Worx MD Arthur Goldstuck told news website ITWeb in October 2019 that going back to the feasibility study stage when implementation was already under way could cause more delays and confusion. Advising government on how to speed up the roll-out of SA Connect, Goldstuck says: "Stop messing around and get down to business, rather than talking about getting down to business and developing documents about getting down to business."

Independent analyst and researcher Charles Lewis agreed, adding that it was debatable if the DBSA had the requisite expertise, which he said should include in-depth knowledge of universal access initiatives around the world. He further stated that the DCDT should not regard itself as the implementing agency for the policy – a role that should be played by the private sector in an environment where there were appropriate incentives for market-led roll-out, coupled with support from the Universal Service and Access Fund (USAF).

USAF support, he suggested, could take the form of one-off smart initiation subsidies or long-term support programmes for areas and individuals that the market was unable to reach.





INTERNATIONAL CONNECTIVITY

South Africa is connected to the rest of the world by various broadband cable systems, with more planned. The existing cables include Seacom, the Eastern Africa Submarine Cable System (EASSy) and the West Africa Cable System (Wacs).

ACE: The Africa Coast to Europe (ACE) undersea cable is a 17 000-km-long system that stretches from France to South Africa, providing Internet connection for 22 countries, mostly on Africa's west coast. The system has a design capacity of 5.12 Tb/s.

Africa-1: Expected to be operational by early 2021, the 20 000-km-long Africa-1 superfast submarine cable will connect South Africa and countries in the Middle East, South-Central Asia and Europe. The cable, for which a maintenance and construction agreement was signed in December 2018, will feature cable-landing stations at Sidi-Krir and Zaafarana, in Egypt; Port Sudan, in Sudan; Jeddah, in Saudi Arabia; Djibouti City, in Djibouti; Mogadishu, in Somalia; Mahajana, in Madagascar; Fujairah, in the United Arab Emirates; and Karachi, in Pakistan. It will also have carrier-neutral points of presence (PoP) in Marseille, in France; Mombasa, in Kenya; and Durban, in South Africa. The cable system is being developed by a 13-member consortium that includes South Africa's MTN. Media reports published in 2017 indicated that it would use at least 100 G wavelength technology to allow for several terabits per second of capacity to be commissioned when it goes live.

EASSy: Owned and operated by 16 African (92%) and international (8%) telecommunication service providers, EASSy is a 10 000-km-long submarine cable that runs along the east and south coasts of Africa, connecting South Africa with Sudan through landing points in Mozambique, Madagascar,

the Comoros, Tanzania, Kenya, Somalia and Djibouti. With capacity of more than 10 Tb/s, it is one of the highest-capacity systems serving Africa.

Equiano: Google is preparing to build a subsea cable that will connect South Africa to Portugal and branch out across the west coast of Africa. Named after eighteenth-century Nigerian-born writer and abolitionist who was enslaved as a boy, Olaudah Equiano, the Europe-to-Africa cable will be Google's fourteenth subsea cable investment globally and the third private international cable. Alcatel Submarine Networks was contracted in the fourth quarter of 2018 to build the cable, which will start in Western

