

For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS

COMMUNICATIONS

MARCH/APRIL/MAY 2020

Volume 24 Number 6

- Key industry players discuss smart cities in Africa
- Connecting refugees within the continent
- The ATU's call to arms over Covid-19



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EDITORIAL:

Editor: **Robert Shepherd**
Designer: **Sean McNamara**
Sub editor: **Gerry Moynihan**
Contributors: **Chris Mason, David Sumi, Justin Farnell, Keith Matthews, Murat Sahinoglu, Semir Hassanaly, Sebastien Codeville, Shank Kulam**

Editorial enquiries:

roberts@kadiumpublishing.com
Tel: +44 (0) 1932 481729

ADVERTISEMENT SALES:

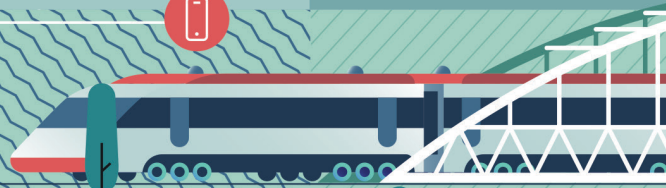
Sales: **Kathy Moynihan**
kathym@kadiumpublishing.com
+44 (0) 1932 481731

Production & circulation: **Suzanne Thomas**
suzannet@kadiumpublishing.com
Tel: +44 (0) 1932 481728

Publishing director: **Kathy Moynihan**
kathym@kadiumpublishing.com
+44 (0) 1932 481730



Russian Satellite
Communications Company



SATELLITES FOR DIGITAL ECONOMY



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Liquid partners with Zimbabwe government to launch helpline

Liquid Telecom Zimbabwe has announced a partnership with the country's government, which will help the country provide a dedicated national toll-free '2023' helpline and call centre to support citizens during the Covid-19 pandemic.

The helpline will provide information and consultative services 24 hours a day, seven days a week, while safeguarding citizens against escalating fake news and misinformation in the region.

"Liquid Telecom has quickly and effectively responded to the 'Covid-19 Zimbabwe National Preparedness and Response Plan' (NPRP) announced by H.E President Mnangagwa on the 19th March calling on companies to contribute to the national cause," said Wellington Makamure, chief executive officer (CEO), Liquid Telecom southern Africa. "Maintaining connectivity is an essential requirement in responding to a crisis that has disrupted our routines and daily lives inconceivably. Reliable, up-to-date information, provided by qualified experts at the end of the national



The helpline will provide information and consultative services 24 hours a day, seven days a week

toll-free '2023' helpline is vital as the Government continues to provide support, especially to the most vulnerable in light of the pandemic." Liquid Telecom Zimbabwe

established the national toll-free '2023' helpline and call centre in partnership with Innscor Africa and Kamba Technologies.

The former's direct contribution

includes set-up costs of the telecom infrastructure, which includes the provision of phone lines, call centre equipment and bandwidth via a 50Mbps dedicated link.

PowerCom denies Covid claims

Namibian telecom infrastructure builder PowerCom said any link between Covid-19, 5G technology and its alleged roll-out on their towers is completely unfounded.

These rumours, which have been focused particularly on the 19 towers that PowerCom was in the process of construction, are part of a global conspiracy which spilled over to Namibia, the company claimed.

Company chief executive Alisa Amupolo said there is no basis for those comments, with the construction of 19 new towers this year merely coincidental to the outbreak, moreover no corroborating evidence has ever been supplied to link 5G and COVID-19.

"We have not received application for 5G technologies on our towers, though we cannot rule out such applications in future when Namibian operators are ready to roll out 5G

and it has been firmly established that there is no connection between the Covid-19 outbreak and 5G technology," she added.

Amupolo explained that during their on-boarding process of all operators on the towers, they received approval by the regulator which issues Spectrum and also conduct Typo approval and it has been established that 5G is not the cause of the disease.

"Spreading of inaccurate

information can become very dangerous, as it can lead to people vandalising or physically damaging our infrastructure and many businesses are currently dependent on the communications infrastructure we provide, especially during the national lock-down where there is a shift to remote working and e-learning," she added.

PowerCom has been in operation since 2007 and became a subsidiary of Telecom Namibia in October 2013.



PowerCom have claimed that these rumours are part of a global conspiracy which has spilled over to Namibia

Teal begins 4G trials in Mozambique

Mozambique's Teal has finally begun conducting trials of its 4G network. The operator was aiming for a commercial 4G/LTE launch in 2019 and has been beaten to it by most of its competitors. Vodacom began offering 4G services in September 2018, while Movie switched on its LTE network in July last year.

However, Teal could gain an advantage over its rivals in terms of download speeds. Test results confirmed speeds of 11Mbps on TMcel's 4G network in Maputo – reportedly higher than those typical to the networks of both Movie and Vodacom.

At the end of last year, there were approximately 15 million mobile subscribers in Mozambique.

Spacecom & ST Engineering iDirect demonstrate VSAT return

Spacecom and ST Engineering iDirect have demonstrated VSAT return capabilities on the AMOS-17 satellite, according to the partner companies.

They said the demonstration resulted in an “exceptionally” wide return link for a small VSAT of 40 Mbps using the iDirect iQ 200 modem’s Adaptive TDMA return over AMOS-17’s high power C-band HTS beams.

Conducted from the UK based SMS Teleport, the modem and antenna were installed in a communications truck located between Johannesburg and Pretoria, South Africa. The return data rate enabled simultaneous transmission of multiple high data streams from South Africa to Europe with a small antenna, resulting in the low-power communications-on-the-pause (COTP) solution. Both firms said this opens up operational and business opportunities such as emergency deployments, government applications, coverage of events and backhaul services.

“By utilising the iDirect Evolution platform and iQ 200, we can now offer a unique low footprint, low power and high capacity return links from any remote location, enabling users



Conducted from the UK based SMS Teleport, the modem and antenna were installed in a communications truck located between Johannesburg and Pretoria, South Africa

to enter new markets and facilitate new applications,” said Tsachi Dahan, Spacecom vice president of vertical solutions. “AMOS-17’s C-Band spot

beams provide superior throughput and efficiencies over Sub-Saharan Africa with connections to Europe, the Middle East and parts of Asia. We

look forward to presenting this unique value proposition to our customers brought about by this combination of satellite and ground segment.”

Clickatell introduces FAQ Response Solution

South African communications company Clickatell has introduced its new Automated FAQ Response solution, to help the many businesses struggling to operate under level 4 lockdown regulations.

This is a special quick-response solution for businesses to quickly and easily communicate with their customers amid Covid-19 pandemic.

The new service aims to aid many businesses that experience high call volumes during the crisis.

Clickatell Chief Product and Technology Officer Jeppe Dorff said the new Automated FAQ Response solution comes as call centre operations struggle with maintaining consistent customer experience amidst support agents working remotely.

“Businesses are experiencing ever higher customer queries, while

also having to decentralise their contact centre operations with thousands of frontline agents having to work from home,” Dorff said in a statement. “Some businesses

are contending with less staff and even shutting some contact centres down, making customer service challenges a critical area of need. We now find ourselves amidst a

global public health crisis, and we’re here to help our customers reach their audience through fast, reliable communications and digital commerce platforms.”

The software integrated with Clickatell’s cloud-based workflow automation software enables enterprises to automate responses and provide immediate answers to customers’ most frequently asked questions in WhatsApp, improving customer experience and reducing operating costs.

Clickatell also has the Clickatell Touch feature, a two-way multi-channel customer engagement offering. Touch enables users to instantly respond and resolve customer queries through your website and social channels, including Facebook, Facebook Messenger, Twitter and WhatsApp.



This is a special quick-response solution for businesses to quickly and easily communicate with their customers amid Covid-19 pandemic

Operator denounces granting of telecom licence to city of Windhoek

Mobile Telecommunications Company (MTC) said it is shocked by the Communications Regulatory Authority of Namibia's decision to award the City of Windhoek a Class Comprehensive Telecommunications Service Licence.

The operator claimed the licence enables the City to build and operate a telecom service network, to provide a service similar to other telecommunication service providers. This means for the provision of telecommunication services in Windhoek, a licensee needs to obtain approval from the City to set up telecommunication equipment on their land either by digging for fibre or putting up towers.

Tim Ekandjo, chief human capital and corporate affairs officer of MTC, said the decision by Communication's Authority is anti-competitive and against the Communications and Competitions Acts.

"You cannot apply for one license and get something that you have not



The city of Windhoek, the capital of Namibia

applied for," Ekandjo said. "Secondly, if due process was followed we would have had the opportunity to object and or give comments but this process was not followed by Communications Regulatory Authority of Namibia which we find very strange. Not having been given

the opportunity to comment before the license was awarded, which flouts the elements of fair administrative action by the Communications Regulatory Authority of Namibia."

Ekandjo said MTC will consider its position in law regarding the licence approval.

Cell C and Vodacom look to open stores again

Cell C and Vodacom have opened their stores under strict Covid-19 level four regulations, according to reports in South Africa.

Telecoms was classified under essential services from the beginning of the lockdown, but shops were not open when the stringent measures to reduce the spread of the virus were introduced in March.

However, in early May, the government peeled back restrictions on some industries, which also included the opening of stores owned by mobile operators.

Cell C said it commenced opening its retail outlets in stages from May 1st in line with the relaxation of Covid-19 lockdown measures from level five to level four. Over 96% of its stores are now open.

"The safety and wellbeing of our staff and customers is our main focus during this time," says Cell C acting chief operating officer Andre Ittmann.

"We urge customers and employees to please adhere to the safety measures put in place and to keep themselves safe," he said. "We will continue to assess these measures to ensure the highest standards are maintained."

The stores are, however, trading within limited periods (9am to 5pm on weekdays and 9am to 1pm on weekends). Vodacom said it is servicing many of its customers using various independent retail outlets, most of which have opened their doors in line with level four requirements.

"The safety and protection of our employees remains of utmost importance and all of our stores will continue to follow strict hygiene and social distancing practices," said a company spokesperson. During this time, we will further ensure the necessary PPE (including masks) are available for staff and that we fully comply with government directives," said a Vodacom spokesperson.

Meanwhile, MTN resumed some of its activities last week "subject to extreme precautions to limit community transmission and outbreaks".

Gabon Telecom launches MoMo app

Gabon Telecom has launched the new Mobile Mobicash application, in order to meet the constraints related to containment measures taken by the government in front of the Covid-19 pandemic.

Dialling USSD * 555 # on a

digital device allows easy access to all electronic payment services offered by the operator.

This free application offers Libertis and Moov subscribers the possibility of carrying out all Mobicash transactions from their home.

The main advantages of the application include quick accessibility to Mobicash offers thanks to referencing of services such as credit purchase, money transfer, purchase of internet packages or merchant payments.

Intelsat and AMN team up to connect thousands of remote areas

Satellite service provider Intelsat has joined forces with Africa Mobile Networks (AMN), a consortium that develops mobile network base stations in sub-Saharan Africa's rural areas, to connect a thousand remote localities in the region.

The deal for this project was signed in October 2018 and by the end of 2019, the two partners had succeeded in connecting more than

500 localities. Access to the mobile network was facilitated by AMN's solar-powered mobile connectivity solution and Intelsat's satellites positioned on the continent, providing mobile broadband connectivity.

"Bringing mobile connectivity to the most rural parts of Africa requires hybrid networks and innovative business models to truly close the business case," said Jean-Philippe

Gillet, managing director of Intelsat's network business. "Our work with AMN highlights how we can rapidly and cost-effectively, expand an MNO's (Mobile Network Operator) reach and deliver critical connectivity to communities who many previously thought were impossible to connect."

A total of 3.5 million more individuals that now have access to telecom services.

DR Congo VAS firm signs deal to partner with Western Union

Democratic Republic of the Congo's value-added services (VAS) company Compagnie Financière du Congo has inked a deal with Western Union to enable more than 4,000 Flash Mobile Wallet Agents to offer global money transfers.

Customers can now send Western Union money transfers

internationally through Flash Mobile Wallet Agents, for payment from the former's network of account, wallet and retail agents.

CFC operates in both the Democratic Republic of Congo and the Republic of Congo and it provides FlashApp, a mobile aggregation wallet application used by its

agents to serve customers.

Western Union's cross-border, cross-currency capabilities have been integrated with CFC/Flash platform to enable money transfers by its agents in the region.

The new 'Flash my WU' function will allow agents to send money for pay-out via the Western Union

retail agent network in more than 200 countries and territories, or directly via the latter's access to billions of accounts worldwide.

Flash mobile wallet enables agents to use a single, multi-wallet app to store and send money or make payments locally, thereby bypassing traditional distribution infrastructure.

CTG looks to Angola Cables

China Telecom Global (CTG) has entrusted the operator of submarine optical fibre cables Angola Cables with the mission of strengthening its long-distance links between Asia, Africa and Latin America.

Through a partnership agreement signed on May 14, CTG and Angola Cables will launch an express transmission route to link China, South Africa and Brazil via the South Atlantic Cables System (SACS). This will see CTG extend its global reach by accessing the network, including the submarine cable systems WACS, SACS and Monet from Angola Cables, including their points of presence (PoP) and centres in Africa and Latin America.

In addition, CTG and Angola Cables have agreed to establish a network interconnection in South Africa, taking advantage of the advanced network capabilities of the two companies. The transmission capacity and the latency between China, South Africa, Angola and Brazil will be considerably improved, according to the two companies.

Changhai Liu, chief executive officer of CTG for Africa and the Middle East, said the collaboration with Angola Cables will unlock many opportunities. "With today's network infrastructure, leveraging the capabilities and potential of SACS, CTG customers can take advantage of secure and cost-effective low latency speed of approximately 156 milliseconds from Johannesburg to São Paulo," he added.

Zimbabwe operators get a freebie

The Zimbabwe Post and Telecommunications Regulatory Authority (Potraz) has allocated free

new telecom frequency spectra to the three mobile network operators in the country free of charge.

Econet Wireless, NetOne and Telecel can use these new resources until the end of 2020.

Gift Machengete, managing director of Potraz, said the regulator has granted telecom companies these new spectra so they can increase their data capacity and offer consumers quality services.

The allocation follows the strong demand from consumers for connectivity, prompted by the restrictive measures imposed because of Covid-19 and which oblige populations to carry out a large part of their social activities (school, work, purchase, communications, etc.), on the internet.



The Zimbabwe Post and Telecommunications Regulatory Authority officially opened up their new HQ in Mt Pleasant Business Park in 2018

SatADSL and YahClick partner to enrich satellite comms in Africa

SatADSL, the Brussels-based satellite service provider, has partnered with UAE counterpart YahClick to enhance its connectivity offering across sub-Saharan Africa.

Under the terms of the deal, SatADSL acts as a virtual network operator (VNO) partner to YahClick, which is owned by Yahsat and its partner Hughes Network Systems.

This means SatADSL is able to combine the capacity purchased from YahClick with its cloud-based service delivery platform (C-SDP) to deliver a full range of flexible satellite services across Africa.

"Working closely with SatADSL enhances the quality of our service delivery as we continue on our mission to unleash human potential

through satellite broadband connectivity," said Farhad Khan, chief executive officer at YahClick. "The agreement will provide our customers with the best broadband solutions available, connecting them with the rest of the world through a fast and affordable service. In this uncertain period of enforced social distancing and self-isolation, we are delighted to help bring people together, supporting them to work, learn, and stay informed remotely."

YahClick gains full access to the SatADSL's licensed partner network spanning 45 countries worldwide and boasting over 3,500 deployments, which gives YahClick opportunities to expand its distribution.

"I am excited by the possibilities

that present themselves ahead," said Michel Doherty, chief commercial officer at SatADSL. "Partnering with YahClick does more than just give us access to the company's service delivery platforms – it significantly increases our ability to make a tangible and lasting difference in and across the communities from west to east Africa we serve as part of our global connectivity offering."

He added that the company's "ability to offer high throughput Ka-band services will significantly impact the fate of some of the most underserved countries in the world", helping them to cross the digital divide and make the most of their "considerable potential".

2Africa subsea cable announced by global and African partners

China Mobile International, Facebook, MTN GlobalConnect, Orange, stc, Telecom Egypt, Vodafone and WIOCC have all joined forces to build 2Africa, which they said will be “the most comprehensive subsea cable to serve the African continent and Middle East region”.

The parties have appointed Alcatel Submarine Networks (“ASN”) to build the cable in a fully funded project which is designed to enhance connectivity across Africa and the Middle East.

At 37,000km long, 2Africa will be one of the world’s largest subsea cable projects and will interconnect Europe (eastward via Egypt), the Middle East (via Saudi Arabia), and 21 landings in 16 countries in Africa. The system is expected to go live in 2023/4, delivering more than the total combined capacity of all subsea cables serving Africa today, with a design capacity of up to 180Tbps on key parts of the system. Furthermore, 2Africa will deliver much needed internet capacity and reliability across large parts of Africa, supplement the fast-growing capacity demand in the Middle East and underpin the further growth of 4G, 5G and fixed broadband access for hundreds of millions of people.

