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NORTHERN AFRICAN WIRELESS COMMUNICATIONS

OCTOBER/NOVEMBER 2019 Volume 18 Number 5

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- The role IoT is playing for farmers and utilities
- Where is Africa positioned in the great race to 5G?

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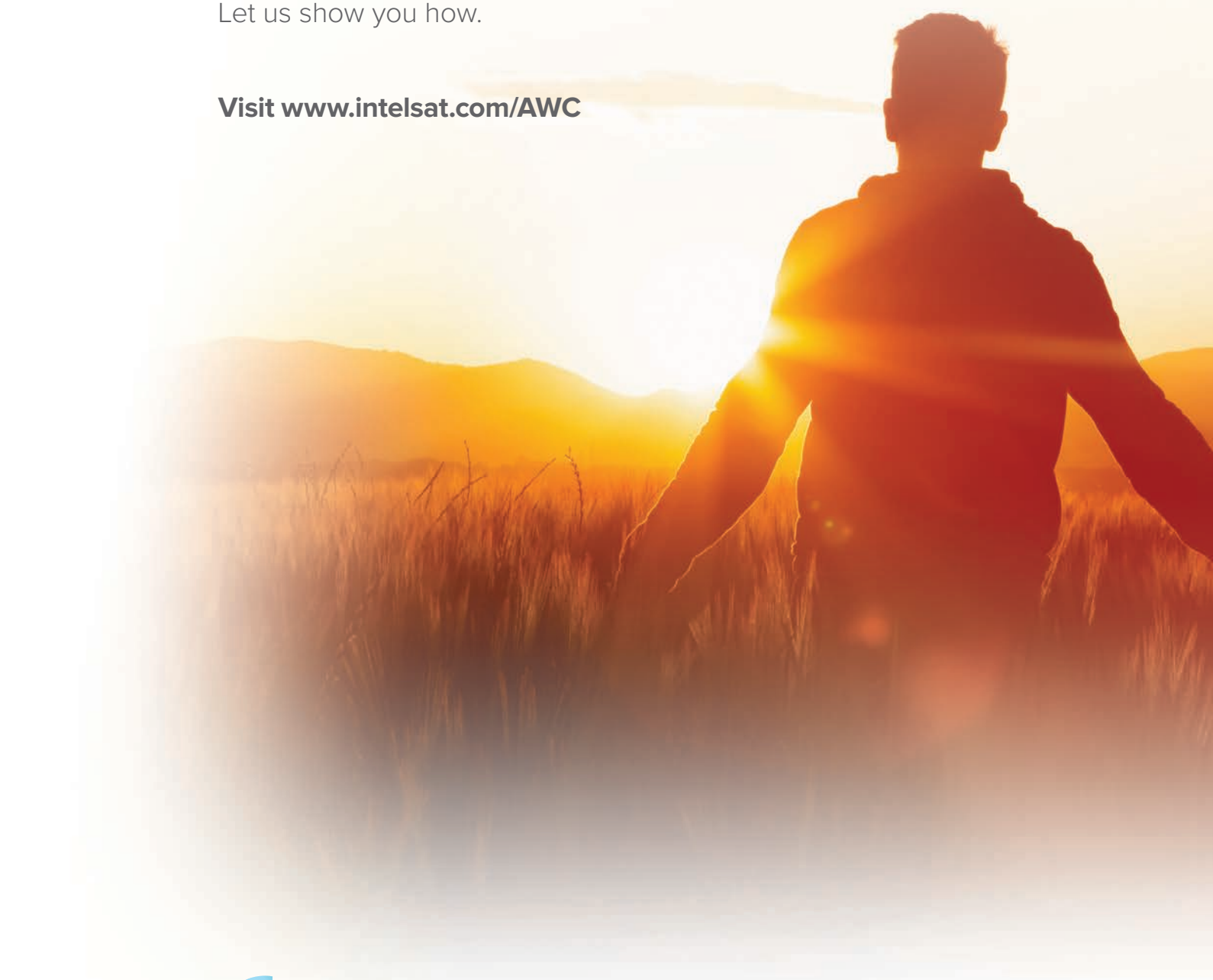

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EDITORIAL:
Editor: **Robert Shepherd**
Designer: **Sean McNamara**
Sub editor: **Gerry Moynihan**
Contributors: **Lucky La Riccia**
Paul Ward
Martin Jarrold

Editorial enquiries:
roberts@kadiumpublishing.com
Tel: +44 (0) 1932 481729
ISSN No: 1751-8296

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

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Vodafone Ghana chief executive calls for big data deployment

The chief executive officer (CEO) of Vodafone Ghana, Patricia Obo-Nai, said the utilisation of accurate and timely big data could help save the lives of many in the west African country.