Google providing free WiFi in Nigerian cities to boost Internet access

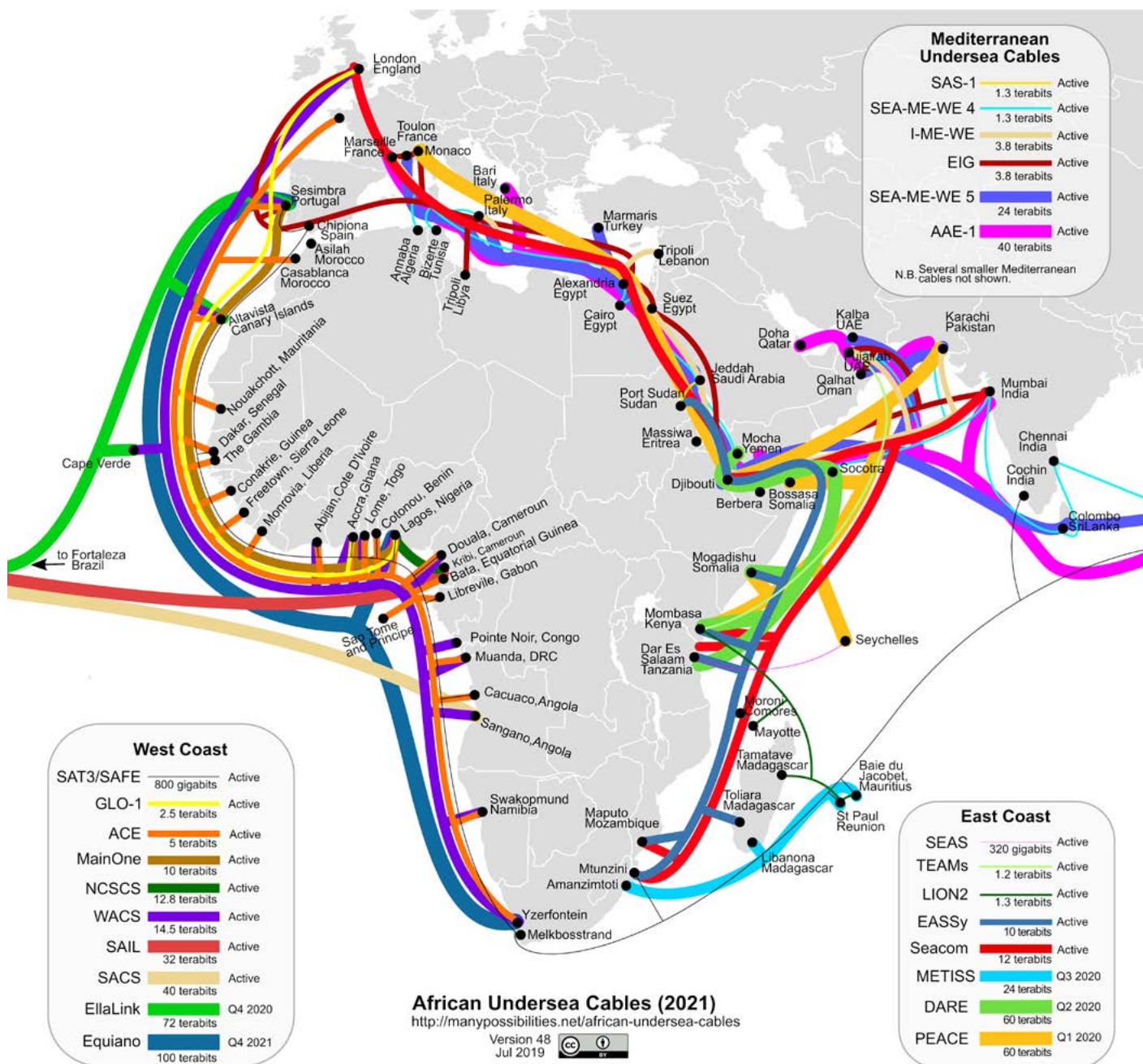
Google Station, the Web giant's public WiFi service, has gone live in Nigeria. Similar to what it has done in countries including India, Indonesia, Mexico and Thailand, Google will partner with local service providers for infrastructure and locations, while it offers a cloud-based platform and devices to provide and manage hot spots. At the service's launch in July 2018, there were only four locations in Lagos, the commercial hub, but the number of locations was expected to increase to 200 in five additional cities by the end of 2019.

The Nigerian WiFi initiative is not Google's first Internet-access-focused initiative in Africa. In Ghana and Uganda, it has rolled out Project Link, through which it builds fibre-optic networks to help local Internet service companies and mobile network operators provide faster broadband.