The 2Africa cable has been designed to improve resilience and maximise performance, including the option of a seamless optical crossing



The parties have appointed Alcatel Submarine Networks (“ASN”) to build the cable in a fully funded project which is designed to enhance connectivity across Africa and the Middle East

between East Africa and Europe. The 2Africa parties and Airtel have signed an agreement with Telecom Egypt to provide a completely new crossing linking the Red Sea and the Mediterranean, the first in over a decade. This includes new cable landing stations and deployment of next-generation fibre on two new, diverse terrestrial routes parallel to the Suez Canal from Ras Ghareb to Port Said, and a new subsea link that will provide a third path between Ras Ghareb and Suez.

Furthermore, the cable will implement a new technology, SDM1 from ASN, allowing deployment of up to 16 fibre pairs instead of the eight fibre pairs supported by older technologies, bringing much greater and more cost-effective capacity.

The cable will incorporate optical switching technology to enable flexible management of bandwidth. Cable burial depth has also been increased by 50% compared to older systems, and cable routing will avoid locations of known subsea disturbance, all helping to ensure the highest levels of availability.

“MTN GlobalConnect is delighted to participate in this bold 2Africa subsea cable project,” said Frédéric Schepens, CEO of MTN Group’s wholesale operation, MTN GlobalConnect.

This initiative complements MTN GlobalConnect’s terrestrial fibre strategy to connect African countries to each other and to the rest of the world. We are proud to be playing a key role in providing

the benefits of a modern connected life – a core MTN belief.”

Alioune Ndiaye, CEO of Orange Middle East and Africa, added: “As one of the world’s leading multi-service telecommunications operators and present in 18 countries in Africa and the Middle East, it was natural for Orange to be part of the 2Africa project. This major investment will complete our existing submarine and pan-African terrestrial infrastructures to provide access to international connectivity in a redundant fashion throughout the west coast of Africa. It will enable Orange to securely meet the demand for increased bandwidth necessary for the continued digital development of regions throughout the 2Africa system.”

Angola Cables reports major growth

Telecom multinational Angola Cables recorded a 170% growth in traffic on its IP Network in the first quarter of 2020 when compared to the same period last year, the company said.

Despite a significant portion of this growth being attributed to the surge in demand following the lockdown regulations imposed by many governments in curbing the spread of Covid-19, additional traffic has also resulted from the opening and upgrading of points of presence in the main global traffic exchange locations in recent months said Angola Cables, CEO, António Nunes.

The company said that new activations, the expansion of services and more requests for burstable solutions and IP Flex options by customers had also driven traffic growth.

Earlier this year, two new points of presence (PoP) were introduced in Brazil to boost connectivity between networks and digital ecosystems within Latin American. With access to NAP of the Americas (also known as M11) - the world’s largest interconnected network point gives customers greater access to cloud based and other

connected services across Latin America and the rest of the world. Nunes said, “the addition of more access points to our network, gives us wider market coverage and better content aggregation that can be delivered to our partners and customers at lower latencies”.

Outages experienced on the WACS and SAT-3 undersea cables that connect Africa to Europe negatively impacted internet connectivity, but Angola Cables said it was “ready to accommodate ISPs and other entities” by re-routing traffic and providing capacity on

its SACS cable connection. Nunes said that such incidents served to underline the importance of service providers having adequate redundancy and continuity measures in place to minimise the impact of such outages and the reduction in service capabilities to the end customer.

“From our perspective we have long anticipated the growth in demand for capacity and data in the growing digital economy and have geared our cable network to meet the challenges associated with our digitally connected future,” added Nunes.

GSMA creates Africa and Asia digital inclusion fund

Mobile industry group GSMA has launched the Innovation Fund for Mobile Internet Adoption and Digital Inclusion, designed to increase mobile internet adoption and usage among those who have coverage but are not using it in Africa and Asia.

It is supported by the UK Department for International Development (DFID), the Federal Ministry for Economic Cooperation and Development (BMZ) in Germany, the GSMA and its members.

The rationale behind the creation of the fund is to find innovative ways to solve the usage gap for the digitally excluded in the world's two largest continents. Mobile operators have invested almost \$USD1tn in network infrastructure over the past five years, bringing mobile internet coverage to 91 percent of the world's population, but 3.3 billion of the 7.1 billion people covered are not currently using mobile internet services, said the GSMA.

Innovations include those designed to improve the accessibility, usability and affordability of handsets and mobile internet services for citizens who are unable to access them as well as those focusing on improving basic digital skills and confidence to access and use mobile internet. The safety and security of individuals regarding the use of mobile internet is another prime objective.

The GSMA added that the fund will support startups or small to medium enterprises (SMEs) with innovative new products, services or business models which can address key barriers to mobile internet adoption and use, driving digital inclusion for those currently digitally excluded, including women.



'Blocking of phone calls a growing problem'

Call blocking by South Africa's biggest network operators is negatively impacting many local telecoms customers who are finding they cannot always successfully complete phone calls.

That is the view of Anthony Engelbrecht, technical director at independent telco, Huga Networks, who said that some clients of SA's many Voice over Internet Protocol (VoIP) telecoms networks such as Huga Networks, Connection Telecoms and dozens of others are increasingly finding that calls they place are not reaching the intended telecoms user.

"The incumbent telecoms operators seem to be pulling out all the stops to fight back against consumer choice. On an operational level, this is leading to billing disputes where excellent and mutually-beneficial relationships have existed in the recent past," Engelbrecht said. "Enormous profits can be made when an operator knowingly or unknowingly bills a locally-originating call at the inflated international interconnection rate simply because it has some



hallmarks of being placed or journeying outside our borders."

According to Rob Lith of Connection Telecom: "Call blocking related to international call termination rate disputes involves potentially hundreds or thousands of blocked numbers impacting millions of telecoms users. The timing is especially bad. First loadshedding prevents South Africa's underperforming economy from gathering steam and now the country's big telecoms networks are thwarting economic activity by preventing people from reaching each other."

SA's VoIP operators are in full agreement of the need to present accurate originating call details. However, there are innumerable instances where international calls are received on a local PBX system and then immediately diverted to a SA mobile phone. The relevant regulations require that the original international Caller Line Identity (CLI) details are preserved as the call is routed from overseas to the local mobile number. This means the forwarded call is charged at international termination rates by the relevant SA mobile operator.

Radwin partners with Mobax to deploy broadband solutions across SA

Radwin, the global wireless broadband provider, has signed a partnership agreement with Mobax, a telecom and technology company in South Africa, which will see the latter offer the former's portfolio of point-to-multipoint and point-to-point fixed wireless broadband solutions to its base of telecom network operators and corporate clients.

"Radwin has an exciting portfolio with unrivalled reliability and speeds that will enable us to implement fiber-like broadband connectivity to deliver

high-value services to our extensive customer-base," said Gerhard Bezuidenhout, managing director of Mobax. He also stated, "This partnership leverages upon RADWIN's wireless broadband technology and the professionalism and high-quality engineering capabilities of Mobax to deliver advanced fixed wireless solutions to existing network operators and corporate clients as well as new potential customers."

Peter Turvey, general manager, Middle East and South and east

Africa added: "We are proud to partner with Mobax who are known throughout the country for their professionalism and expertise in the telecommunications market. This partnership will amplify the reach of RADWIN's beamforming technology to deliver an excellent combination of high-capacity connectivity and robust performance in tough outdoor and non-line-of-sight conditions, while supporting the goals and objectives of Mobax to provide high value services."

MTN wants 16 million on Ayoba service

Mobile operator MTN's own instant messaging app has already attracted two million users since its launch a-year-ago.

Ayoba is a communications app localised for African and Middle East consumer needs, under an independent Over the Top (OTT) brand with tailored features for MTN customers.

It has been integrated into 12 MTN markets including South Africa, and supports many local languages spoken across these markets including isiZulu, isiXhosa, Pidgin, Yoruba, Swahili, Hausa, French and English.

Speaking at the group's annual results presentation, outgoing MTN group president and chief executive officer,

Rob Shuter said that the group aims to have 16 million users before the end of the year. He said that through the app, MTN wants to create an ecosystem for users, "a super-app for Africa".

He said that the next step for the app would be the introduction of money transfers, with users being able to make and receive payments.

Airtel Africa signs deal with UNICEF



Airtel Africa has partnered with UNICEF to provide children with access to remote learning and enable access to cash assistance for their families via mobile cash transfers. Under the terms of the deal, both partners will use mobile technology to benefit an estimated 133 million school age children currently affected by school closures in 13 countries across sub-Saharan Africa during the Covid-19 pandemic. UNICEF and Airtel Africa's partnership aims to benefit children and families in 13 countries in sub-Saharan Africa.

Angola makes sat switch



Angola has withdrawn construction of the Angosat-2 from Rocket and Space Corporation (RSC) Energia and entrusted it to the ISS-Reshetnev Company. The change was made at the request of the Angolan government and the creation of the satellite should be completed by the end of 2021. The Angosat-2 satellite is Russia's compensation to Angola for the Angosat-1 satellite, worth \$327.6m, lost in space after its launch in 2017.

MasterCard's EYWA service



MasterCard has partnered with NMB Bank in Tanzania to launch a digital platform EYWA Transit Solution that will enable commuters to pay for fares electronically while booking transportation online. The service comes as a service card and a mobile application and will enable commuters to scan their cards and track the arrival of transport. It will also enable commuter to pre-pay for their fares. In addition, EYWA will offer transport companies digitised payment records which in turn will enable them to secure credit facilities.



Talking satellite

Terminal installation, qualification & testing in the field

As I write this column, more than 120 of the world's nations are experiencing the spread of the Coronavirus. To state the obvious, this public health emergency is impacting on all facets of life as well, of course, as very sadly causing so many deaths. There is evident a certain underlying irony in the consequent cancellation or postponement of trade events in the field of telecommunications. In February, MWC 2020 (Barcelona, Spain) – the Mobile World Congress – was cancelled. In March, CABSAT 2020 (Dubai, United Arab Emirates) – the Middle East & Africa's leading event for content creation, production & broadcast and satellite & distribution, and within which was to be embedded the GVF SATEXPO Summit 2020 – was postponed, now to take place at the end of October. If space permitted, this list would be much longer.

Despite all that telecommunications technologies (satellite, fixed and mobile terrestrial/wireless, cable/fibre) have facilitated in the creation of platforms to bring people together through exchange of data, over social media, via voice and video connectivity – therefore without the necessity of physical travel and face-to-face contact – the organisations that continue to deliver innovative advances on such solutions still attach a lot of significance to the traction to be achieved through personal interaction in exhibition halls and dialogue in conference rooms. My various work travels are testament to this.

The subject of conference calling or video conferencing, particularly over Internet Protocol – which has stimulated development of low-cost applications for multi-location and remote site personnel online gatherings – obviously points up the role of satellite solutions as those best suited to serve coverage of remote areas, both in terms of dedicated satellite network links, and in terms of the contribution of satellite to facilitating mobile/cellular networks through backhaul.

Satellite solutions serve everywhere, but, by definition, implicit in ubiquity and coverage of the remote is the need for some Earth stations/terminals – the ground segment – to be equally isolated and remote. This then introduces the related questions of the installation of type approved terminal equipment/antennas.

A long-term core feature of GVF's mission has been the development of a

consensus-based framework to improve the efficiency of satellite operators' terminals type-approval procedures. To achieve this objective, the GVF Mutual Recognition Arrangement Working Group created procedures – now internationally recognised – defining a set of standard tests that an antenna or Earth station/terminal manufacturer should perform in order to apply for type approval from any satellite operator. Use of this procedure not only improves the quality and completeness of test data but helps reduce the time and cost required to bring new ground-segment technology to the market, thus advancing the competitiveness and enhancing the reliability of satellite communications services – reducing the factors that cause interference to primary and adjacent satellite services.

The GVF test procedures – in qualifying the performance of antennas/Earth stations/terminals leading to formal type approval by a satellite operator – enables manufacturers to supply antennas/Earth station/terminal equipment without the need for testing each terminal before it is deployed.

Working within this framework a group of satellite operators – AsiaSat, Eutelsat, Inmarsat, Intelsat and SES – have collaborated to develop updated guidance to antenna manufacturers regarding satellite operator expectations for new products, and how to demonstrate compliance with the Satellite Operator Minimum Antenna Performance specification requirements (SOMAP), which came into force in September 2019.

SOMAP was started to improve the Quality of Service (QoS) worldwide for the industry and to minimise interference. Quality products, compliant with satellite operator specifications, provide manufacturers with a valuable tool to differentiate their products. It does not replace the formal type approval procedures for each of the satellite operators, but rather establishes minimum performance that each of the operators expect when deploying equipment which has not been formally type approved.

Whilst the CABSAT-embedded GVF SATEXPO Summit has been postponed, the SATELLITE 2020 show in Washington DC did go ahead, albeit with substantially reduced attendance and a cut-short agenda as a result of Coronavirus concerns. GVF member QuadSAT was present at SATELLITE 2020, located in the exhibition's 'Start-Up' Pavilion. I mention QuadSAT specifically because they serve to illustrate two currently ongoing GVF initiatives/programmes (to

which I shall return below), as well as providing an example of a further facet to conducting on-site antenna/Earth station/terminal verification, and also bringing an additional technique, or tool, for ensuring the accuracy of installations – using Unmanned Aerial Systems (UAS) or drones. The technology offers new ways to characterise the performance of ground terminals that have not been available to industry before, with accurate performance data being acquired for VSAT terminals in their deployed locations. Satellite operators have acknowledged the innovation as a valuable alternative to the traditional methods of testing.

Moreover, and returning to the ongoing GVF programme to which I referred above, the European Space Agency has recognised the potential value of this technology and awarded QuadSAT a contract to continue development and validation of the technology – with support from GVF as a contract partner, and with reference to SOMAP.

The UAS or drone equipment (actually a quadcopter) can easily be transported to any test antenna location where it functions as a portable test range providing high-precision antenna pattern measurements. It can be flown freely around the antenna under test at various far field distances and at various test angles, providing a flexible, cost-efficient method to verify antenna performance globally. This system allows for testing and verification of already operational antennas, without interrupting their services. The SOMAP recommendations will be used to compare performance data acquired by drone measurements with comparable test data acquired from a traditional far-field outdoor test range.

The ongoing GVF initiative to which I referred above is new. The example I cited of a start-up company is just one of many new entrepreneur-driven commercial enterprises, and academic spin-offs, comprising what is often called Space 2.0. To meet the needs of these enterprises GVF has introduced a new Membership grouping, extending the benefits of membership to such start-ups on especially favourable terms. Companies meeting the eligibility requirements for "NewSpace Membership" will be provided with Associate Membership and its benefits, at nil cost, for a period of one year provided there is a commitment to convert to paying the Associate Membership fee afterwards.



Martin Jarrold, chief of international programme development, GVF



ATU's call to arms

Telecom regulators in Africa are being urged to come together to respond to the overwhelming spread of coronavirus across the continent. The unprecedented call to arms has been made by the African Telecommunications Union

African Telecommunications Union calls for harmonised action by telecommunications regulators and operators in Africa to combat coronavirus pandemic.

Regulators should implement the common alerting protocol (CAP) to enable authorities to effectively prevent and mitigate the spread of Covid-19.

The African Telecommunications Union (ATU), a specialised agency of the African Union in the field of telecommunications, has put together a set of guidelines to assist in combating the Coronavirus disease (COVID-19) pandemic, that every member state should consider.

Africa has so far recorded relatively few coronavirus cases compared to the rest of the world. Twenty-seven African countries have recorded over 357 coronavirus cases, according to the World Health Organization on Thursday 19th March 2020. Egypt leads in cumulated confirmed cases at 196, South Africa 116, Algeria 72, Morocco 49, and Senegal 36. Other countries with over ten cases include Tunisia, Burkina Faso, D.R. Congo, Rwanda and Cameroon.

However, heads of states and governments across the continent are taking no chances as they race to stop the spread of the virus by sensitising their citizens about the pandemic and the various ways to combat the disease.

Globally, telecoms/ICTs have become a pillar in the prevention, preparedness and response to the Covid-19 pandemic.