According to a company statement, using data from mobile networks is very critical as it is now a global concept. It said big data deployment can be used to make life-saving decisions, owing to an era that has become all but dependent on technology.

The statement added that with such focus, the company is going to partner with other organisations to pioneer the use of anonymised customer data to "track trends in population movements".

Collected data will then be "analysed for purposes of decision-making for the health, agriculture and transportation sectors, among others".

The current group of organisations spearheading the project will include Vodafone Ghana, the Vodafone Group Foundation, the Ghana Statistical Service, and Flowminder, which is a not-for-profit organisation.

The Ghanaian telecom firm sees the partnership as one that is going to encourage the country to use valuable metrics for better analyses and predictions for the betterment of all. Vodafone is convinced that the initiative will help Ghana measure the Sustainable Development Goal indicators in a better way.

Vodafone stated that big data deployment can be used to make life-saving decisions, owing to an era that has become all but dependent on technology

The statement also highlighted what Obo-Nai, said at the "Data for Now" forum at the 74th UN General Assembly in New York, when she was on a panel with Mats Granyrd, CEO of GSMA and Claire Melamed, CEO of Global Partnership for Sustainable Development Data.

"The urgent need for accurate and timely data explains why Vodafone is currently leading the drive to use big data for social good in Ghana," Obo-Nai said. "For the first time in the history of the country, a telecoms company is partnering government to use aggregated anonymised data to analyse population movements and other trends, and help to make life saving decisions during emergency response, health delivery, agriculture, transportation and many other metrics."

The Data for Now forum was hosted by stakeholders, which included the World Bank Group and the Ghanaian government.

Tecno opens flagship store in Lagos

Hong Kong's Tecno Mobile, often said to be Africa's "preferred" smartphone brand, has opened its first exclusive flagship store in Nigeria, at the Ikeja City Mall, Lagos.

It offers prospective and existing consumers, direct access to all the line of products by the brand, which includes smartphones, accessories and other gadgets.

The opening event, which lasted for two days, gave all walk-in customers access to an array of devices from the brand at heavily-discounted rates.

"Tecno Mobile has over the years continued to create history in the Nigerian mobile space, through innovations and strategic partnerships, which has placed us highly with our customers," said Attai Oguche, deputy marketing manager, Tecno Nigeria. "This flagship store is another milestone in our achievements, and a way of giving our customers a faster and more direct access to the brand and its variety of products and accessories at impressive price ranges."

The grand opening was also attended by veteran Nollywood actor, Mercy Aigbe.

Tigo rebrands to Free Senegal

Tigo, the second largest telephone operator in Senegal with 25% of market share has been rebranded as Free Senegal.

The launch of the Free brand had been anticipated since the acquisition in 2018 of Tigo Senegal, owned by the Luxembourg telecommunications company Millicom, by Saga Africa Holdings, a consortium of French billionaire businessman Xavier Niel, the Senegalese multimillionaire Yérim Habib Sow and Madagascan businessman Hassanein Hiridjee.

"For 18 months, we had a US$150m investment plan ($136.5m): we expanded our network, deployed fibre optics, started lowering our prices," said Mamadou Mbengue, general manager of Free Senegal. "We have been able to build a 4G + network. After all that, you had to come up with a strong brand. We wanted to break the codes and Free is a brand of rupture. Senegal becomes the first foreign country where the Free banner is used."

Mamadou Mbengue, general manager of Free Senegal
PHOTO: LINKEDIN

Ugandan authority denies claims of corruption and mismanagement

The National Information Technology Authority of Uganda (NITA-U) has hit back at claims that it has been wasting public funds with its roll-out of a national backbone network.

Recent press reports in the east African country have accused NITA officials of both corruption and mismanaging the deployment.

NITA-U responded with a statement, in which it said originators of the fake news were clearly determined to downplay Uganda's progress in achieving widespread connectivity, which has significantly lowered bandwidth costs for customers over the last decade. The body also said that at the start of the project in 2008, the cost per 1Mbps was US$1,200 but that has now dropped to US$70.

The agency added that 3,000km of fibre-optic cable has already been deployed and a fourth phase of the roll-out is under way.

Demolition of 7,000 masts suspended

The Nigerian Civil Aviation Authority (NCAA) said the planned demolition of over 7,000 telecom masts across the country had been suspended indefinitely, after affected operators responded to its directive on aviation height clearance approval.