Source: Quartz Africa



African undersea cables 2019



Source: <http://manypossibilities.net/african-undersea-cables>

Europe and run along the west coast of Africa with a landing in Nigeria. It will comprise nine additional branching units along the route that can be used to extend connectivity to other African countries at a later stage. The new cable is fully funded by Google. Its first phase is expected to be completed in 2021.

Liquid Sea: Liquid Telecom subsidiary Liquid Sea is building a 10 000-km-long submarine cable. When completed, it will link South Africa to the Middle East and connect to the telecommunication services provider's terrestrial network,

which spans just under 70 000 km and connects 600 locations in 13 countries, with data centres in Egypt, Ethiopia, Nigeria, Rwanda, Senegal, Kenya, Zimbabwe and South Africa. The company is still in negotiations with certain governments about finalising the exact route of the cable. It will offer a capacity of up to 30 Tb/s.

One Africa: The One Africa broadband network has been touted as an engineering marvel by its implementor Liquid Telecom. According to the company, Africa, for the first time, will have a



Other international cables connecting Africa

DARE-1: The 4 747-km-long Djibouti Africa Regional Express 1 (DARE-1) submarine cable system, owned by a consortium comprising Djibouti Telecom and Somalia's Sometel, will boast 36 Tb/s of capacity. It will connect Djibouti City, in Djibouti, Bosaso and Mogadishu, in Somalia and Mombasa, in Kenya. The DARE-1 consortium and its supplier, SubCom, announced in March 2019 that the project's marine survey had been completed in January 2019 and that the manufacture of the undersea cables and repeaters would begin in April 2019, with the system expected to be ready for commercial traffic in June 2020.

MainOne: The first private subsea cable along the West African coastline, MainOne, is 7 000 km long and has landing stations in Nigeria, Ghana and Portugal, with reserved branching units in Morocco, Canary Islands and Côte d'Ivoire. Owned by Nigeria-based MainOne Cable Company, it started operating in 2010 and has capacity of at least 4.96 Tb/s. It is able to interconnect with the Seacom cable and other international cables from Seixal, in Portugal, and extend to the MainOne point of presence, in London, through Tata Communications' European and Trans-Atlantic networks. Meanwhile, French telecommunications giant Orange announced in September 2018 that it was to invest in the MainOne cable system, constructing two new branches and stations connecting the cable to Dakar, in Senegal, and Abidjan, in Côte d'Ivoire.

Simba: US publication the Wall Street Journal reported in April 2019 that Facebook was engaged in negotiations concerning the laying of an undersea cable that would run around much of the African continent. Details of the project were sketchy, but the publication stated that the envisaged undersea cable might link to existing beach access points in countries along the eastern, northern and western coastlines with the help of telecommunication companies like MTN and Vodafone. The new cable would ensure that all Facebook's services – particularly those highly popular on the continent, such as WhatsApp – were within reach and performed as well as expected.

direct land-based communication link between Cape Town and Cairo. Stretching more than 10 000 km, it will be the shortest direct fibre route between South Africa and Egypt. This means that it will be able to offer significantly reduced latency between African countries. The One Africa network aims to progress further into Central and Western Africa. It is currently establishing multiple fibre crossings between East and West Africa.

Peace: The privately owned Pakistan East Africa Cable Express (Peace) system is being developed by Hengtong Optic-Electric and Huawei Marine Networks Co – a joint venture between Huawei Technologies and Global Marine Systems. The project is being implemented in two phases, with the first expected to be active by 2020, offering more than 60 Tb/s of capacity. Spanning 6 200 km, this phase will connect Pakistan, Djibouti, Somalia and Kenya. When the second phase is implemented, the Peace system will span 13 000 km, reaching South Africa and Egypt.

SACS: Owned and operated by Angola Cables, the 6 500-km-long, 40 Tb/s South Atlantic Cable System (SACS) went live in September 2018, connecting data centres in Fortaleza, Brazil, and in the Angolan capital city of Luanda. Owing to the onward connections to the recently completed Monet Cable and WACS, SACS – which was built by NEC Corporation – it will also result in a reduction in latency between Miami, in the US, and Cape Town, in South Africa, from 338 m/s to 163 m/s.