The ATU, through the secretary-general, Mr John Omo, is urging the ministries of ICT, through the telecommunications regulators and operators in the member states, to consider

implementing the following recommendations/guidelines to fight COVID-19 pandemic:

1. Activation of the common alerting protocol (CAP)

Regulators should implement the common alerting protocol (CAP) to enable authorities to effectively prevent and mitigate the spread of Covid-19. The CAP involves the use of multiple modes of communication to educate members of the public including vulnerable groups about the disease as well as the preventive measures. The CAP will make it possible for members of the public to receive CAP-originated information in many ways, such as through mobile and landline telephones, Internet (e-mail, Google, Facebook, Twitter, WhatsApp, smartphone apps, online advertising, Internet of Things (IoT) devices, in-home smart speakers, etc.), sirens (in-building or outdoor), broadcast radio and television, cable television, emergency radio, amateur radio, satellite direct broadcast, and digital signage networks (highway signs, billboards, automobile and rail traffic control), among others.

2. Collaborative practical measures

Regulators should adopt the following:

(a) Network Capacity

Fixed and mobile telephony providers should reserve some dedicated network capacity which should be made available free of charge to the authorities handling Covid-19.

(b) Emergency Numbers

Fixed and mobile telephony providers should implement and enable the emergency numbers, for example 119, for voice

messaging and promote short message service (SMS) as an alternative to telephony communications during this period. Emergency agencies – such as police, ministries of health and hospitals should adequately size their network capacity, e.g. lines and access trunks, to offer an efficient service when call demand is high. Also, telecommunication providers and amateur radio operators need to perform periodic emergency drills together. The public should adequately be informed of the availability of the service free of charge.

(c) Guidelines for action during emergencies
Calls to emergency numbers should be free. Local and long-distance backbone providers must have redundancy networks to handle traffic from other providers that experience difficulties. Broadcasters should support communication and messaging strategies to the public in coordination with all the other agencies that are involved.

(d) Amateur radio operators and simplification of type-approval processes

Radio amateurs are community based and should be involved in the information dissemination mitigation processes for Covid-19. Any type-approval acceptance could be waived during the period of emergency for equipment to be used by amateur radio operators or those processes simplified in order to gain time, for example, not subjecting such equipment to taxation at all. Regulatory authorities should recognize foreign type approvals to expedite the process and rely on the guidelines of the ITU Telecommunication Standardization Sector (ITU-T).

3. Streamlined regulation processes

Rapid response in the wake of a disaster is critical. Consequently, regulators should streamline the process to allow telecom/ICT services to be available as soon as possible. The following strategies should be considered by regulators:

(a) Telecom/ICT services licensing

As the continents fight the Covid-19 pandemic, the telecom/ICT regulatory authority should urgently grant telecom/ICT service licenses necessary to support emergency telecom/ICT efforts. Therefore, exceptional expedited licensing procedures should be in place, free of charge, for use. These licenses should be temporary and valid only during this period of emergency response and recovery until the government has determined that there is no further need for the service being provided.

(b) Frequency allocation

Frequency planning and allocation are critical at this time for mitigation, preparedness, response and recovery. Governments should make the necessary spectrum available on a national basis to allow for multiple types of applications and services, from narrowband voice services up to broadband-intensive applications. A combination of spectrum bands should be available free of charge for emergency communications, allowing both terrestrial and satellite systems to be quickly

deployed with limited interference.

(c) Priority call routing

During such times, networks could fail to provide service for different reasons, one of them being overload thus delaying or altogether preventing critical communication. Regulators should establish priority call routing on both mobile and fixed networks for people engaged in Covid-19 response as well as other entities and institutions involved in such activities.

(d) Network redundancy

Network redundancy is a critical element of a robust network that will minimise telecom/ICT outages during this period. Disaster networks need to consider redundancy and resilience in their design, as well as increase the number of terminals. Regulators need to ensure that telecom/ICT providers have networks with adequate redundancy and multiple connectivity options for the authorities involved in combating Covid-19.

(e) Importing telecom/ICT equipment

Major delays during the importation of telecom/ICT critical equipment have a negative impact on the response time to a disaster, and even impact the likely loss of lives. Delays can occur for several reasons, including duties or tariffs, restrictions based on local standards, extensive paperwork, disorganized processes, etc. Rules should be in place to expedite the

importation process of critical telecom/ICT equipment that might be used for response and recovery: e.g. exemptions from duties and tariffs, clear expedited processes and streamlined paperwork. In addition, once the equipment needs to be returned to the place of origin, expedited processes should be in place to help streamline the return process.

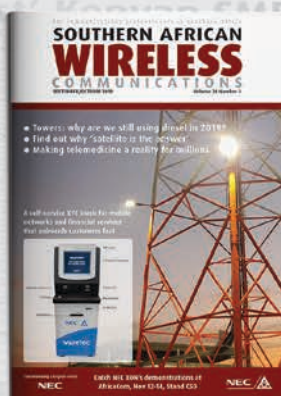
4. Multi-stakeholder collaboration

There should be coordinated efforts during this period and clearly defined functions for different government institutions, e.g. ministries of foreign affairs, ICT and communications, customs, regulatory agencies and first responders such as hospitals among others. Also, there should be a collaboration with the private sector, including telecom/ICT operators, private networks, and amateur radio among others to give support and insights to the government on the collection of data and dissemination of information to the public. Regulators should, therefore, carry out a set of activities and procedures to connect all actors in the ecosystem at the local, national and international levels and ensure effective flow of information as the continent fights Covid-19. ■

Distributed by APO Group on behalf of African Telecommunications Union (ATU).

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Airtel Africa sales boost as more sign up for phone services

Airtel Africa posted revenue and profit growth for the full year, as more customers signed up for its mobile and data services and on stronger activity in its biggest market Nigeria.

The company went public last year with a London listing and has benefited from a steady demand in emerging markets, while some of its European peers have been teaming-up to navigate challenges posed by saturated markets.

Revenue for the year-ended March rose 11.2% to US\$3.42bn, boosted by a 24.1% rise in revenue from Nigeria. The country accounts for 40% of the company's overall revenue.

Airtel Africa's data services, which reported

a 36.1% sales growth, have benefitted from increased traffic as consumers seek entertainment during the current stay-at-home orders to curb the spread of the new coronavirus, the company said.

"In Africa, the spread of COVID-19 has lagged the rest of the world and, therefore, it is difficult to precisely forecast what the impact of this will be on customers and business," said chief executive officer Raghunath Mandava. However, our performance during the month of April has been resilient."

Annual pre-tax profit jumped 71.7% to \$598m at Airtel Africa, a unit of India's Bharti Airtel.

Airtel Seychelles donates R1m to MoH to fight against Covid-19

Airtel Seychelles has donated R1 to the Ministry of Health towards the fight against Covid-19.

The assistance will allow the Ministry of Health to allocate support and resources to health workers who are on the frontline in the battle against the global pandemic.

"Today, we announce our support for Seychelles' COVID-19 response through the donation of R1m, primarily focused on supporting our frontline health workers. Now more than ever, we all need to apply our capabilities to the needs of nurses, doctors, midwives and community health workers," said managing director of Airtel Seychelles, Amadou Dina. "At this moment of crisis, no country can cope with what they need alone. The private sector needs to mobilise resources, alongside national governments, to fight the pandemic."

Since the beginning of the pandemic in Seychelles, Airtel has provided other assistance to the Ministry of Health to ensure that the ministry has all the necessary tools to cope with the pandemic. These include three

home broadband devices with 100GB data allowance to the Ministry of Health office and other beneficiaries – from March 2020 to June 2020, 10 handsets with local calls for the team at the Ministry of Health to trace potential suspected cases of Covid-19. There is also a toll free line (141) which is run together with the Ministry of Health.

It also launched the Airtel Online payment platform and Airtel Care App to allow its customers to make payments for Airtel services, anytime and anywhere without the need to visit the company's customer care centres, thereby limiting social interaction.

Helios acquires 65 new sites

Helios Towers, through its South African subsidiary HTSA Towers, has announced plans to acquire 65 telecom sites from Eagle Towers SA in South Africa's Western Cape.

Kash Pandya, president and chief executive officer of Helios Towers, says the upcoming strengthening of the business in South Africa is justified by its strategic nature.

"We are keen to leverage our expertise in pylon infrastructure to grow there, both organically and through acquisitions," he said. "With the new telecom sites, the majority of

which are used by South African mobile network operators, Helios Towers wants to develop its financial performance in the country."

Pandya added that the transaction is in line with the group's stated strategy of expanding its geographic footprint, adding new towers to the portfolio acquired and built in South Africa since the creation of HTSA in 2019.

The acquisition of the 65 telecom sites is expected to close in the second quarter of 2020. It is subject to various regulatory approvals. The value of the transaction has not been released.

MTN Group named as continent's most valuable

The report, compiled by Brand Finance, ranked MTN Group as the highest valued telecoms brand across the whole of Africa.

MTN Group is active in 21 markets across Africa and has more than 230 million subscribers. It also offers mobile money solutions.

"MTN is to be commended for its performance in its home market as well as further afield. They are increasingly recognised throughout Africa by their customers as providing high quality service, because their brand image is deeply rooted on more than just marketing campaigns," said Brand Finance CEO, David Haigh.

The report also noted a negative global impact on the brand value of the world's biggest telecom companies which are set to be impacted by the coronavirus outbreak. Rob Shuter MTN group president and CEO stated, "Amid these unprecedented times in fighting a global pandemic, MTN Group is humbled by the Brand Finance recognition and our progress in rising up through the ranks of this year's Telecoms 150 report," he said. "We have built a sound, robust and resilient organisation that can and will weather the storm before us. As a group, we are taking the decisive steps required to persevere in our MTN spirit of togetherness and a positive, can-do attitude."

Zimbabwe in talks to review data prices

The Zimbabwean government has entered into talks with mobile phone operators in a bid to reduce the price of data bundles so that people can engage in e-learning during the Covid-19 national lockdown period.

According to local reports, the government said education has been affected by the lockdown, as students are unable to go back to school so as to minimise the spread of the disease, prompting calls for the education sector to adopt e-learning. In addition, there have been concerns over high data prices in Zimbabwe, amid fears many students will be unable to take part in e-learning.

The data prices are within the approved Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) levels, but are beyond many ordinary citizens and students.

At the time of going to press, NetOne's cheapest bundle for Z\$8 is offering 3.8 MB per Z\$1, while the cheapest Econet bundle stands at 3.64 MB per Z\$1.

Cell C to split some assets

South Africa's Cell C plans to hive off some assets into a new special purpose vehicle called Gatsby, according to the country's Competition Commission.

According to local reports, the operator, whose plans have been approved subject to conditions, is looking to restructure its balance sheet for the second time in about five years. It has sent a recapitalisation plan to the Competition Commission for approval but it was not clear if the creation of the new vehicle was part of the recapitalisation strategy.

Gatsby SPV has been set up for the sole purpose of entering into the proposed transaction, the Commission said in a statement. It did not give details about the deal or indicate which assets of Cell C, South Africa's third-biggest telecom operator, may be sold to Gatsby.

The watchdog said Gatsby SPV will be controlled by a trust that is yet to be formed.

As that may raise competition concerns, the Commission said it recommends that Gatsby SPV and/or the trust will not be owned or controlled by companies that compete or may compete with Cell C or firms that have a customer-supplier relationship with Cell C.

"A recapitalisation is an important pillar of Cell C's turnaround strategy," said Cell C CEO Douglas Craigie Stevenson. "We are being diligent and thorough to ensure it is a transaction that meets all conditions and we continue to engage with all stakeholders. In our minds, it is not done and there is still work to do, but we are pleased with the progress to date."

Vodacom offers multiple IoT solutions to businesses

Vodacom is offering multiple internet of things (IoT) solutions for businesses as they re-open after weeks of Covid-19 lockdown.

More people are returning to work under relaxed Covid-19 regulations and the focus has shifted to safety in the workplace. Vodacom said it has the IoT solution to help comply with safety requirements.

"As many businesses start planning a return to work after lockdown, we must ensure we all play our part in limiting the spread of COVID-19. We want to support businesses by providing the tools necessary to not only improve health and safety, but also to comply with guidelines and regulations that have been set by the Presidency," said Peter Malebye, managing executive for IoT at Vodacom Business.

The operator says technology can play a critical role in helping businesses implement these back-to-work protocols through the use of IoT, artificial intelligence and analytics.

It added these solutions are designed to augment organisations' existing screening processes

and be guided by the analytics. They are delivered as a platform that can easily be integrated into existing infrastructure.

"These solutions have been designed to support the wide range of industries on the frontline of the nation's fight against the current pandemic, as well as those looking to prepare for when current restrictions are eased," added Malebye. "To enable use in different situations, the technology has been developed in different tiers to make it easily accessible and can be scaled as and when required."

Thermal cameras are among the items being offered by Vodacom.



Angola picks Africell as fourth telecoms operator

Angola handed the licence for its fourth telecoms network to Lebanese giant Africell, as sub-Saharan Africa's second-biggest oil producer continues to open other economic sectors to foreign competition.

The south-western nation had awarded the licence last year to a domestic start-up called Telstar but president João Lourenço annulled the decision, saying the company failed to meet the bidding requirements.

Africell is already present in four African

countries -- Gambia, Democratic Republic of Congo, Sierra Leone and Uganda.

Angola's mobile phone market, with almost 14 million users, is currently dominated by two privately held companies -- Unitel and Movitel. A third operator, Angola Telecom, offers fixed and internet access but currently has no mobile services.

Isabel dos Santos, daughter of former president Jose Eduardo dos Santos, owns half of Unitel's share capital. She was recently indicted for a host of high-level financial crimes.

Tanzania trio secure tender

Telecommunications Corporation, Halotel and Vodacom Tanzania, have signed a memorandum of understanding (MoU) with the Universal Communication Access Service Fund (UCSAF) to install towers in the Urambo District in Tabora Region.

They won a tender to serve 12 villages in four wards of Urambo District, Works, transport and communication minister Eng Isack Kamwelwe announced in the parliament.

In his written repose to Urambo MP Margaret Sitta (CCM), he said the firms signed an implementation contract with the state-owned communication fund on January 24, 2020.

Vodacom Tanzania will install a telecom tower in two wards of Kasisi and Ukondamoyo embracing Azimio, Kasisi, Mapambano, Wema, Ifuta, Kamalendi, Tumaini and Ukondamoyo villages.

According to the minister, Telecommunications Corporation will supply telecom signals in Ugalla Ward that includes Issongwa, Izengabatogilwe and Ugalla villages, while Halotel will channel its energy to Vumilia Ward that has only one village-Vumilia.

Eng Kamwelwe told the National Assembly that despite government efforts to improve access and coverage of telecommunication services across the country that some areas of Urambo District had challenges of communication signals.

Airtel Malawi's new products

Airtel Malawi has introduced two new products to consumer, called 'My Airtel Cell App' and 'Katswiri Neighbourhood Champion'.

They were announced during a live Facebook party for over 7,000 of its customers. There were over 1,000 downloads of the My Airtel Cell App in a single day and a free 2 GB bundle was given to 350 people who shared the "watch celebration" with more than 10 of their contacts.

Airtel Malawi managing director Charles Kamoto said the aim was to interact with the 270,000 followers of its Facebook page.

"The Airtel Live Party was our way of leveraging digital technology and revolutionising the way we engage and interact with our customers," he added.

The Airtel Reside Occasion showed head of information and units Masiye Mazaza and host Pleasure Nathu, who presented the products and ran a Q&A session for the audience.

Airtel Malawi, an offshoot of Airtel Africa -- the latter a subsidiary of India's Bharti Airtel -- is the country's market leader with a market share of approximately 72%.



Connecting the African continent

Chris Mason, vice president of sales and marketing for EMEA at Rajant Corporation, discusses how the wireless communications market will adapt and evolve and the challenges Africa will face over the next 12 months

Rajant has been consolidating its position as a key supplier of wireless systems to the mining industry in sub-Saharan Africa. For around 10 years, there have been increasing deployments in major open-pit mines, where users have experienced the resilience and reliability of Rajant's Kinetic Mesh Networks at the heart of operations.

One of the significant developments in the last 12 months is a move towards deployment in underground mines. Wireless networks in an underground environment have historically been achieved by the use of radiating cables, or "leaky feeders", co-axial cables with gaps in the insulation that allows some of the RF signal to "leak" out of the cable and allow communications.

Due to the "leakage" of signal, line amplifiers are required to be inserted at regular intervals, typically every 350 to 500 metres, to boost the signal back up to acceptable levels. There are some limitations to leaky feeder systems. If something severs the cable, communications stop beyond the break. Another problem is that multiple leaky feeder cables can sometimes cause interference within the system. Finally, the range from the cable is limited to around 100 meters.

Working with one of our technology partners in South Africa, Poynting Antennas, Rajant has helped with the development of some advanced wireless antennas. These antennas have transformed the ability to send and receive wireless signals in a tunnel and have achieved reliable distances of up to 1 km in an underground environment.

Along with the flexibility of deployment, this means the underground mines can enjoy the same kind of connectivity open-pit mines have enjoyed for years.