In April, the regulatory agency threatened to demolish over 7,000 telecom masts belonging to Global System for Mobile Communications (GSM) providers erected across the west African country.

It warned that it was prepared to resort to the strongest course of action after a number of operators failed to obtain the statutory aviation height clearance. In June, the NCAA said it would demolish a total of 8,805 masts belonging to some banks and financial institutions as well as telecoms operators who had discountenanced its regulatory requirements on the clearance to erect any high structure within navigable airspace in the country.

The regulator said the operators failed to act within the 30-day ultimatum handed down for compliance. It added that the Nigeria Civil Aviation Regulations (NigCARS) Part 12.1.7.1.3.1 stipulates, "No person or organisation shall put up a structure (permanent or temporary) within the navigable airspace of Nigeria unless such a person or organisation is a holder of Aviation Height Clearance Certificate granted under this regulation."

Morocco among most advanced in Africa

Morocco is now one of the most advanced telecom markets in Africa, according to ResearchAndMarkets.com's "Morocco – Telecoms, Mobile and Broadband – Statistics and Analyses" report.

It said the north African nation's telecom sector has been supported by the government's Maroc Digital 2020 strategy to encourage the development of a digital economy and on the National Broadband Plan. It aims to provide fixed or mobile broadband access to the entire population by 2022.

The part-privatised incumbent telco Maroc Telecom is still the dominant player in the fixed-line sector, though it has effective competition in the mobile sector. The report further notes that French giant Orange Group, a key regional player, entered the market through the acquisition of a major stake in the telco Mdi Telecom.

Despite regulatory efforts to enforce local loop unbundling (LLU) and wholesale pricing, there is little in the way of access to its networks and as a result, the fixed-line broadband market has not developed to its potential. That has only helped Maroc Telecom remain the dominant fixed-line broadband player.

The nation's telecom sector has been supported by the government's Maroc Digital 2020 strategy to encourage the development of a digital economy and on the National Broadband Plan

Nevertheless, a small number of operators, including Inwi and Orange Morocco are now offering competing DSL services, albeit with limited reach. However, despite these market limitations and Maroc Telecom's near-monopoly, the report found that Morocco has some of the lowest broadband prices and highest penetration rates in Africa and that this has been helped by the decent connectivity to international fibre cables.

Airtel Africa boosted by interim figures

Airtel Africa reported sustained growth across its voice data and mobile money operations, as its customer base grew by 10.4% to 104 million.

Revenue was up 8.4% year-on-year for the six months ended September 30, to $1.64bn, as the board claimed second quarter growth accelerated to 9.8%.

First half revenue was 11.4% and 12.6% in the second quarter. It said the constant currency revenue growth of 11.4% was driven by double-digit growth in Nigeria and east Africa, partially offset by a slight decrease in its rest of Africa footprint

Growth was said to be "broad based" across all services, with revenue in voice, data and mobile money up by 3.2%, 37.8% and 46.5% respectively.

Airtel Africa's reported underlying EBITDA was $719m for the first half, up 10.9%, while constant currency underlying EBITDA growth was 13.7% over the same period.

"These figures underline the strength of our ability to consistently deliver growth across voice, data and mobile money," said chief executive officer Raghunath Mandava. "This performance underlines our ability to consistently grow in double digits, powered by our growth engines of data and Airtel Money growing at 37% and 46% respectively. "This is the seventh quarter of double-digit growth with EBITDA margin expansion of over 90 basis points."

Mandava said that in July, the company reached an important milestone as it crossed 100 million customers across its footprint.

"Over the last six months we launched 4G services in Democratic Republic of Congo and Niger and 4G sites now account for 58% of total sites. Now we are ready to launch in Tanzania, thereby making 4G services available across all our 14 countries."

Revenue in the mobile money business grew 46.5% in the first half, and just above 50% in the second quarter, which Mandava said was the result of "compelling customer propositions" and investments in Airtel's exclusive franchise stores and kiosks.

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Broadband for all 'will cost US$100bn' – new report

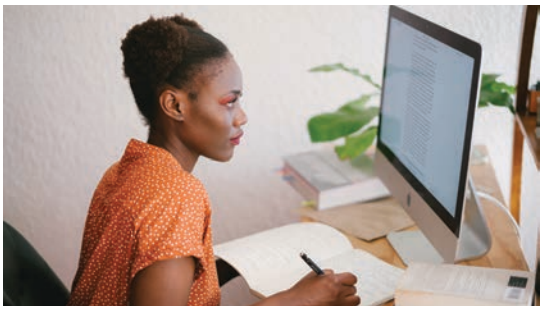
African nations will need to get around 1.1 billion people online if the continent is to stand a chance of achieving universal broadband access, according to a new report.