SAT-3/WASC/SAFE: The South Atlantic Cable was the initial undersea cable that linked South Africa to Portugal. SAT-1 was

first installed in 1968 and received an upgrade in the early 1990s with the installation of SAT-2. It was upgraded again with the SAT-3 line when it began to reach capacity in 2001. The South Atlantic 3/West Africa Submarine Cable, or SAT-3/WASC, system links Spain and Portugal to South Africa, with numerous landing points along the way in the West African countries of Senegal, Côte d'Ivoire, Ghana, Benin, Nigeria, Cameroon, Gabon and Angola. At the cable's end point, Melkbosstrand, near Cape Town, in South Africa's Western Cape province, it connects directly to the South Africa Far East (SAFE) cable system, which runs to Penang, in Malaysia. The SAFE system provides redundancy for other cables linking Africa to the Middle East and the Far East, with landing points in Reunion, Mauritius and India.

The SAT-3/WASC system has a capacity of 920 Gb/s in the northern segments, north of Ghana, and of 800 Gb/s in the southern segment, while the SAFE system provides 440 Gb/s of capacity.

Seacom: Seacom is a network of subsea and terrestrial high-speed fibre-optic cables that serves the east and west coasts of Africa, connecting the continent to Europe and the Asia-Pacific region through landing points in France, Djibouti, Kenya, Tanzania, Mozambique, South Africa and India, and partner network landing points in Namibia, Angola, the Democratic Republic of Congo, Nigeria, Ghana and Portugal. Seacom provided capacity of 1.28 Tb/s at its launch in 2009, but this was expanded to 1.5 Tb/s in June 2018 and CEO Byron Clatterbuck told an interviewer in July 2019 that the company expected to have doubled this by the end of 2019.



Meanwhile, Seacom and Vodacom Business Africa, the enterprise-focused subsidiary of South Africa-based mobile telecommunications group Vodacom, announced in October 2019 that they had entered into a partnership to initiate the next phase of the two companies' network connectivity ventures. The partnership enables Seacom to meet customer and partner demands beyond existing markets and across Vodacom's infrastructure footprint. The main benefit for Vodacom customers is that their access will be paired with a single contract execution across multiple territories, supported with cross-border customer service.

South Atlantic Express: The ambitious South Atlantic Express (SAEx) will entail the building of a 25 000 km subsea cable network that will connect the Americas and Europe through South Africa. Being developed by Mauritius-based SAEx International, the cable is expected to cost more than \$750-million to complete and will boast capacity of up to 108 Tb/s over its multiple fibres. It is expected to be ready for service by 2021 and will comprise

two legs: SAEx-1, which will connect South Africa with Brazil and the US, with a branch to St Helena and subbranches for future landings in West Africa and other Atlantic islands; and SAEx-2, which will connect South Africa to India and Malaysia. The network will not only comprise newly laid fibre, however, and will hook up to existing subsea cables. For example, in October 2018, SAEx International announced that it had reached agreement with Sparkle, the international arm of Telecom Italia, to use Sparkle's Pan-American network for the route between Brazil and New Jersey, on the east coast of the US.

WACS: The West Africa Cable System, or WACS, is an ultrahigh capacity, four-fibre pair, 16 000-km-long fibre-optic cable system linking Europe, West Africa and South Africa. The cable system connects 15 terminal stations forming a consortium of 18 leading international telecom carriers, starting in Yzerfontein, in South Africa's Western Cape province, and ending in London, in the UK. Launched in 2012 with a design capacity of 5.12 Tb/s, it was upgraded in 2015, increasing its capacity to 14.50 Tb/s.





PROSPECTS

South Africa's Internet access market, valued at R52.32-billion in 2018, will increase at a combined annual growth rate of 8.20% over the next few years, reaching R77.70-billion in 2023, according to professional services firm PwC.