With the dominance of mining as the user of critical industrial wireless systems, this can be said to be influencing the industry regarding industrial wireless applications. Fleet automation and optimisation in the mining industry continue to drive the requirement for wireless networks that can support the key requirements of resilience and extremely low latency that characterise remote operation or automation systems.

Africa is a prime target for the manufacturers of cellular mobile networking equipment. It's no secret that unlike most of Europe, Africa is poorly served by landline infrastructure, so the operators have, for several years, focused on bringing these services to market in metropolitan areas. They are now viewing the rural areas as key growth markets.

The last five years have seen Africa experience the fastest telecoms growth worldwide, which has transformed fundamental aspects of social and business life. Mobile subscriber growth remains the fastest in the world, positively impacting telecom



Africa is a prime target for the manufacturers of cellular mobile networking equipment

markets as well as African economies at large.

With such penetrations which have been seen and the development of possible new services based on 5G architecture, the operators have increasingly sought to expand their services on both public and private networks into less consumer or voice-based services, for data and commercial uses. The last 12 months have seen energetic efforts from particularly Chinese manufacturers to secure network deployments in a number of geographies in Sub-Saharan Africa where their significant existing investments in infrastructure demonstrate their focus on this geography.

It remains to be seen whether the cellular communications systems, such as LTE and the potential 5G services, can perform well in industrial environments such as mines or ports that require 100% connectivity, symmetric upload and download bandwidth, and ultra-low latency. Further, from an operational perspective, if it's not a private network solution, not owning the industrial network infrastructure means that access to make changes and ensure maintenance is performed at operationally appropriate times can be more problematic. Finally, there's also the question of full-life economics once the initially discounted tariffs are applied in full.

Still, there are more challenges facing Africa in the next 12 months. The continent's

GDP growth, estimated at 3.4% for 2019, was projected to accelerate to 3.9% in 2020 and to 4.1% in 2021. Leading the way are six economies among the world's 10 fastest growers: Rwanda, Ethiopia, Côte d'Ivoire, Ghana, Tanzania, and Benin.

This projected growth, however, was not to be driven by the continent's big five countries —Algeria, Egypt, Morocco, Nigeria and South Africa, which jointly grew at an average rate of 3.1%, compared with the average of 4.0% for the rest of the continent. Growth had been forecast to pick up to 3.9% in 2020 and 4.1% in 2021.

One of the world's key markets for natural resources, China, has been at the epi-centre of the COVID-19 virus' effects, with a tangible impact on its economic consumption of the raw materials from mining operations. The oil industry on which Nigeria has significant dependencies is suffering from a perfect storm of increased output, and massively reduced

consumption as global transport is reduced.

A slowdown in the No. 2 economy and a 5% drop in oil prices over one year could mean \$4 billion in lost export revenue for sub-Saharan Africa, or the equivalent to 0.3% of its gross domestic product - more than any other continent outside of Asia, according to a study by the Overseas Development Institute.

However, at the time of writing, the world is suffering the effects of the coronavirus; the social and economic effects of which cannot yet be quantified. From an African domestic perspective, it appears that as of the end of March 2020, infections do not thankfully appear to have accelerated again to the levels seen in China, Europe, and the United States. How this will play out is unpredictable.

Rajant has a strategy in Africa to build out from incredibly successful activities in open-pit mining into, as previously identified, underground mining. Beyond that, ports logistics and public safety/municipality use are key target markets.

Despite the challenges faced by all organisations, Rajant sees the next 12 months as a growth opportunity. As nations and organisations adapt to new working practices, people need to be taken out of the equation. Doing more with less people, will see automation and remote operation systems accelerate, along with the associated requirement for resilient, flexible, and easily deployable wireless networks.

We plan to continue our historical growth by ensuring our existing customers receive the latest technologies and by expanding into the growth countries identified previously: Rwanda, Ethiopia, Côte d'Ivoire, Ghana, Tanzania, and Benin. To do so, we'll be recruiting new personnel and partners to ensure we can provide global market-leading technology with a local presence.

Rajant enables companies and organisations to build private wireless networks that support the IIoT. We refer to those very networks as "Living Networks" because they thrive in dynamic network environments where everything in the network can move and evolve as connectivity demands change. With our Kinetic Mesh technology, network infrastructures can be built with the ruggedness, mobility, and autonomous application support required in today's demanding business environments. ■



Mobile Mark is a leading supplier of innovative, high performance antennas to wireless companies across the globe. We've been in the wireless industry for over 30 years and have our roots in the early Cellular trials. Today, we benefit from enhanced design capabilities and expanded production capacity – along with a greater understanding of new and emerging markets such as mining and exploration.

Modern mining operations rely on a battalion of vehicles, ranging from massive extraction vehicles to modest-sized material transport trucks. These vehicles operate in tough environments where high vibration is a frequent wear and tear challenge. Mining companies throughout Africa have relied on our rugged, foam-filled mobile antennas for consistent connections. Mobile Mark's infrastructure antennas have been used for rapid deployment and redundancy coverage for effective wireless coverage in isolated settings.

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For ‘smart cities’ to thrive on any continent, there’s a need to establish sustainable commerce models that facilitate the success of all ecosystem players. Four key industry players give us the latest on Africa’s journey

In your opinion, what makes a city ‘smart’?

David Sumi: “There is a difference between a smart city and a connected city. Smart cities, where systems self-monitor, take corrective action and notify authorities and citizens, require gigabit level connectivity as a start. What we see in the future are networks capable of supporting gigabits of traffic to address all the applications.”

Keith Matthews: “The smart city is more than just a concept. It’s a connected, agile and innovative city that uses IT and digital technology extensively to improve the quality of life of citizens and to boost the economic attractiveness and tourism potential for local authorities and companies. In the smart city, the search for innovation never stops, but it is the integration of services across the ecosystem that creates the real ‘smartness’. This could be anything from enhancing customer experience, to generating new revenue streams, or being more cost-efficient. Smart cities improve the lives of citizens and residents, through everything from mobility solutions to sustainable energy and smart grids. However, they are dependent on the free, frictionless and efficient flows of data – this is what really makes cities ‘smart’ – supported by embedding and integrating six key sophisticated technologies into the core of the city. However, smart cities should essentially be designed around human needs (human-centricity) and built on a foundation of trust.”

Why do African cities need to become faster and smarter when there are far more social and political problems to overcome?

Justin Farnell: “One of the key benefits to implementing a smart city solution are the productivity and operational cost savings that should come with it. South Africa is a prime example, where it’s much more a case of the mismanagement of resources, rather than the lack of. Many pressing issues, regarding medical treatment, education, transport, and safety can be radically improved through technical innovation. The recent outbreak of the Covid-19 virus and the ensuing lock down, whilst putting a huge strain on public services, is also a fantastic opportunity for cities to really embrace cloud tech. Remote working is nothing new, but innovations in fin and ed tech in particular, should now play a central part in connecting teachers online with their school pupils, business people with their customers,

Justin Farnell: “The city needs to have an integrated digital platform or ‘brain’ that can help manage all the key municipal departments (utilities, transport, tax, etc) and offer services to its citizens, through an easy to access online portal. Sounds great in theory, but much harder to deliver in practice!”

Murat Sahinoglu: “The term ‘smart city’ is increasingly used, and often implies a usage of information and communication technologies (ICT) solutions in the city. The smart city is framed by three dimensions: technology, people and community (we usually use businesses or environment). The smart city includes various smart functions like smart transport, smart healthcare and smart education. Today, the majority of the world’s population lives in cities, and urban concentration is accelerating. Such rapid urbanisation boosts the global influence of cities, elevating them above nations as significant incubators of innovation, enterprise and social progress. And this calls for development of smart and sustainable cities. As 4G/ 5G, Internet of Things (IoT) and big data technologies become widespread, potential for ICT to solve the problems of cities will grow immensely. A city can be smarter when it gets benefits from ICT

to enhance people’s lives, effectively manage and use natural resources and achieve a business growth from efficiency.”



Keith Matthews, country manager for SA & sales director, sub-Saharan Africa, Orange Business Services



David Sumi, VP of marketing, Siklu Communications

Smart cities



Justin Farnell, CEO and founder, WiFiontheMove



Murat Sahinoglu, head of solution area business support systems, Ericsson Middle East and Africa

smart utility and transport solutions: improving city lives and save the valuable resources.

Keith Matthews: “The growth of the mobile and especially the smartphone market creates new opportunities, allowing markets to respond to the demand for local data. Once the basics are laid

Are smart cities a solution to the booming urbanisation in the continent?

Justin Farnell: “There is no simple answer to addressing the mass

movement of people from the countryside to the cities. IoT and AI technology can certainly make a huge difference in measuring levels of water sanitation and air quality, whilst improving transport networks to make the city a healthier, safer and more productive place to live. One major area of contention for a gateway metropolis like Johannesburg is the large number of undocumented migrants that have moved there in the past 20 years. Lack of effective tax revenue collection and the consequent deterioration of public service delivery are at the heart of the city’s problems. The emergence of a digital ID may have it’s “big brother” opponents, but certainly, it’s going to be one of the big drivers for cities to effectively allocate resources and services to those citizens who need them most, and who are legally entitled to benefit.”

Murat Sahinoglu: “Cities are made up of a complex ecosystem of stakeholders. The key is to ensure governance structures, stakeholder groups, city departments, local government, public and private enterprises work together to drive the common smart-city agenda. Leadership structures must be capable of retaining the holistic, macro view of the city’s needs, and enable all projects to follow the common vision, integrating both ICT and environmental

improving school access and online education, smart roads and vehicles, improving efficiency by reducing traffic, giving first responders access to critical data anytime, anywhere, all of this draws people and companies to live there. It’s not investing in fancy gadgets, it’s investing in core infrastructure that will pay off in the future.”

David Sumi: “They are 100% part of the solution. The UN estimates that by 2050 68% of the world’s population will be living in a city, up from 55% today. Smart cities are going to be required to provide services in a cost effective and efficient mode to address this massive increase in population.”

Keith Matthews: “The growing challenge to smart city developers and the wider city ecosystem is the rapid increase of urbanisation driven by rising populations. Current global population growth means we will have an additional 2.5 billion people on the planet and an urbanisation rate of 70%, by 2050. There will be the inevitable increase in global energy demand – predicted to rise by 35% between 2008 and 2035. Our cities already account for around 80% of greenhouse gases, and water shortages are affecting around one-third of people worldwide, as we struggle to manage the challenge. Smart cities allow implementation of solutions and services that help to make daily life more adaptive and efficient, reduce or control traffic, manage energy, give better access to healthcare and so on.”

Many African countries suffer from lack of constant power supply. How do you navigate that?

Murat Sahinoglu: “I can answer this question from two different angles: how we can manage the power supply in a smarter way, and how we can reduce the power consumption. Cellular network connectivity combined with IOT applications can provide several solutions to get real time consumption data that will enable power companies to do power distribution balance, perform predictivities maintenance for the power outages, detect leakage. This can contribute significantly to improving power issues without big investment in building new power generators. IoT devices will mostly be powered with batteries, and 5G minimizes the energy consumption for IoT. 5G will not only increase the network capacity and

provide faster data speeds, but also will enable service providers provide fixed wireless access (FWA) capabilities to the market, to offer broadband services using a mobile battery-powered pocket router device.”

David Sumi: “Obviously reliable power is a milestone all countries are trying to achieve as a core foundation for growth. However, for those areas that are still working towards that goal, there are numerous solar and battery powered solutions available.”

Keith Matthews: “Having access to energy is indeed a prerequisite to allow telecom and IT infrastructures to work efficiently. At Orange Business Services, we are used to managing

large international networks and have put in place, where needed, power generators to take over in case of power supply failure.”

Justin Farnell: “Stability of power in Africa is a huge problem across the Continent. From a South African perspective, efforts to open up the market to independent power producers (IPP’s) is still in its infancy, but the city of Cape Town has made this a high profile objective to lessen its reliance on ESKOM. The adoption of renewable and sustainable energy solutions is obviously a prime strategy for any smart city. Energy-efficient municipal buildings, solar-powered street lighting, schools, and essential infrastructure will be needed for a sustainable carbon-neutral ecosystem.”

Which sectors would benefit most from smart cities?

Murat Sahinoglu: "Collaboration, digitalisation, automation, IoT and virtualisation are some key concepts that come with the continued development of ICT. Smart cities—be it smart grids, public safety or intelligent transportation—rely on these ICT concepts. Companies such as Ericsson help public safety and security authorities leverage the power of new technological solutions in order to transform and enhance the services they provide to their citizens and governments. Growing communication networks are laying the critical foundation for an upcoming innovation boom across Africa. The development of LTE and 5G digital infrastructure is an integral part of Africa's growing economy and has proved to be an essential driver of an inclusive

information society that integrates digitisation in all critical aspects of life, such as education, transport, health, energy and even homeland security."

Justin Farnell: "Transport, health & safety and SMEs."

Keith Matthews: "A smart city is a complex ecosystem with an array of vertical activities, including digital solutions to improve access to health, facilitate mobility, enhance security... all coordinated by the smart city integrated operations and security centre, providing safe city and digital living services and experiences. Every smart city is a unique network of integrated services that may grow and develop organically over time as

new use cases emerge and then evolve, supported by new bursts of innovation. The key to success is embedding intelligence, integrating sophisticated technologies including IoT and Artificial Intelligence (AI) to make use out of the massive amount of data generated across the smart city."

David Sumi: "Right off the bat cities with a communications backbone can provide video security, offer public Wi-Fi access, connection intersections and roads, and give police and firefighters connectivity to a gigabit network. From there with multi-gigabits available cities can continue to add new applications in the future on the wireless network they install today."

How could international standards support the growth of smart cities?

David Sumi: "The value in standards typically is that it increases the manufacturing volume of components, modules and systems on a mass scale as the entire (hopefully) industry follows guidelines. As standards for smart cities emerge, the same will happen here – rapid decline in cost and ease of operation."

Murat Sahinoglu: "The technology landscape is evolving rapidly, so it is important to develop a continuous ICT learning culture among the city's transformation drivers, sharing new developments and exploring emerging possibilities and approaches. Bodies such as the Smart Africa Alliance create

platforms to share best practices. There are many opportunities for smart solutions within cities. The challenge is to prioritize these options to three or four key focus areas and to then successfully deliver on them. Stakeholders need shared goals and a clear idea of how to achieve them."

Justin Farnell: "Certainly, in the areas of water and air quality, global standards could help. The rollout of 5G is well documented but it's expensive, so of even greater importance for Africa will be the FCC's ruling on the new WiFi 6GHz standard, since this will give a huge boost to cost-effective (unlicensed) wireless communication."

Keith Matthews: "Global cities are becoming the branded destinations and drivers of innovation and entrepreneurship, culture and talent hubs. The Global Talent Competitiveness Index highlights this by attributing the growing importance of cities to their greater flexibility, and adaptability to new trends and patterns. Cities are nimble economic units where policy can be changed faster, making them more attractive for talent, especially entrepreneurial talent. By making a city smart, the urban digital ecosystem will bring new opportunities for creation of new jobs and small businesses, and also for existing companies to develop their business – creating added value for urban populations."

What is your company doing now to help build smart cities?

Keith Matthews: "In the smart city, the search for innovation never stops but it is the integration of services across the ecosystem that creates the real 'smartness', whether this is to enhance customer experience, generate new revenue streams, or create new operating cost efficiencies. All smart services do one (or more) of three things - improve customer experience, lower operating costs, and generate revenues. A business case should be made for each service to determine the return on investment. As these are new concepts and services, it may not be clear beforehand what services should be prioritised or developed. This can create opportunities to co-innovate, a process where the developer and ICT partner brainstorm and develop a prospective catalogue of smart services and even bespoke services. Innovation doesn't happen in a vacuum or without collaboration and the developer and ICT partner need to collaborate to innovate; this is an essential component of the smart city which itself develops into an incubator of new solutions and applications. Smart cities developers need the trusted advisor who can help in guiding and developing the ICT master plan that articulates clearly how the technology could enable and contribute to building the required 'smartness' from day zero,

by developing a vision and strategy, infrastructure design guidelines, and building the blueprint for the ICT model. Then, it's the challenge of securing the partner who can manage the inter-connection between multiple service providers, handling the vendor management process for the ICT streams on top of setting up the right governance model for successful implementation. Innovation never stops in a smart city as new use cases and possibilities arise. Dubai's innovation leadership is influencing the entire region – we opened a new Middle East 'innovation hub' and regional business headquarters in Dubai Silicon Oasis (DSO), aimed at encouraging collaboration and innovation; the hub is also our regional centre of excellence for smart cities. Co-innovation programs are playing a leading role in meeting the demands of smart cities and supporting enterprise digital transformation by applying the essential 'intelligence' required through new IoT Apps and solutions."