Unveiled at the Annual Meetings of the World Bank Group, the *Connecting Africa Through Broadband* report found that less than a third of Africa's population has access to broadband connectivity and achieving universal, affordable and good quality internet access by 2030 will require a US$100-billion investment. The report also said urgent action was needed to close the internet access gap while providing a roadmap to reach this goal.

In order to get the 1.1 billion people online, the report said there was a need for exceptional and coordinated efforts from governments, the private sector, development partners and that the investment is worth it.

"The digital agenda is first and foremost a growth and jobs agenda," said Makhtar Diop, the World Bank's Vice president for infrastructure. "The working-age population in Africa is expected to increase by some 450 million people between 2015 and 2035. If current trends continue, less than one quarter will find stable jobs. Broadening internet access means creating millions of job opportunities."

A statement from the World Bank said that while the number of broadband connections in Africa crossed the 400 million mark in 2018 (nearly 20 times 2010 levels), the regional average broadband penetration -including 3G and 4G connections- is only 25% in 2018.



The number of broadband connections in Africa crossed the 400 million mark in 2018 (nearly 20 times 2010 levels)

"Mobile broadband coverage in Africa is still at 70% of the population. Even in North Africa, there is ample room for growth with 4G networks covering only about 60% of the population. Additional challenges, such as the lack of access to reliable and affordable electricity, make accelerating Africa's digital transformation journey even more difficult," the organisation states.

The report further found that nearly 80% of all required investments are directly related to the need to roll out and maintain broadband networks. However, connecting the unconnected is about more than just infrastructure: about 20% of required investment consists in building the user skills and local content foundations, and another 2-4% should be allocated to setting up the appropriate regulatory framework, it said.

AirtelTigo and Nokia join forces

AirtelTigo has joined forces with Finnish giant Nokia to roll out a smartphone offer with free data and voice package for 12 months.

The operator's acting chief executive officer Murthy Chaganti, said the partnership with Nokia would give new and existing customers of AirtelTigo a free SIM card, minutes to call AirtelTigo numbers and data to browse the internet for the purchase of any Nokia in AirtelTigo shops or through Nokia authorised distributor Alliance Marketing Group.

"With our brand promise to make life simple for our customers, we are delighted to partner with Nokia, and we believe that the partnership offers a great proposition to our customers," he added.

Chaganti also said that the free data and voice minutes for customers will vary based on the cost of the device. "Customers will have to dial *536# to activate the offer for the first month and recharge their lines with GHS2 and above every month."

Nigeria blocks MTN's USSD charge

Nigeria has blocked a planned move by operator MTN to charge users N4 (US$0.013) per every four seconds for unstructured supplementary service data (USSD) access to banking services.

The country's communications minister Isa Pantami told the Nigerian Communications Commission (NCC) to suspend the proposed charge, after notification by the operator to subscribers sparked outrage on social media platforms.

USSD is a real time messaging communication technology that serves for account opening, balance and other enquiries, money transfer, airtime vending, bill payment among others, with a shorter turnaround time than SMS

"As requested by your bank, from Oct 21, we will start charging you directly for USSD access to banking services. Please contact your bank for more info," read a message from MTN.

USSD is a real time messaging communication technology that serves for account opening, balance and other enquiries, money transfer, airtime vending, bill payment among others, with a shorter turnaround time than SMS.

When users interact with a remote application from their device, the USSD starts a predefined session to facilitate the transfer of information between the application and the user.

Since Pantami put a hold on the proposed charge until he is "fully and properly briefed", according to a statement from his office, the directive (which will also affect other telecom firms) can still be reversed.

Nigerians who swamped the communication ministry's Twitter pages also claimed that other operators have been deducting similar charges from their bank accounts for a number of months.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Submarine cable lands at Grand Bassam

MainOne has finally landed its submarine cable in Grand Bassam, Côte d'Ivoire, the final leg of the ongoing expansion to reach Senegal and the former (*NAWC August/ September 2019*).

The landing, which follows the recent completion of the landing in Dakar, Senegal will extend the reach of the cable into Côte d'Ivoire and other west African countries.

It is also the first commercial cable in service to deploy spectrum sharing capabilities guaranteed to deepen infrastructure sharing and lower the cost of delivering broadband services to the region.

Following the landing at the Grand Bassam beach in Abidjan, the cable will be connected to an existing branching unit on the cable trunk already strategically located offshore.

The upgrade of the electronics on the cable and the implementation of spectrum sharing functionality will now enable multiple operators to share optical spectrum on the submarine pair with up to 10 terabits of capacity.