The firm states in its 'Insights from the Entertainment & Media Outlook: 2019–2023 – An African Perspective' report that mobile Internet access accounted for about 88% of the South African Internet access market's total value of R52.32-billion in 2018, compared with fixed broadband access's 12%. PwC expects mobile Internet access to continue growing, owing to intensifying competition among operators and regulatory pressure reducing the cost of data. According to PwC's forecast, mobile Internet access will account for R69.60-billion of the envisaged R77.70-billion total South African Internet access market in 2023, with the share of fixed broadband access being R8.04-billion.

A further boost for mobile access, through smartphones, which are already a highly popular way to access the Internet, will come from the deployment of fifth-generation (5G) technology, which will result in Internet speeds comparable to the fastest fixed broadband. PwC expects operators to initially promote mobile 5G alongside existing applications that have the potential to work better over 5G's faster, more responsive connections.

However, PwC points out that the operating environment and economic conditions in South Africa remain challenging for mobile operators and consumers, adding that the weakening currency, for instance, increased import prices, thus reducing the affordability of smartphones and tablets.

Meanwhile, PwC expects data consumption in the country to nearly quadruple from 4.90-billion gigabytes in 2018 to 18.70-billion gigabytes in 2023 as access to the Internet increases. Government's commitment to expanding connectivity, coupled with initiatives by private companies, increased the number of households with fixed broadband access to 1.70-million in 2018, with a further increase to 3.20-million households in 2023 envisaged.

The most important area of growth, however, will be Internet access using smartphones. There were an estimated 53.10-million smartphone connections in South Africa in 2018, which accounted for 35.50% of all connections. PwC projects that smartphone connections will increase to 93.50-million in 2023.

Meanwhile, the Broadband for All Working Group of the Broadband Commission for Sustainable Development estimates that at least \$100-billion would be required by 2030 to achieve universal Internet access in Africa. The number of broadband connections on the continent stood at 400-million in 2018, a twentyfold increase since 2010. Nearly 80% of the investment required to achieve universal access will be directly related to the deployment and maintenance of broadband networks.

Globally, 4.10-billion currently have access to the Internet, according to the Internet Telecommunication Union's 'Measuring Digital Development: Facts and Figures 2019' report. The report states that 52% of women lack Internet access, compared with 42% of men. It adds that, although the digital gender divide has been narrowing in the Commonwealth of Independent States and Europe, it is widening in Africa, the Arab States and the Asia-Pacific region.





MAIN SOURCES

African News Agency. Safaricom's M-Pesa among top 10 most influential financial projects in last 50 years (October 8, 2019).
African News Agency. Telecoms companies, govt sign cooperation agreement (October 9, 2019).
African News Agency. MTN messaging platform reaches one-million active users (November 12, 2019).

Bloomberg. Telkom plans to build 2 000 more mobile towers as it prepares for 5G (May 27, 2019).
Bloomberg. MTN eyes Ethiopia entry as country prepares to open market (May 30, 2019).
Bloomberg. MTN top investor forced board shakeup in push for fewer disputes (June 4, 2019).
Bloomberg. Cell C seeks more network access from MTN in battle for growth (September 27, 2019)

Business Day. Deployment of 5G to start in 2020, says Ndabeni-Abrahams (July 1, 2019).
Business Day. Telecoms firms facing higher security costs amid battery costs (August 8, 2019).
Business Day. Cell C talks to MTN to secure more access to its network (September 27, 2019).
Business Day. Telkom's acquisition plan points to Cell C (November 12, 2019)
Business Day. Telkom confirms it wants to acquire embattled Cell C (November 15, 2019).
Business Day. Cell C and MTN sign expanded roaming deal (November 18, 2019).
Business Day. Cell C rejects Telkom's takeover offer (November 29, 2019).
Business Day. Vodacom, MTN lose R22bn after competition watchdog data ruling (December 2, 2019).