Murat Sahinoglu: "Connectivity is a critical enabler of social and economic change. Its dynamism constantly offers us new ways to overcome both global and regional development challenges. If leveraged for good, the introduction of 5G and

expansion of LTE networks across Africa can accelerate this process exponentially. As we continue toward a more urbanised world and the impacts of climate change grow progressively dire, the need for sustainable technologies which support the SDGs will become truly paramount. It's still early, but the use cases which we have been deploying across the continent are already delivering on their potential. Together with UN-Habitat, we are exploring visualisation technologies that have the potential to revolutionise how we approach urban design. This new visually realistic blending of reality with virtual imagination can create a more intuitive space for planners, architects, residents and other stakeholders to experience and re-imagine future environments. In Rwanda, the Ericsson Weather Data initiative is a new innovative solution which helps in measurement of rainfall in real time utilising signal disturbances in microwave links used as backhaul in cellular networks. As 2/3 of the adult population in Africa is unbanked, and Fintech has a real meaning and value add to the societies in Africa. The Ericsson Converged Wallet m-commerce solution is a new innovation which contributes to a more open, easy and accessible mobile money network in Africa. Since its inception in Africa in 2010, the Connect to Learn program has been leveraging the



power of mobility, broadband and cloud solutions to enhance the quality and access to teaching and learning resources in a safe, cost effective, and user-friendly way. Together with the Whitaker Peace and Development Initiative (WPDI), Ericsson provides ICT equipment, training and connectivity to young victims of conflict in South Sudan and northern Uganda. We joined the Millennium Villages Project (MVP) as a technology partner in 2007 and committed to support the MVP along with our partners by bringing voice and internet

communications to approximately 500,000 people living in the village clusters, with the intention of improving social and economic conditions.”

Justin Farnell: “I’m focusing on WiFi enabling the major metro commuter buses, intercity coaches and trains in the southern African region.”

David Sumi: “We have over 250 cities worldwide using Siklu gear to connect. We continue to innovate and are working closely

with the smart pole industry to build these wireless networks directly into light poles. We are also a key member of the Terragraph program launched by Facebook. Terragraph is an excellent example of a new industry consortium that centres around a standard that all vendors who join will use. This will yield more powerful systems that are all interoperable and will bring down prices. Indeed, there is an entire work group in Terragraph dedicated to smart cities.”

Is there any red tape making it difficult to create smart cities in Africa?

Murat Sahinoglu: “As we look ahead, it’s clear that Africa shows significant promise by way of economic, technological and infrastructural growth over the coming years. Yet, there are still many challenges we must overcome if we are to deliver real sustainable change for all. While there are parts of the continent on the cusp of 5G roll-out, there remains other parts where 3G and 4G are still in infancy. More than just a business opportunity, digitalization is fundamental to achieving all 17 of the Sustainable Development Goals

(SDGs) set by UN and a powerful way to make a positive impact on society. To truly leverage the full potential which this offers, it’s important we reach out to all stakeholders across government, and public and private enterprise. This is how we make positive, sustainable impact in areas such as climate change, education, human rights and humanitarian response.”

Keith Matthews: “Every country has its own regulations; there is no general answer for Africa.”

Justin Farnell: “Competing national and local government agendas are a constant obstacle. In terms of legislation, I’m not an expert in this field, but from an SA perspective, the opening up of more GSM spectrum is the most pressing legislative issue, to enable the rollout of 5G in the cities, and bring the cost of mobile data right down.”

David Sumi: “Primarily working with regulators as noted above. No one is preventing the release of these frequencies, it just takes time.”

Which African nations are leading the way and which ones do you see struggling to keep apace?

David Sumi: “Where we see the most activity is in South Africa and Nigeria. For us operating in the 60 and 70/80GHz bands, we often times have to work with regulators to allow operation. These frequencies are somewhat new to many countries so we help them understand how mmWave works and the value of opening up these bands.”

Keith Matthews: “Every country has its own regulations and unique challenges; there is no general answer for Africa.”

Justin Farnell: “Rwanda and Kenya stand out as leaders in digitising their economies in east Africa. Nigeria and Ghana in the west, and Egypt in the north, are attracting major inward investment most notably into Lagos, Accra and Cairo respectively. Those countries still racked by military conflict and political corruption such as the Congo, South Sudan, and Zimbabwe are falling further behind. South Africa has in many ways still the most potential, with its sophisticated banking and developed trans-

port and telecoms infrastructure, but is still grappling with years of graft at the heart of its state-owned entities.”

Murat Sahinoglu: “It is not about being the first or the last but to cooperate with service providers across the continent to enable the full value of connectivity by creating game-changing technology and services that are easy to use, adopt, and scale. Our vision is to realise a fully connected world for all end users.” ■



First-time internet users in Nigeria use the internet in a unique way: Here's why that matters

Many people fuelling the rapid growth in mobile phone usage in Nigeria are not fully utilising all the content and services available to them. Sebastien Codeville, CEO, KaiOS Technologies explains what their concerns are – and how they can be overcome

Nigeria is one of the most exciting frontiers for emerging technology usage. The country, known as the “giant of Africa,” shows up in headlines calling it “Africa’s unofficial tech capital,” and “the new economy of Africa.”

However, many Nigerians fueling this rapid growth in the tech space actually under-utilize their technology. While these Nigerians show great interest in mobile devices and the internet, our

research shows that they aren’t aware of the ways they can leverage technology to their advantage.

There’s a huge opportunity to help new users engage with technology and the internet in new ways, proving beneficial to both newly connected consumers and the key industry players that facilitate that connection.

KaiOS recently completed a study to better understand how the average Nigerian currently uses and perceives mobile phones and the internet.

Research overview

We surveyed 819 individuals and 48 retailers and phone sellers from seven Nigerian states. Overall, respondents were interested in owning a phone and having mobile internet, but were not fully aware of all the benefits and ways to use the internet.

We found that first-time internet users enjoy reading and surfing the web, but many have yet to discover how the internet can be beneficial to their entire community. New users tend to learn

about the internet from members of their local communities in an offline setting, which often leads to a narrow view of what the internet has to offer. For example, they might only hear about a few specific apps and have misconceptions about both the internet and how to access it.

A large portion of respondents work informal jobs such as petty trading, farming, and artisan work. Although they spend most of their income on food, shelter, and clothing, they are still willing to invest in things that make their lives more fun and allow them to connect with others.

Who was included in our study?

We designed our study to provide an accurate depiction of newly connected consumers in Nigeria. As such, we structured our respondent pool to include specific age ranges, income levels, and geographic locations. Our interviewees can be segmented as follows:

40% rural, 35% semi-urban, and 25% urban. This split provides an accurate picture of Nigeria's urbanization status.

A significant portion works in informal and/or unstable jobs such as farming (15%), petty trading (31%), or artisan work (21%).

All respondents earn less than NGN 360,000 (USD 990) annually.

Our sample was slightly skewed toward a younger population because 54% of the entire Nigerian population is under 20 years of age. Ages 16-50 were included in the study.

Internet perception

Our study shows that respondents have a specific perception of internet content that is very different from that of the developed world. For example, using Opera, a major web browser app, is seen as synonymous with "browsing the internet." This leads to the unintended consequence of users not discovering the browser app that comes with their mobile device if the app icon does not look similar to the Opera icon. We found a number of similar misconceptions of the internet and device capabilities throughout the study.

Finding: Internet is a status symbol, but not widely understood

The majority of the respondents claim they need an internet-enabled phone, but their reasoning is based more on social status and perception than the actual benefits.

"Well, this world right now is a global or internet world; everything is all about internet, so that is why everybody needs an internet-enabled device."

Male, 21-30 years, Anambra state, semi-urban

"In our time now, if you don't have an internet-enabled mobile phone, it's like you are nothing, and you must let people know you have it." Female, 21-30 years, Abuja city, urban.

From these responses (and others), we discovered that the need for internet access did not tie back to what respondents actually do online. Instead, their reasoning was based on how other people view them.

Recommendation: Market to communities, not individuals

New users need to be persuaded to adopt mobile internet and will turn to their social circle for guidance. To convince an individual, start with the community.

Urban residents tend to use the internet for a wider range of activities because they have more exposure to mobile internet through friends, family, school, and work.

Rural residents, on the other hand, do not have the same level of access, which means they have fewer real-world examples of how the internet can be used in their communities.

Both urban and rural first-time users generally look for ways to use the internet in a way that benefits the community as a whole.

To reach a wider audience, advertisers can focus on promoting the internet not to the individual, but to the entire community. For example, newly connected Nigerians are more likely to respond to a pitch that presents WhatsApp as a tool for organizing church gatherings and sharing study materials as opposed to an app for chatting with friends.

Finding: New users are unaware of how the internet can benefit them

Nigerians have heard good things about the internet, yet have yet to discover how to take advantage of all the benefits.

As in most other markets around the world, we found that new users generally use phones for communication and entertainment. The most impactful uses—career development, personal health management, and business applications—are the least popular.

Nigerians in rural areas are even less likely to understand how mobile internet can benefit them personally. One rural interviewee said, "It doesn't help my business. I farm, it's just me, my hoe, and the farm..."

Recommendation: Educate users about how they can use the internet to their advantage

Mobile internet can provide support in areas like health, education, and business. However, these uses are the least popular because new users are unaware of their potential value.

Industry players can engage new users by clearly stating how they can gain practical advantages from mobile internet. Some examples:

- Promote your products to customers beyond your town by sharing photos on Facebook.
- Are you a farmer looking to get a competitive advantage in the market? Use farming apps to access the latest crop prices.
- Do you live in an area where clean water is difficult to access? Use Google to search "how to kill bacteria in water at home."
- Save \$1-\$2 a month by using WhatsApp instead of SMS to stay in touch with friends and relatives in other towns.
- Let your child learn English for free by watching educational videos on YouTube.
- Have you heard of Sudoku? It's a free game that can train your logical thinking skills.

In Nigeria, as well as other emerging markets, new consumers responded best to visual marketing as opposed to text-heavy promotions. However, new users are reluctant to use data to play videos or download images, especially if they do not know how doing so will benefit them. Industry players should consider making onboarding content available without data charges. This small up-front investment is likely to pay off by converting text-only users to data consumers.

Finding: Nigerians fear misinformation and lack of privacy

For some Nigerians, negative perceptions of the internet have kept them offline. Many new users struggle to differentiate between truthful and false news sites, so they stay away from online news altogether. Financial scams, mainly through WhatsApp, are also a major concern.

First-time internet users are often unaware of privacy settings, so they fear that having a phone will allow them to be tracked and easily found. This is especially dangerous for women, who worry that online harassers will be able to discover their location.

Recommendation: Help customers filter content and configure privacy settings

Mobile carriers and shop owners can start at the source by helping customers set up privacy settings before they leave the store. Showing users how to block unwanted messages and remove explicit content from their social feeds helps them feel safer online.

By promoting educational resources such as Free Basics or the Life app by KaiOS, industry players can combat negative views of the internet. It's also important to design—or encourage others to design—user-friendly products for consumers with lower digital literacy levels. For example, limiting the use of technology jargon while prioritizing visual content over text can make devices more accessible for new users. Features such as simplified websites, content in local languages, and easy-to-use menus allow new users to feel more confident using mobile phones.

Purchasing devices and data

Overall, participants responded positively to the idea of buying their first internet-enabled phone or replacing existing mobile phones with superior models. Where and how they purchase devices, however, depended heavily on their sometimes inaccurate perceptions of security, the availability of warranties, and the affordability of the device.

Finding: Nigerians prefer to pay in cash and make purchases at phone shops

Mistrust in online payment systems, fear of fraud, and difficulty setting up payment plans result in 80% of respondents using cash to purchase phones. Mobile money usage in Nigeria has increased in recent years, but for big-ticket items like phones, people stick with

cash because it's the most familiar method.

Nigerians purchase devices through three main avenues: phone shops, authorized dealer shops, and open markets.

Our study shows that phone shops were the preferred avenue because respondents believed phone shops offered original phones (as opposed to knock-offs sometimes sold in markets), more choices, competitive prices, and warranties.

"People now prefer going to stores where you get exactly what you want, you know that these people are not scamming you, this is a company, you know that this is their branch, so whatever happens to your phone at the time of guarantee you can always come back and complain and they will now follow up."

Authorized dealers suffer the incorrect perceptions that they offer fewer options and no warranties. Open markets are the least trusted due to the perceived risk of fake phones.

Recommendation: Advertise the availability of warranties and original devices

Nigerians often incorrectly assume only manufacturers can offer original devices and warranties. To encourage purchases through other avenues, mobile shops and carriers should leverage visual ads that show off a variety of phone options and clearly display warranty offers.

Accountability is key. Retail staff should be trained to fully explain warranties and the types of follow-up services the shop offers. When new users know that they can come back to the seller with any issues or questions, they are more likely to make a purchase.

Finding: New users tend to buy small data packages even if the cost per MB is higher

New users often have low and/or unstable income, so they rely on friends and family to purchase phones and data bundles for them. These purchases are either given as gifts or meant to be repaid with money or bartering.

Phones and data are also sometimes seen as communal. It's not uncommon for families to share devices or for people to borrow phones to check social media or get online.

Regardless of who pays for the data, Nigerians generally prefer to buy smaller data bundles, despite the higher cost per MB. First-time users often have a limited understanding of how data packages are priced and how data is consumed, so they struggle to maintain consistent data usage.

As a result, small data packages are purchased early in the month and quickly depleted. As many new consumers live paycheck to paycheck and do not yet recognize the internet as a necessity, replenishing data is not a priority.

This may also be why Nigerians use the internet "on demand," meaning they do not let apps run in the background or keep data turned on when they are not actively using the internet.

Recommendation: Use simpler language and clearly explain bundle options

First-time internet users prefer simple explanations of what they are paying for.

Carriers that introduce more creative pricing models that appeal to these new consumers will have more success in selling data packages.

For example, offering pricing based on time or a specific service rather than volume (MB/GB) makes the internet seem more accessible and user-friendly. Nigerians may be more willing to buy data in forms such as one hour of unlimited browsing per day or unlimited WhatsApp usage for a flat rate. Globe Telecom had great success with this strategy – its data service revenue went up 17% two years after introducing data-free YouTube videos.

Industry players should also consider leveraging free data to build data usage habits. Telecommunications company, MTN, uses this tactic by surprising users with free bonus data. Not only do these freebies generate excitement, they encourage users to explore the internet without the fear of overspending.

Providing free data promotions along with pricing transparency is a great way to build trust in new markets. New users worry about their data consumption and how much it will cost them, so services such as daily spend limits or warnings when data is running out will be well-received.

Internet and device usage

Limited experience with the internet often results in a narrow view of all it has to offer. We found that both urban and rural respondents who claimed to use the internet regularly still stuck to very basic online activities.

New users learn from their social circle, which leads to a limited view of the internet

While 82% of respondents claimed to have experience using an internet-enabled phone, only 32% mentioned surfing the internet or using instant messaging apps as one of their top three phone uses. This suggests that internet usage is not yet a core daily activity in Nigerian households.

Experienced internet users in developed markets are quick to Google how to do something, but new users turn to people they know personally and feel they can trust. Unfortunately, this means new users only learn what their communities can teach them.

Lack of knowledge causes Nigerians to use their internet-enabled phones in a limited way. Without exposure to activities like downloading apps, setting up online accounts, using web browsers, or making video calls, new users never learn all the internet has to offer them.

Improve digital literacy with welcome packs and in-store training

New users need ways to build their digital skills and expand their understanding of their phones and mobile internet. Creating "welcome packs" that include bite-sized content such as video guides and walk-throughs can enable consumers to learn, both before and after they make a purchase.

Digital skills welcome packs should come pre-loaded on consumer phones and be available on

demo devices in-store. Pre-loaded video content appeals both to users with low literacy levels and to the data-conscious who may hesitate to use their data to look up guides.

Retail staff play an important role as well. Staff should be trained and incentivized to teach new users the basic capabilities of internet-enabled phones and the internet in general. When members of the community become well-trained employees, they can become a trusted source for all tech-related questions and issues.

While educating customers may lengthen the sales process, the time investment will pay off. When new customers have a better understanding of what mobile internet can do, they will use more data.

Internet access challenges

Limited network coverage and access to electricity are serious concerns for Nigerian consumers.

Nigerians practice "SIM Swapping" to work around poor network coverage

Many Nigerians have multiple SIM cards and practice "SIM swapping." Switching out SIM cards allows users to access different networks so they can shop around for the best coverage. It also helps them take advantage of limited-time promotions from various carriers.

Increase network coverage and stability

If mobile carriers invest in increasing network coverage and migrating 2G connections to 3G and 4G, they can gain a loyal customer base.