Business Insider. Telkom added 4.5-million users by piggybacking on the competition – and selling data for R50 less per gig than Vodacom (May 27, 2019).
Business Insider. Vodacom is pulling 67 000 customers a day in South Africa as prices fall (July 25, 2019).
Business Insider. South Africa's first 5G network is now live in parts of Johannesburg and Tshwane (September 18, 2019).
Business Insider. After 10 years, Vodacom, MTN and Cell C have all started locking handsets to their own networks again (October 25, 2019).

Business Report. Cell C plans postponement of its debt payments (July 12, 2019).

Capacity Media. The South Atlantic Cable System goes live (September 26, 2018).

Cell C. Annual results presentation for the 12-month period ending May 31, 2019, and plans for the recharged Cell C.

Competition Commission. Data Services Market Inquiry: Summary of provisional findings and recommendations (April 24, 2019).



Engadget.com. Facebook wants to circle Africa with an undersea data cable (April 8, 2019).

Engineering News. MTN posts significantly higher FY18 earnings (March 7, 2019).

Engineering News. Clickatell helps MTN South Africa become the first telco to launch chat commerce on WhatsApp (March 26, 2019).

Engineering News. MTN has best mobile network – MyBroadband Insights (April 8, 2019).

Engineering News. MTN granted more Nigerian spectrum after long regulator battle (April 11, 2019).

Engineering News. Vodacom, MTN shares fall on outcome of Competition Commission's data market enquiry (April 24, 2019).

Engineering News. MTN appoints Jonas chairperson designate, establishes international advisory board (May 3, 2019).

Engineering News. MTN receives green light for listing of Nigerian unit (May 15, 2019).

Engineering News. Telkom to seek an equity partner to help boost towers growth (May 28, 2019).

Engineering News. Vodacom to sell some operations in five African markets (June 21, 2019).

Engineering News. Vodacom refocuses enterprise strategy as it sheds noncore assets (July 5, 2019).

Engineering News. MTN retains the crown as South Africa's 'best mobile network' (July 9, 2019).

Engineering News. BEE commission says MTN scheme contrary to objectives of empowerment law (July 11, 2019).

Engineering News. Google to build Europe-Africa subsea cable (July 12, 2019).

Engineering News. MTN appoints new group chief digital, fintech officer (July 18, 2019).

Engineering News. Vodacom's international operations continue to grow (July 25, 2019).

Engineering News. MTN Nigeria delivers double-digit interim growth (July 26, 2019).

Engineering News. Telecoms policy proposes shared approach to spectrum to open market (July 29, 2019).

Engineering News. Competition Commission welcomes spectrum policy (August 2, 2019).

MTN Ghana delivers solid half-year performance (August 5, 2019).

Engineering News. Cell C, MTN conclude roaming agreement term sheet (August 7, 2019).

Engineering News. Strong growth in Nigeria supports MTN Group's interim performance (August 8, 2019).

Engineering News. MTN shuts down 53 cellphone towers in Gauteng due to vandalism and theft (August 16, 2019).

Engineering News. Vodacom to invest more than \$589m on South Africa network (August 16, 2019).

Engineering News. Blackout warning as cellphone battery theft scourge accelerates (August 30, 2019).

Engineering News. MTN advances fintech ambitions (August 23, 2019).

Engineering News. All set for nongeographic number porting (September 3, 2019).

Engineering News. Vodacom expands rural 4G network (September 6, 2019).

Engineering News. Icasa to issue information memorandum on spectrum licensing process by December 31 (September 19, 2019).

Engineering News. ICT Council elected for second term (September 26, 2019).

Engineering News. Icasa to issue information memo on spectrum licensing process by year-end (October 4, 2019).

Engineering News. Seacom partners with Vodacom to expand reach across Africa (October 16, 2019).

Engineering News. Icasa publishes information memo on high-demand spectrum (November 1, 2019).