Reliable 3G and 4G coverage would prevent SIM swapping and keep users on the preferred network. Mobile carriers with a reputation for great network stability and coverage can benefit from higher revenue generated from voice and data usage as well.

Only 54% of the Nigerian population has electricity in the home

Battery life is a significant concern and charging phones can be an issue. Some users own multiple devices so they can switch phones when one runs out of battery power. Similarly, smartphone owners often use basic phones for calls and texts so they can preserve their smartphone battery for internet access.

Teach consumers about battery life and power-saving options

In Nigeria, long battery life should be prioritized as a key selling point. Many new consumers could be persuaded to purchase a smart feature phone if they knew certain models boast a battery life of several days, whereas smartphone batteries hardly make it to the end of the day.

Mobile carriers and shops should also educate new users about power-saving tips like adjusting screen brightness, and introduce them to power banks that can be used as backup power sources.

In conclusion, Nigeria is poised for increased mobile connectivity, but much work is still needed in user education to ensure people make the most of their internet access. ■

AVANTI'S COMMITMENT TO MAKE A DIFFERENCE IN CHILDREN'S EDUCATION

Five years ago, Avanti began leading the consortium that delivers improved numeracy and literacy educational outcomes to marginalised school children in Kenya through the DFID-funded Project iMlango. This project is unique as, not only does it focus on bringing satellite broadband internet to rural schools but it also incorporates a whole school programme tailored for marginalised children. Five years on and the results are impressive: the project has been implemented in 205 primary and 40 secondary schools across 4 regions in Kenya, reaching over 180,000 marginalised students and has shown exceptional learning outcomes for these children, doubling their numeracy learning rates.

What is unique about this Edtech project?

The programme incorporates satellite broadband internet based individualised learning which is supported by in-field technical support and by real-time monitoring based on sophisticated machine-to-machine learning and artificial intelligence technologies.

How does it work?

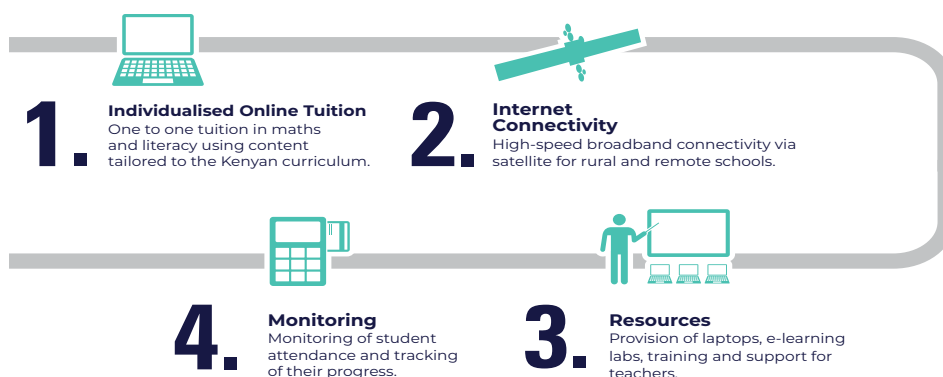
Through Avanti's strategic partnerships with Whizz Education and sQuid, iMlango provides educational content to remote Kenyan schools through Ka-band satellite connectivity. In addition, ICT equipment and capability is deployed at each school through the setting up of computer labs. These schools are located in rural marginalised areas where satellite is the only option for internet connectivity, and therefore they have historically been excluded from the digital economy that connectivity provides. The iMlango primary schools are spread across four counties in Kenya (Kilifi, Kajiado, Makueni and Uasin Gishu), selected based on marginalisation factors (poverty rates, attendance statistics and learning achievements for girls) as well as availability of electricity, safety and accessibility.

Key to the project is the satellite connectivity and individualised tutoring the online platform provides. The content enables machine learning and artificial intelligence to tailor each session per child. This means that no two children have the same profile or session, enabling each child to learn based on their own needs and learning levels.

Additional Key Interventions implemented that enable learning outcomes

In order to achieve success, a number of Additional Key Interventions have been implemented across each school, including:

- **Teacher Training:** In order to improve quality of education, teacher capacity building and school support is mandatory.
- **Discovery Learning Alliance (Now Impacted) Child Clubs:** Participation in these clubs allows girls to gain self-confidence and awareness of future prospects. Additionally, issues around early pregnancies and marriage are discussed to educate girls and boys.



- **Gender Specialist:** To educate the teachers on how to recognise and deal effectively with the difficulties and challenges a girl faces when attending school.
- **Safeguarding Officer:** A safeguarding officer is imperative when dealing with children to ensure the safety and security of each child at school.
- **Revision sessions:** Participation in Standard 8 revision sessions in preparation for the KCPE exams.

Results achieved to date

iMlango has been able to prove the ability of the programme to affect educational outcomes through satellite-enabled individualised learning on the digital portal.

Students who have access to the satellite-enabled individualised learning platform for 60 minutes per week improve their "maths age" by, on average, 18 months in their first year of access. In marginalised communities we have seen the underlying quality of learning being significantly inferior to international rates of progress and we are able to double their learning progress rates, narrowing the

divide between the haves and have nots, at just 45 minutes per week. Over time the progress rates for students using the platform for 30-89 minutes per week has consistently improved reaching a rate of 1.27 in November 2018 and has always been above the Kenya baseline rate. Additionally to the improved learning outcomes for the students, the students themselves have indicated an increased appetite for school attendance and enjoyment of school and learning.

The project has successfully demonstrated the technical viability of satellite based educational projects to achieve learning outcomes. If you would like to find out more about it, you can contact Avanti Communications (contact@avantiplc.com)



Viavi launches OneAdvisor ONA-800

Viavi Solutions has launched OneAdvisor ONA-800, an instrument platform it says will address the evolving requirements of communication service providers, their field technicians and contractors. "As 5G becomes more ubiquitous in 2020 and beyond, network operators are aggressively scaling and commercialising this technology using large workforces of technicians or contractors to install and activate tens of thousands of cell sites," Viavi claims. Viavi says the first OneAdvisor solution ONA-800 provides technology coverage, test features and test process automation to facilitate this aggressive network deployment.

What's more, the product supposedly allows cell site technicians to test fibre, RF, and CPRI/Ethernet from a single instrument, "replacing multiple independent tools (OTDR, CAA, Fiber Scope) and significantly reducing the total cost of ownership for service providers and contractors".

Kevin Oliver, vice president and general manager, converged instruments and virtual test, Viavi adds: "5G represents a quantum leap in network complexity, from the frequency bands used, to diversity of the x-haul technologies, to the possibility of multiple radio vendors." www.viavisolutions.com



Mist Systems expands vision

Mist Systems, a Juniper Networks company, announces a new ecosystem partner integration that leverage ultra-wideband, Wi-Fi radar (sensing), LiDAR, Electronic Shelf Labels (ESL) and battery-less Bluetooth LE tags to deliver use cases for indoor location with accuracy and "exceptional" scale.

Ultra-wideband (UWB) has the promise of becoming a standards-based technology that can be the cornerstone of a real-time location system (RTLS). It supposedly delivers higher-accuracy location to address additional location use cases for customers, including those for Industrial IoT (IIoT), healthcare, enterprise, logistics and retail environments.

Mist has been working with Inpixon, Quaron and Sewio, three location and positioning technology providers and is integrating their UWB anchors and tags within the Mist AI-driven enterprise solution. The firm reckons UWB can enable sub 1-foot accuracy when properly deployed and will enable Mist to address new use cases in the safety and high-value asset tracking areas.

"Sewio is excited to work with Juniper and Mist in order to extend our UWB technology to our common customers and integrate our real-time location system with Mist's innovative AI-driven platform to achieve greater efficiency, profitability and safety within facilities across the many verticals and use cases

we serve," said Milan Simek, CEO and Co-founder at Sewio.

Bob Friday, CTO of Mist Systems, adds: "We are excited to build on the previous success of our location solution, including placement as a visionary in the recently announced 2020 Gartner Magic Quadrant for Indoor Location Services, with new use cases that leverage state-of-the-art ultra-wideband, Wi-Fi, LiDAR, ESL and Bluetooth LE technologies. It takes a robust ecosystem to bring indoor location to stores, hotels, hospitals, campuses and other AI-driven enterprises, so we are excited to be working with the best vendors in the industry to make this a reality." www.mist.com

TE Connectivity extends M12 range with right-angle connectors for PCBs and panels

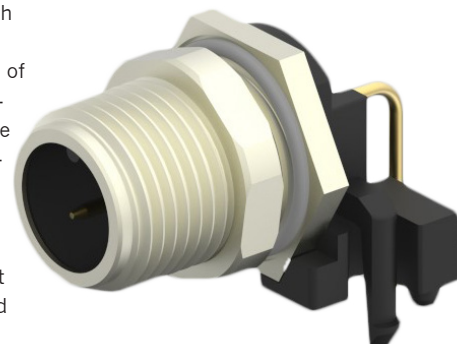
The TE Connectivity M12 Range has again been extended with A-, B- and D-coded versions of the right-angle connector for PCBs and panels. The latest M12 PCB right-angle offering comes with two, five and eight position configurations for direct mounting to PCBs and panels. They have an integrated plastic mounting snap feature that facilitates strong mechanical and electrical connections, saving valuable PCB space and leading to reduced installation costs and increased productivity.

"These latest connectors are easy to install and help to increase

production efficiency and decrease installation cost in digital factories," said Ted Szarkowski, product manager at TE Connectivity.

UL certified, the M12 connectors meet IEC specification with an industry-standard interface compatible with a broad range of sensors, switches and other industrial devices. They reach the IP67-level protection for industrial-grade sealing against ingress of dust and water at up to depths of one meter. What's more, they complement field-installable connectors and

cable assembly solutions already available from TE, "with efficient, high-quality and reliable signal transmission". www.te.com



Rohde & Schwarz extends 5G analysis portfolio

For over-the-air (OTA) tests on 5G base stations in the FR2 range, there's a solution based on the FE44 front-end modules, which support signal generation and analysis in the lower-frequency intermediate

frequency (IF) band. This enables low-loss transmission of 5G signals and the use of cost-effective T&M instruments by avoiding the need for equipment designed for the mmWave range. The SMW200A vector signal generator generates the 5G signals and the FSV3000 provides the right analysis functions.

In the transmit direction, the 5G signals generated in the IF band by the R&S SMW200A are up-converted to the FR2 range up to 44 GHz. This ensures that the high output power is generated exactly where it is needed. On the receive

side, the FE44A converts the FR2 signal at the antenna inputs down to the IF band and sends it with low attenuation losses to the R&S FSV3000 for analysis. This solution is suitable for test systems in production.

For speed-optimized production tests of 5G base stations, Rohde & Schwarz has developed a scalable, high-performance server based testing analysis platform. The SMBV100B vector signal generator and the FSV3000 spectrum analyser are used as RF test solutions. The QuickStep test executive software

is used to automatically control the test setup and verify test results. The solution is using a 10 gigabit ethernet network, where the combination of the server based approach and parallel processing is said to enable high measurement speeds. The infrastructure consists of commercially available components.

Last but by no means least, there's a new test solution for base stations and small cells that enables cross-channel measurements up to 4x4 MIMO on 5G transmissions in the FR1 range. www.rohde-schwarz.com



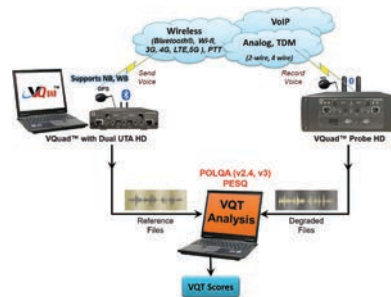
GL says new enhanced Voice Quality Analysers now support POLQA v3

GL Communications says its Voice Quality Analysers are now enhanced to support Perceptual Objective Listening Quality Analysis (POLQA) version 3.0.

"POLQA, the successor of Perceptual Evaluation of Speech Quality (PESQ) (ITU-T P862) analysis, is the next generation voice quality testing standard for fixed, mobile and IP-based networks," says Robert Bichefsky, director of engineering at GL Communications. "Based on ITU-T P863 standard, POLQA supports the HD-quality speech coding and network transport technology, with higher

accuracy for 3G, 4G/LTE and VoIP networks. Upgrading to the 3rd edition of ITU-T P863, POLQA extends its scope and applicability towards 5G telephony and OTT codecs"

He further adds: "The latest version of GL's Voice Quality Analysers support the optional POLQA v3 upgrade from POLQA v2.4. POLQA v3 supports full band audio analysis which provides improved scoring for mobile-based VoLTE, 5G and OTT applications using EVS and OPUS codecs. POLQA v3 is more sensitive to distortions



across the entire audio spectrum. In addition, POLQA v3 supports less harsh analysis of micropauses within the speech, reacts with less sensitivity to linear frequency distortions and includes a significantly improved and streamlined perceptual model". www.gl.com

Look out for...

WBA completes phase one trial of Wi-Fi 6 infrastructure

The Wireless Broadband Alliance (WBA), the body developing of next generation Wi-Fi services, successfully completed its phase one trial of Wi-Fi 6 infrastructure and services at the Mettis Aerospace factory in the UK.

It claims that the trial was the first of its kind in the world and an important part of the WBA's Wi-Fi 6 test and development program. The body says tests included applications of 4K video streaming, large scale file transfers, messaging and voice/video communications as well as the first stage of IoT sensor and mixed reality testing. Previous implementation tests with Wi-Fi failed to work in Mettis' factory environment. During the trial, the WBA says speeds of 700 Mbps using 80 MHz channels were achieved and low latency applications, such as video calling and video streaming, performed well with results below 6ms. These results prove, the WBA claims, that Wi-Fi 6 infrastructure can operate well in the presence of interference and noise in a complex and challenging factory environment as well as deliver high quality services for monitoring and maximizing machinery performance, minimizing downtime, and improving communications on the factory floor.

"The completion of this initial phase marks a significant milestone for the adoption of Wi-Fi 6," said WBA CEO, Tiago Rodrigues. "The Mettis facility is an especially challenging environment for wireless communications with furnaces, presses and heat, a lot of moving heavy machinery and the presence of dust and in-air particulates. Nevertheless, the field tests in this highly-charged atmosphere have proven that Wi-Fi 6 technology works well and can play a vital role within the industrial enterprise and IoT ecosystem. If Wi-Fi 6 can deliver highly reliable, high quality and high bandwidth communications in this type of factory environment, then it can deliver it almost anywhere," he adds.

Anritsu introduces 'industry's first'

Anritsu Corporation introduces the ShockLine MS46131A USB vector network analyser (VNA), which it claims is the industry's first modular 1-port VNA that supports measurement frequencies up to 43.5 GHz. With 8 GHz and 20 GHz models also available in the series, the MS46131A brings, Anritsu claims, cost and efficiency advantages to measuring antennas and other 1-port 5G



devices at sub-6 GHz, as well as in the 28 GHz and 39 GHz millimetre wave (mmWave) bands. "Lightweight and compact", the MS46131A can be directly connected to the device under test (DUT), eliminating the need for interconnect cables. It results in reduced test costs and improved measurement stability. The MS46131A is a modular VNA that can be configured for each user session on a port-by-port basis.

A single PC can control up to two 1-port instruments for convenient dual site testing. Units can be easily moved between test setups, depending on the required port count. Production uptime is also enhanced, as 1-port VNAs can be easily replaced, if needed, to keep test stations operational. Beyond the USB connection to the external control PC running ShockLine software, the MS46131A requires a 12V power supply. www.anritsu.com

Doodle Labs releases 'most advanced broadband radio platform in the industry'

Doodle Labs starts 2020 with the release of the latest member in its expanding Smart Radio Platform, which it claims is "the most advanced, long-range, high-bandwidth broadband radio platform in the industry".

The RM-5800 Smart Radio is designed for the 5725-5875 MHz licence free ISM band. The RM-5800 radio is available in the both the Embedded (-XM) and the IP67-rated External (-XE) form factors.

Due to its globally unlicensed nature, Doodle Labs reckons the 5.8 GHz ISM band is popular for establishing

wireless data links for industrial IoT use cases. The RM-5800 supposedly enables a variety of applications in this band, including point-to-point communications, video surveillance, control of robotic systems and the exchange of sensor data across data links in unmanned aerial vehicles.

Doodle Labs has leveraged its patented BII technology to develop the RM-5800 radio to simplify the development of new IP communication equipment for high throughput, long-range mobile

wireless mesh networks. Apparently compact and lightweight, the radio enables development of advanced communication capabilities for unmanned aerial vehicles (UAVs), vehicular, rapidly deployable MANET networks, ground robots, as well as handheld, wearable and small form fit radios. www.doodlelabs.com





Avanti's commitment to connecting rural east Africa

As part of its corporate social responsibility, Avanti is donating solar satellite broadband connectivity and laptops to refugee settlements in east Africa

East Africa, and Uganda in particular, hosts some of the largest refugee populations in the world. Avanti is committed to mobilising its satellite technology to support refugees, host communities and humanitarian organisations in the region through providing access to connectivity in the remotest of locations.