Engineering News. Internet uptake growing, but with a widening digital gender divide (November 5, 2019).

Engineering News. MTN to invest R50bn in South Africa over coming five years (November 5, 2019).

Engineering News. \$100bn required to provide broadband access for all in Africa in next decade (November 8, 2019).

Engineering News. Vodacom's interim earnings up nearly 20% (November 11, 2019).

Engineering News. Telkom continues to grow mobile service business (November 12, 2019).

Engineering News. Competition Commission's final report confirms South Africa's high data costs (December 2, 2019).

Engineering News. Icasa tables mobile broadband services inquiry discussion document (December 2, 2019).

Fin24. MTN sells its Cyprus business to Monaco Telecom for R4.1bn (June 16, 2018).

Fin24. This is why data still costs you twice what it could (January 14, 2019)

Fin24. Zim courting SA telecoms companies for investment, says Minister (May 27, 2019).

Fin24. 'Chaotic, incoherent': Telkom CEO slams Mboweni's growth plan (September 2, 2019)

Fin24. Cell C seeks more network access from MTN in battle for growth (September 27, 2019).

GSMA Intelligence. The Mobile Economy 2019.

Independent Communications Authority of South Africa. Portfolio Committee on Telecommunications and Postal Services: Cost to Communicate Programme (February 26, 2019).



International Communications Authority of South Africa. International Mobile Telecommunications Roadmap 2019 (March 29, 2019).

Internet Solutions. The network cables that connect Africa to the world (May 2, 2019).

IOL. The long road to 5G in South Africa (March 15, 2019).

IOL. MTN Uganda's deported CEO allowed to return – official (May 31, 2019).

IOL. Criminals plunging subscribers into network blackouts by stripping cellphone networks (July 18, 2019).

IOL. MTN cancels \$300-million stake sale in Mascom Wireless Botswana (October 31, 2019).

IT News Africa. MTN South Africa launches 5G trial with Huawei (November 13, 2019).

ITWeb. SA Connect reaches Limpopo (January 23, 2019).

ITWeb. SA: Connect: Another year, another moving target (February 22, 2019).

ITWeb. Telcos hit back at CompCom data report (April 29, 2019).

ITWeb. Govt mulls partnership model to deliver SA Connect (July 25, 2019).

ITWeb. Telkom plots fintech deals to diversify business (August 30, 2019).

ITWeb. Icasa slaps MTN with R5m fine over WhatsApp bundle hike (September 9, 2019).

ITWeb. Fresh blow for Cell C as shareholders re-evaluate positions (September 20, 2019).

ITWeb. SA Connect: One step forward, two steps back (October 10, 2019).

ITWeb. Levy brothers fall on their sword for Cell C (October 30, 2019).

Lexology. ICASA shakes up the industry with data expiry and out-of-bundle data rules (May 9, 2018).

Liquid Telecom. The "One Africa" broadband network: How we will connect Cape to Cairo (November 13, 2019).

Moneyweb. Africa's MTN cancels \$300m stake sale in Mascom Wireless Botswana (October 31, 2019).

MTN. Integrated Report 2018.

MTN. MTN launches live 5G indoor solution at Kyalami International Conventional Centre (April 10, 2019).

MTN. Interim results for the six months ended June 30, 2019.

MyBroadband. Vodacom achieves BEE Level 1 (May 31, 2019).

MyBroadband. MTN has the best mobile network in South Africa (July 9, 2019).

MyBroadband. Vumatel overtakes Openserve as biggest fibre-to-home operator in South Africa (July 19, 2019).

MyBroadband. What South African networks think of the new spectrum policy (August 10, 2019).

MyBroadband. Why the Woan is bad news for Vodacom and MTN (August 19, 2019).

MyBroadband. Cell C has a great future (September 26, 2019).

MyBroadband. Telkom fibre plans explained (November 29, 2019).

Nasdaq. Africa's MTN cancels \$300-million stake sale in Mascom Wireless Botswana (October 31, 2019).