Avanti's first project is now live in Bidi Bidi refugee settlement, based in northern Uganda. Bidi Bidi hosts over 270,000 displaced people predominantly from the neighbouring conflict in South Sudan, putting immense strain on host

communities and local resources.

In July 2019, Avanti donated solar powered satellite broadband to The Social Innovation Academy (SINA)'s Bidi Bidi site, the first of three installations Avanti will be donating to the refugee settlement. SINA's site is off grid, in a very remote location and is now able to provide its beneficiaries with access to the internet and an ICT lab. SINA provides refugees and members of the host community with access to connectivity where alternatives do not exist due to the lack of electricity and financial means in the settlement.

SINA tackles failing education and resulting unemployment in East Africa through creating self-organised learning spaces, where disadvantaged youth and refugees unleash their potential for positive change as social entrepreneurs. A "freesponsible" approach lets scholars learn the skills needed for their own enterprises by taking up responsibilities within a SINA community. Scholars start to understand their past as a strength, rather than a subject of shame and create solutions to local problems themselves.

The satellite broadband Avanti has donated

is being used by SINA's beneficiaries for access to job and grant applications, self-learning websites, researching project and enterprise ideas, online mentorship, independent news, reconnecting with relatives and the creation of social media pages for start-ups.

SINA's connected centre is being used by over 70 people on a daily basis including SINA members as well as teachers and youth from the surrounding area. Refugees and the host communities are using their smartphones as well as laptops provided by Avanti to get online.

"Since knowledge is power, the internet has allowed refugees and the host community to gain access to information essential for self-determination, self-learning, and personal development through education. Social enterprises have emerged, which are solving local challenges while providing a dignified income", says SINA founder Etienne Salborn.

Following the success of the donation to SINA, Avanti's corporate social responsibility programme is expanding its impact in East Africa and connecting further sites in refugee settlements. Through 2020, Avanti is working with UNHCR, The UN Refugee Agency, as a corporate partner donating solar powered satellite broadband connectivity and laptops to seven UNHCR sites in remote refugee settlements in Uganda.

Avanti will be connecting sites in Palabek, Imvepi, Bidi Bidi, Kiryandongo, Maaji II and Rhino Camp refugee settlements throughout this project. The settlements, predominantly hosting refugees from ongoing conflicts in the Democratic Republic of the Congo and South Sudan, are remote and off grid.

The donation comprises of solar connectivity equipment, installation, laptops for each site, free bandwidth, maintenance and customer support. The connectivity will enable refugees and their host communities to access information, humanitarian and livelihood services; working to create revenue generating opportunities, increase refugee self-reliance and ease the pressure on host countries.

Avanti announced this contribution at the first UN Global Refugee Forum in Geneva in December 2019 and is committed to supporting UNHCR's work through the provision of connectivity, bridging the digital divide and increasing opportunities for people in some of the most disconnected locations.

"This is a big step for Avanti in terms of our commitment to Africa and the opportunity we can provide the developing regions in our network. Given the magnitude of refugees living across Africa, our work with UNHCR will allow us to increase our efforts in connecting the world, enabling people to build themselves a better future", says Avanti Communications CEO, Kyle Whitehill.

The satellite VSAT equipment donated by Avanti to UNHCR was developed as part of the Every Community Online (ECO) project. The ECO project is led by Avanti and co-funded by the European Space Agency (ESA), as part of its Advanced Research in Telecommunications Systems programme. The

primary objective of the ECO project is to ensure that no community in sub-Saharan Africa, no matter how rural or remote, is left without access to reliable high-speed broadband connectivity.

The ECO project team researched and developed satellite Gateway Earth Station (GES) equipment and Customer Premises Equipment (CPE). The equipment is specifically designed to meet the reliability, performance and affordability requirements of the sub-Saharan Africa environment where telecommunications infrastructure is usually limited, completely unavailable or unaffordable to the majority of the population. The CPE is available in two variants with both enabling multiple concurrent users to access reliable satellite based high-speed broadband and digital services using any Wi-Fi enabled device.

The ECO service integrates a solution for affordable micro-data purchases on smartphones via Pay As You Go (PAYG). The

ECO service is suitable for the following sectors:

Commercial community markets where local resellers or entrepreneurs can sell the service in return for a share of revenues generated.

National governments and governmental agencies committed to reducing the digital divide in sub-Saharan Africa.

International development initiatives where the affordability of the micro-data purchase via PAYG model can be used to support financially viable and sustainable access to digital services in under-resourced rural communities.

The ECO project is led by Avanti Communications Ltd in the UK. The project has successfully demonstrated the technical and financial viability of delivering an affordable satellite-based Wi-Fi solution through deployment of advanced and specialised equipment across Avanti's HYLAS 4 satellite footprint in sub-Saharan Africa. ■

Opportunities and barrier to using mobile technology and the internet in Kakuma refugee camp and Nakivale refugee settlement – a case study by global charity

Kakuma refugee camp in northern Kenya and Nakivale refugee settlement in south western Uganda host a diverse range of nationalities from across the region, including Somalia in the east, to the Democratic Republic of Congo in the west. Diversity helps to better understand the role mobile technology plays in refugees' travel around the region and how it can support their lives once they reach settlements.

Refugees were purposefully selected based on nationality, age, gender and population distribution in each location. The primary data collected represents the first dataset of its kind to focus on understanding the use of mobile technology and the internet within refugee populations in Kenya and Uganda.

KEY TRENDS

Although Kakuma and Nakivale have very different geographic, urban and infrastructural differences, there are many similarities in the way refugees access and use mobile technology and the internet, as well as the challenges they face. Furthermore, there are close similarities in refugee needs across both locations, as well as in the role mobile phone technology can play in addressing these needs. Based on analysis of the data collected, eight key trends have been identified that are common to both Kakuma camp and Nakivale settlement. The close correlation of the eight trends identified in Nakivale and Kakuma suggest a broader relationship between; (1) refugee needs that can be addressed through mobile; (2) barriers to mobile phone and internet access and; (3) mobile phone usage across settlements and between countries in east Africa.

When taken as indicators for the potential

adoption of mobile and internet-based solutions, these trends have important programming and policy implications for those working with refugee communities and should be considered as part of future programme designs.

KEY INDICATORS

Although access to any type of mobile device provides a channel (voice/text) through which humanitarian organisations and others can deliver services to refugees, smartphones clearly offer the most effective way to connect to social media through the internet and, in turn, with refugee communities to address a diverse array of needs.

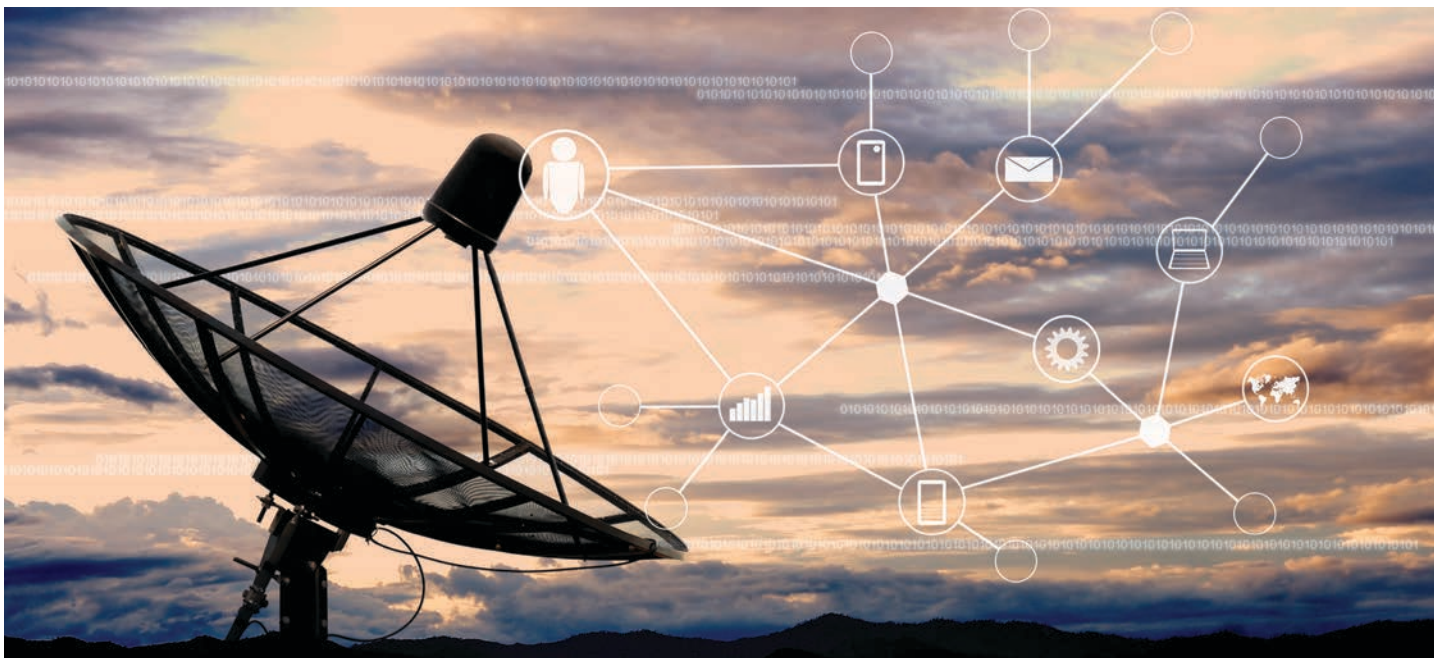
Based on the key trends identified in this report, the strongest indicators of access to mobile technology and related services are connectivity, education and age.

CONNECTIVITY

Access to internet enabled devices such as smartphones is only part of the challenge. Connectivity, defined here as reliable access to 3G/4G data services, is the keystone for accessing services beyond voice and text. It is therefore one of the biggest determinants in how practitioners can target mobile and internet based services in refugee communities.

EDUCATION AND AGE

This study has shown that age and education are strong influencers of smartphone ownership and increased use of mobile-based applications and services. Younger refugees are more likely to own a smartphone, with the average age of an owner being 28 in Kakuma and 30 in Nakivale. Increases in levels of education also affect smartphone ownership, with University graduates the most likely to own a smartphone, followed by those who completed secondary education. Lamu patients now have access to earlier, cheaper and better diagnosis and treatment as well as better follow-up care through remote specialized consultations, medical education, and monitoring. ■



Changing the landscape of the cellular backhaul market in Africa and beyond

As connectivity demands continue to reach unprecedented levels year on year, MNOs operating in Africa need to ensure they are ready to meet the demands of future. Semir Hassanaly from ST Engineering iDirect explains why satellite is the ideal solution to deploy this connectivity quickly and cost-effectively

The demand for data is exploding across the globe, and Mobile Network Operators (MNOs) are poised to become the primary way in which we connect. This is particularly the case as 5G comes to fruition, opening up new innovative use cases. To support this, and the tremendous surge in demand for data it will bring, MNOs will need the help of satellite and its inherent capabilities, especially in rural areas in continents such as Africa.

Satellite has the ability to enable cellular backhaul in even the most remote corners of Africa, which is historically underserved by connectivity. By combining the rapid drop in

space segment prices with sophisticated and highly capable ground equipment, the cellular backhaul landscape in Africa is changing radically – and this is all at the hands of reliable, efficient satellite connectivity.

A solution in satellite

In continents such as Africa, access to high-speed, reliable broadband connectivity can significantly impact the quality of life and the economy. Connectivity has the power to stimulate socio-economic activity throughout the region, providing access to high demand applications, such as community Internet access and mobile backhaul.

This includes public institutions which will also significantly benefit from dedicated services including education, healthcare and civil defense.

Satellite is the ideal solution to provide backbone connectivity to regions – such as Africa – that have no access to a fiber or undersea cable infrastructure, or when the backbone link needs to cross regions that cannot be secured. Furthermore, it is also the fastest method to recover from a loss of connectivity due to a cable failure or natural disaster. Therefore, in underserved areas of Africa, satellite has the ability to bridge digital divides and in some cases, fill Universal Service Obligations (USOs).

In Sub-Saharan Africa, there has been a significant growth of mobile phone usage over the past few years. According to a recent report by the GSMA, it is currently the fastest growing region in terms of smartphone usage, with a CAGR of 4.6% and an additional 167 million subscribers over the period to 2025. This will take the total subscriber base to just over 600 million, representing around half the population.

As a result, we are seeing more demand for satellite-based cellular backhaul in Africa and we see this as a major area for growth in the future.

Opening up new opportunities

Across the globe, satellite is attracting significantly large deployments and is considered a very flexible and capable solution in the backhaul technologies mix. As a result, new use cases are being opened up for satellite backhaul. From offloading traffic in congested areas, postponing or avoiding ground network upgrades to sporadic use cases like railroads or sporting events; even first-responder networks requiring ubiquitous and reliable coverage are becoming profitable applications for the satellite industry.

While satellite backhaul may sound very promising for the industry, it is very much still in its infancy – with half of the world's population still not connected to the internet. However, the opportunity for expansion of the number of sites – particularly in continents such as Africa – that could be economically served using satellite backhaul from current levels of coverage is huge, totaling 507K new broadband base stations.

Cellular backhaul

Satellite backhaul not only provides reliability and quick service roll-out, it also brings increased latency and operational costs which must be mitigated with the right solutions.

When it comes to this, MNOs are looking for a reliable solution which can provide enhanced Quality of Service (QoS) and Quality of Experience (QoE) to easily extend connectivity to rural sites and integrate seamlessly within their terrestrial network. They are also looking for multiservice capabilities, which allow access to multiple market verticals to increase revenue, and scalable solutions for large point-to-multipoint networks and for demanding high-speed trunks.

And cellular backhaul over satellite is proving to be the best in efficiency, scalability and flexibility to bridge the digital divide in Africa and satisfy this growing demand.

Joining forces

Newtec and ST Engineering iDirect – who are both specialists in the designing, developing and manufacturing of equipment and technologies for satellite communications – have recently joined forces to combine Newtec's innovations in performance and efficiency with iDirect's innovations in networking and mobility.

The company's Dialog® platform, which is a single-service and multiservice VSAT solution

provides a solution which can enable operators and service providers to build and adapt their infrastructure and satellite networking according to business or missions at hand.

Dialog also provides revolutionary Mx-DMA® technology, which can combine the benefits of SCPC and TDMA, ensuring that all the traffic is accommodated at each remote base station while multiplexing the bandwidth very efficiently between these remotes to decrease the backhaul operating costs. Additionally, Dialog is designed to overcome challenges in cellular backhaul connectivity, such as layer 2 and layer 3 bridging, as well as to provide mobility support, which is proving to be a critical area of our work.

Dialog and Mx-DMA have been successfully deployed commercially for mobile networks in Asia, Africa and Latin America and is currently empowering one of the world's highest capacity mobile backhaul over satellite projects. There are currently more than 20 mobile backhaul networks deployed over Dialog in the world.

In particular, Dialog was successfully installed for Mattel, Mauritania's leading mobile operator to provide cellular backhaul to several remote sites across the region.

Hybrid approach

However, bridging the digital divide in the outmost rural corners of Africa requires more than technology. A continued partnership between satellite and MNOs is also key and can create opportunities for both and can change the landscape of the cellular connectivity market for the better. With satellite in their network mix,

MNOs have more room to extend the reach of their service and address new use cases, such as traffic offload for congested urban networks, Over-the-Top (OTT) content distribution, and critical connectivity for disaster response efforts.

High Throughput Satellites (HTS) and ground equipment with the ability to support hundreds of Mbps of capacity for backhaul, along with attractive price points, will also be crucial in enabling service providers, telcos and MNOs to not only "connect the unconnected" but also bridge the bandwidth gap between urban and unserved and underserved areas across Africa.

This is particularly crucial as we enter the next stage of the evolution for MNOs – 5G, which calls for a total integration of satellite connectivity with the 5G network model. In fact, NSR estimates that 5G-differentiated applications – such as 5G backhaul and hybrid networks – will generate close to one-third of net satellite capacity revenue growth in backhaul over the next 10 years. This is due, in part, to the fact that 5G backhaul capacity demand will consume four to five times the bandwidth of a 4G site, according to NSR.

Looking ahead

Cellular backhaul over satellite has a rich history in enabling MNOs to expand their service to remote and rural markets, particularly in Africa. From an initial 2G voice solution to a 4G/LTE data solution, the role of satellite connectivity has changed along with the profile of the mobile end-user – and we have no doubt that this will remain, as mobile usage across Africa continues to explode and 5G networks begin to be rolled-out across the globe. ■



Cellular backhaul over satellite is proving to be the best in efficiency, scalability and flexibility to bridge the digital divide in Africa and satisfy this growing demand

Lebanon to manage networks ahead of new tender



The Lebanese government will take back management of the country's two state-owned mobile phone networks after the latest contracts expire, with plans to prepare a new tender within three months.