Obortunity. Pakistan to get faster, reliable Internet as China-backed submarine cable to start operations by end-2019 (April 25, 2018).

Quartz Africa. Google is boosting Internet access in Nigeria's biggest cities with free public WiFi (July 26, 2018).

Reuters. MTN fined \$5.2bln in Nigeria over phone registrations (October 26, 2015).

Reuters. MTN aims to expand local shareholding of its Ugandan unit to 20% – CEO (March 14, 2019).

Reuters. MTN Nigeria gets listing approval, securities regulator says (May 9, 2019).

Reuters. MTN converts Nigerian unit to public company before planned listing (April 24, 2019).

Reuters. Nigerian court adjourns tax case between MTN and attorney general (June 26, 2019).

Reuters. Nigeria's central bank awards financial services licence to MTN subsidiary (July 30, 2019).

Reuters. MTN Nigeria asks tribunal to rule on tax treatment of \$1-billion fine (August 2, 2019).



South African Broadcasting Corporation. South Africa's MTN pays \$53m to settle \$8.10-billion Nigeria dispute (December 25, 2018).

Statistics South Africa. General Household Survey 2018 (May 28, 2019).

Submarine Cable Networks. DARE-1 cable system finalises configuration and cable route (April 14, 2019).

Submarine Telecoms Forum. Africa-1 subsea cable system coming closer to reality (December 27, 2019).

Submarine Telecoms Forum. Djibouti Telecom, Sometel and SubCom announce completion of DARE-1 marine survey and addition of Bosaso landing station (March 27, 2019).

TechCentral. MTN sells Botswana unit as it eyes R15-billion in asset sales (March 7, 2019).

TechCentral. Telkom fixed lines slump, but it's not all doom and gloom (May 27, 2019).

TechCentral. Minister publishes spectrum policy direction: all the details (July 26, 2019).

TechCentral. No reason 5G spectrum can't be allocated now – Vodacom (August 15, 2019).

TechFinancials. MTN's strategic investment in IHS Towers valued at R23-billion (August 8, 2019).

Tech Financials. MTN terminates talks with Econet regarding Botswana unit (October 31, 2019).

Telecomlead.com. MTN CEO Rob Shuter reveals growth plans (March 7, 2019).

Telkom. Group provisional annual results for the year ended March 31, 2019.

Telkom. Group interim results for the six months ended September 30, 2019.

The Africa Report. Zimbabwe: TelOne and NetOne to be privatised by the end of the year (August 2, 2019).

TimesLive. Telkom cuts 12.5% jobs, mobile boosts profit (May 27, 2019).

Vodacom. Integrated report for the year ended March 31, 2019.

Vodacom. Interim results for the six months ended September 30, 2019.

www.cellc.co.za

www.icasa.org.za

www.mtn.co.za

www.rain.co.za

www.telkom.co.za

www.vodacom.com





TELECOMMUNICATIONS 2019

The material contained in this report was compiled by Creamer Media (Pty) Ltd's Research Unit, based in Johannesburg, South Africa. It has been compiled from sources believed to be reliable, but no warranty is given regarding the accuracy of such information.

Creamer Media's aim is to present its reports in an impartial, user-friendly format for easy reference. The reports draw on material published over the past 12 months and are a summary of other sources of information published in *Engineering News* and *Mining Weekly*, as well as of information available in the public domain. The report does not purport to provide analysis of market trends.

This report is intended to be a source of information for subscribers to Creamer Media's *Research Channel Africa* and Creamer Media's *MiningWeekly.com* Research, and is not to be reproduced or published for any other purpose. In particular, the report may not be republished on any other websites and it may not be reproduced or redistributed in any manner.

© Copyright Creamer Media (Pty) Ltd



To subscribe to *Research Channel Africa* or purchase this report contact:
Creamer Media (Pty) Ltd, Tel +27 11 622 3744, Email subscriptions@creamermedia.co.za