Lebanon's two service providers, Alfa and Touch, have been run respectively by Egypt's OTMT since 2009 and Kuwait's Zain Group since 2004, with the contracts repeatedly renewed.

However, a tender for new contracts to manage the mobile and data operators will be ready within three months, Telecom Minister Talal Hawat tweeted after a recent cabinet session. The ministry will run the networks in the meantime.

Lebanon's government came into power in January and has struggled with a financial and economic crisis on a scale the country has never seen in its history.

Afghan and Uzbek state operators expand 4G



Major 4G updates are underway in neighbouring countries Afghanistan and Uzbekistan via their respective state-owned operators.

Afghan Telecom's mobile brand Salaam is now delivering 4G to 15 sites in Kabul, with plans to invest an additional US\$20m into new internet services.

The operator's deputy chief Sharif Sharifi said that the deployment was currently limited to a few locations in the capital but confirmed this would change over time, stating: "We need some time to develop our system and

to improve our services," he added.

Sharifi also noted that the operator planned to deliver 4G coverage to all of Afghanistan's provinces and that it would come "slowly".

Salaam is the third of Afghanistan's five operators to launch commercial 4G. Afghan Wireless Communications Company (AWCC) pioneered the technology in the market in May 2017, with Etisalat following in February 2019. MTN Afghanistan and Roshan have confirmed that they will launch 4G but are not wedded to a date.

Uzbekistan's capital of Tashkent is

also receiving expanded LTE coverage via state-owned Uzbektelecom's mobile arm, Uzmobil. The operator noted that data speeds would improve considerably as it was boosting the bandwidth of the LTE frequency through which it delivers coverage in the city.

All 2G and 3G base stations in Tashkent were included in the upgrade, which will also see the operator expand the technology into other regions of the country. Uzmobil confirmed that the country's current Covid-19 quarantine was not impacting the scheduled expansion of its network.

Belgium grants temporary 5G licences



Belgian telecom regulator BIPT has offered temporary 5G licences to Proximus, Cegeka, Entropia, Telenet and Orange Belgium.

All received 40MHz of channel bandwidth each and the temporary 5G licences will remain valid until the

5G auction, delayed in Belgium due to a disagreement between regional governments over proceedings.

Proximus, 53.5% owned by the Belgian government, was the first mobile operator to launch 5G mobile network in the country, using spectrum in existing holdings.

The operator's chief executive officer (CEO) Guillaume Boutin said: "We are in close contact with all concerned municipalities, and with the Walloon region."

Boutin said the company is increasing efforts to demystify environmental and health aspects of 5G.

Bolivia turns to satellites in Covid-19 battle



The Bolivian space agency (ABE) will provide satellite connectivity to 215 immobilised telehealth centres located in rural areas as part of the fight against the coronavirus pandemic.

Available free of charge to users in the areas in question, the service will continue as long as the

country's health emergency is in place, the government said.

ABE also said that it would give a 30% discount to clients of its satellite internet service (SUBE), initially during the months of March and April.

Bolivia had 5,187 confirmed cases and 215 recorded deaths at

the time *Northern African Wireless Communications* went to press.

The government has also suspended the national elections that were scheduled for May 3.

The new service will continue as long as the country's health emergency is in place, the government said



Digital payment boom boosts Philippine telecom carriers



A boom in mobile digital payments during the Covid-19 pandemic is reviving investor interest in the Philippines' two telecom carriers.

Forced to stay at home since president Rodrigo Duterte ordered a lockdown in mid-March, millions of Filipinos are now using their smartphones to pay for items from bread to vegetables and meat, increasingly

shunning cash transactions. A number of employers are also paying salaries using phone apps.

While PLDT Inc and Globe Telecom Inc introduced their platforms as far back as 2000, their apps started tasting success only after handsets and wireless data became more affordable.

Bottom of Form

"The days of people of wanting to


hand cash over as their main means may be numbered," Globe president Ernest Cu said, citing concerns that the coronavirus can stay on bills for a long period of time.

The central bank said, only 9% of the population use credit cards. PLDT and Globe have about 160 million in combined wireless subscribers, exceeding the nation's population of 108.7 million.

This move towards use of wireless data for payments is among initiatives pursued by the carriers as widespread use of data and social media combined with price wars have dented revenues from calls and texts.

Building another source of revenue has also become more urgent as PLDT and Globe face the entry of a third major player.

Telecom Egypt extends payment grace period

 Telecom Egypt has extended the payment of January and April landline bills until mid-June, owing to the coronavirus outbreak, the operator confirmed.

The company said customers can pay bills through the company's website, the "My WE" application or through "WE Pay".

According to WE's Chief Executive Officer (CEO) and managing director Adel Hamed, the move comes in order to ease customer burdens and support the nation's efforts in combating the outbreak.

Hamed added that preventive measures are in place within its sales and collection centres, such as through providing well-ventilated outside waiting areas, dealing with clients one at a time and maintaining a safe distance between clients and service providers.

Telecom Egypt officially launched "WE", the country's fourth mobile network in 2017.


The network, whose numbers begin with 0155, has launched

data and call services, and started selling phone lines with 4G services, which it will roll out on September 28, alongside the three other mobile network operators.



The company said customers can pay bills through the company's website, the "My WE" application or through "WE Pay"

Facebook buys stake in India's Jio


 Facebook has pumped US\$5.7bn in Jio

Platforms, the digital services arm of India's largest private sector company, Reliance Industries. The deal gives the US tech giant a 9.99% stake and a chance to promote the usage of its apps in Jio's 388 million wireless subscribers. Both companies said the focus of their collaboration will be empowering India's small businesses in the digital economy.

TA suspends capex rise

 Telecom Argentina has decided to suspend a US\$100mn increase in its 2020 capex because of the uncertainties caused by the Covid-19 crisis. Company CEO Carlos Alberto Montini said the business has total capex of US\$500mn earmarked for this year, which was already less than half that for 2019, when the telecom operator invested more than 70bn pesos (US\$1.12bn). "In February and the beginning of March we were planning to increase our capex by US\$100mn to US\$600mn, and that was because the quarter was going better than we were expecting," Montini said in an earnings call with analysts and investors.

Telia Norway launches commercial 5G

 Telia in Norway has switched on its 5G commercial network, offering subscribers high-speed services powered by Ericsson.

The 5G network has Lillestrøm and parts of Groruddalen in the greater Oslo region as the first areas to benefit from enhanced mobile broadband services. During the course of 2020 the 5G coverage will be expanded in Oslo, while the 5G network will also be extended to Trodheim and Bergen.

"This is an important day in Telia's and our customers' history," Stein-Erik Vellan, CEO, Telia Norway. "In a time when we really see the

importance of our digital infrastructure for keeping the wheels spinning, we are incredibly proud to be able to open our 5G network to customers with Lillestrøm as the first place out. Through the partnership with Ericsson we will enable new opportunities and we hope the Norwegian people will enjoy the new and pioneering mobile technology."

Jenny Lindqvist, head of Northern & Central Europe, Ericsson, added: "With 5G, technological boundaries are being moved forward to create the biggest innovation platform ever. New services for consumers and enterprises, as

well as new use cases for digitalization of industries and society, are creating unique business opportunities across all sectors and positive change for everyone."

Lindqvist added that industries and society "will get the support for massive amounts of connected things", for tracking, fleet management, smart metering, and other applications. "But probably the highest impacting implementation is the support to connect industries to drive automation, making us more efficient, more sustainable and opening up a new world of innovation," she said.

Cambodia in China plea

 Cambodia's newly-appointed minister of posts and telecommunications Chea Vandeth urged Chinese telecom giants China Communication Construction Co (CCCC) and Huawei to further invest in the kingdom's 5G digital technology rollout. The appeal comes as the Ministry of Information is set to release the 700MHz frequency band to the telecom ministry in the coming years to help it develop the 5G network.

Assad's cousin facing legal action

 Syria's telecom authority said a deadline for a cellular company owned by the cousin of president Bashar Assad to pay back its debts to the state has ended.

An announcement came hours after Assad's cousin, Rami Makhoul, released a new video in which the businessman said he

was asked to step down from the leadership of Syriatel, the biggest telecom company in the country. However, the watchdog said legal measures will be taken against the company to recover the money.

The Syrian Telecommunications Regulatory Authority said in a statement carried by state news

agency SANA that Syriatel had refused to pay fees to the state, therefore "Syriatel will be responsible for all the legal repercussions" for refusing to give back the dues.

Makhoul had previously been told to pay the equivalent of US\$180m purportedly owed to the government by his telecom companies.

Q&A

Shanks Kulam co-founder x-Mobility

Who did you want to be when you were going up?

Having tried to make money since the age of five (unsuccessfully in the early days as my older brother insisted on lending me working capital at rates that make Wonga.com seem charitable), I always knew I wanted to be in business. In what business I had no idea and to be honest it didn't really matter in the early days.

"If I had to work outside of telecoms, then it would definitely be in the internet industry still helping people to communicate in new and disruptive ways"

In primary school I'd buy, do up, and sell skateboards, then I moved onto radio-controlled cars when entering secondary school. In fact I was making around £100/week (back in 1984) buying, building (they were all kits) and selling radio-controlled cars to the rich kids at the private school I had managed to scrape my way into... to the detriment of my studies of course! Back then what we now consider

my teeth into technical sales, becoming a product manager selling early internet hardware (high speed modems pre-Cisco/IP days). That firmly put me on the path to commercial sales with a technical understanding.

What is the best thing about your job?

Working with entrepreneurial founders and applying telecoms to new vertical markets that

personally I would never have considered before. I love to see their drive and vision and I love that we at x-Mobility can support that.

What is the hardest thing about your job?

Saying no to customers. Unfortunately, it is something that you just need to do sometimes. We work with customers that are the right fit for us – in this way we know that we can better support



suffered, there was a sharp increase in bad debt, previously 'closed' deals were put on the back burner. It was tough.

What has been your career high to date?

Coming out of the 2008 crisis intact, albeit with some business scars, to successfully help scale many brands and companies into the telco space. Initially it was locally via a SIM MVNO and more recently globally via our telco-OTT app.

Who has been your biggest inspiration?

My long-time business partner, Wayne Myers, who's the most creative deal maker I've ever come across. He helps keep our product and service offering technically ahead of the curve, which enables me to sell the next new thing!

What is your biggest regret?

Not co-founding a telecoms business earlier. We started x-Mobility in 2008, but I've loved

"My older brother insisting on lending me working capital at rates that make Wonga.com seem charitable"

every minute of it, so I wish we'd been going for longer.

What is the best business lesson you have learned?

Risk mitigation. In telecoms most companies I've seen fail do so due to bad debts, which is a function of not managing one's risk. Fortunately, I learned this (the hard way) on someone else's time and dime early in my career.

If you had to work in a different industry, what would it be?

Telecoms today is really a function of technology and internet/cloud-based services that can reach billions of users at a relatively low cost. If I had to work outside of telecoms, then it would definitely be in the internet industry still helping people to communicate in new and disruptive ways.

What do you want to do when you retire?

I don't ever want to retire. This is a lifestyle choice, not a job! I've always found communications sector interesting and perpetually evolving, from mobile phone hardware, to software based services such as Skype, to mobile telecoms apps like Vyke.com

What would you say has been the best technological advancement in your lifetime?

The internet. Period. It's levelled the playing field for all, regardless of race, location or wealth. We all have equal access to the world's information. What we do with it is what sets certain folks apart. What can be more disruptive than that?

Which competitor do you most admire and why?

We consider the likes of Twilio.com a competitor. In such a short-time they've democratised telecoms by making it available to the masses via any website or app just by adding a few lines of code.

Which areas of Africa do you work in?

We work across the continent and also with brands servicing the African diaspora. We've recently helped Gist Mobile launch its solution. Founded by two Nigerians, it targets the African diaspora in Europe and North America. We've also got announcements to follow shortly with African operators and banks.

New services, such as the Gist Mobile one, allow users in Africa to have a UK or US mobile number on their device, meaning they can make super low cost calls and texts as if they were in the UK or US at a local rates. For the first time, someone in Africa can 'be local' in another country such as the UK, all without the need for any physical SIM or high cost mobile plan. ■

an entrepreneurial spark was considered hustling... in a bad way.

What was your first job after leaving school?

Telecoms engineer, helping build and install the world's first digital mobile network (One2One now EE) initially only active within the M25/Greater London!

When was your big career break?

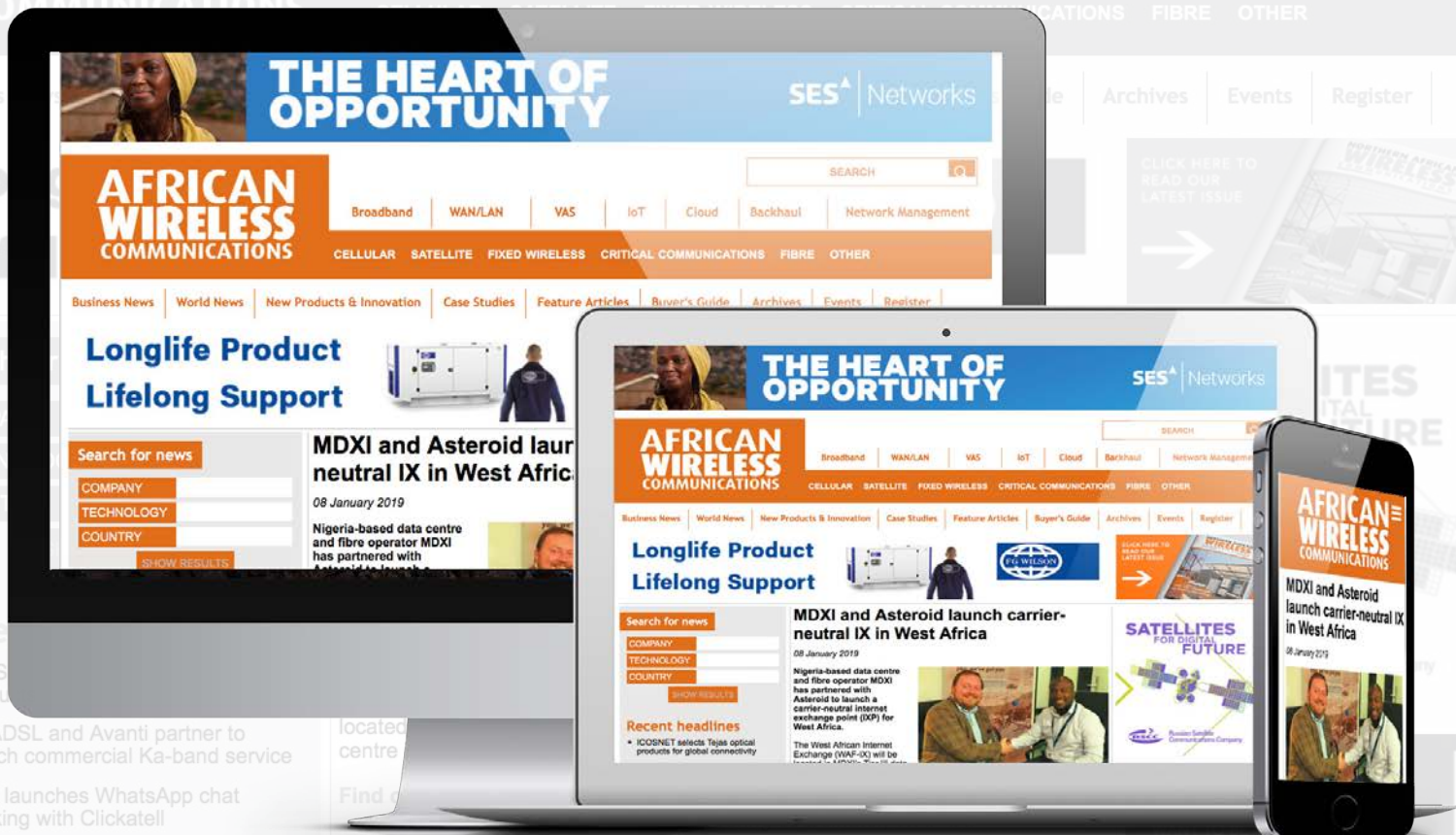
After graduating with an engineering degree in London, I really got

them and help them to grow. But from time to time, when it's not the right fit, we have to say no, so that we don't distract from our, and their, goals and focus.

What has been your career low to date?

Launching a telecoms company during the 2008 financial crisis. The world I had known my whole career (which we didn't realise at the time had been a long bull run) just stopped. Investments

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