Availability of such increments in capacity is expected to further accelerate the deployment of 4G services in addition to fixed broadband across the region.

Furthermore, the submarine cable will be connected to the newly-constructed MainOne data centre in Abidjan, purposely built alongside the cable landing station to house infrastructure to facilitate the growth of the digital economy in Côte d'Ivoire.

MainOne chief executive officer (CEO) Funke Opeke, said that the firm recognises the role that broadband infrastructure plays in driving the growth of the digital economy and economic development in the 21st Century "and are excited that we can enable these investments" in Côte d'Ivoire.

"We look forward to energising the digital ecosystem, not just in Côte d'Ivoire, but also in neighbouring countries as we bring the new submarine cable connection and Grand Bassam data centre into service," Opeke added.

Ugandan regulator to detect fake devices

The Uganda Communications Commission (UCC) has announced the installation of equipment specifically designed to detect counterfeit phones in a bid to help eliminate counterfeits or second-hand phones in the marketplace.

New equipment will detect counterfeit phones so that at the point of purchase, buyers can check with a telecom company whether the phones are genuine or fake.

"As ICTs continue to transform the way we live, through the proliferation of OTT services and value added services, among others, universal standards are required to streamline connectivity, mobile finance, counterfeit devices, spam and cyber security, internet and other things," said UCC executive director Godfrey Mutabazi, speaking at the opening of a regional preparatory meeting for the World Telecommunications Standardisation Assembly (WTSA) 2020 in Entebbe.

Mutabazi also said that the Uganda assembly is aimed at formulating policies to achieve respective goals as one African position. He said Africans face similar challenges dealing with counterfeits like the developed economies.

"You cannot have technology for Uganda alone; the manufacturer does it for the whole world," he added. "Technology uses frequencies, so we have to plan for those frequencies. They don't stop at borders. All countries must conform to a certain parameter so that the technology is relevant."

New equipment will detect counterfeit phones so that at the point of purchase, buyers can check with a telecom company whether the phones are genuine

The African Telecommunications Union (ATU) secretary general, John Omo also present at the forum, said that the new technologies and innovations in the ICT field continue to increase the standardisation gap between developed countries and developing countries. Uganda has proposed a number of policies, which will be discussed during the ongoing meeting.

WTSA brings together African players in the telecom sector, including government representatives, experts, private sector players and academia to debate matters of interest ahead of the WTSA in Hyderabad, India, in November 2020.

Egypt's TIBA-1 military comms satellite en route to Guiana Space Centre launch

Egypt will have a new military space communications satellite in November 2019.TIBA-1, developed by Airbus Defence and Space and Thales Alenia Space (TAS), has been flown to French Guiana, ahead of its launch from Kourou on an Ariane 5.

Airbus and TAS are jointly responsible for building TIBA-1 and delivering it in orbit. The former supplied the Eurostar E3000 platform and assembled and tested the spacecraft. TAS, the leading partner, designed and built the communications payload, featuring a dual mission in Ka-band for secure and broadband communications.

TIBA-1, designed to remain in service in orbit for more than 15 years, will have a launch mass of 5,600 kg and an electric power capability of higher than 9 kW.

Egyptian President Abdel Fattah el-Sisi signed a US$600 million contract with then French President François Hollande in April 2016 for TIBA-1 and its launch by Arianespace.

In December 2015 it was reported that Egyptian military officials were in discussions with the French for the acquisition of a military communications satellite and a high-resolution Earth observation satellite. Reports at the time suggested that the discussions on these satellites ran into technical issues that could not be resolved quickly.

Then, in February 2016, it was reported that the French government had influenced officials at the International Telecommunication Union (ITU) in Geneva, Switzerland, to allow Egypt to keep an orbital and frequency slot that had expired because Cairo had failed to place a satellite in orbit within the required timeframe. This development has caused controversy within the ITU as it is perceived by others to be an unfortunate precedent that will allow other countries to reserve scarce orbital and frequency slots for years without placing operational satellites in them.

Nigeria to invest in fibre optic

A total of NGN65bn will be spent on the laying of 127,000km of fibre optic throughout Nigeria in the next four years. Umar Garba Danbatta, executive vice chairman of the Nigerian Communications Commission (NCC), disclosed this when he paid a visit to Abuja's Galaxy Backbone data centre in October. However, he did add that the counterpart fund was subject to government approval. Danbatta said that the only way that Nigeria could make broadband available to all citizens is to lay fibre optic cable throughout the country.

Telco bosses blame Kenya

Bosses at Telkom and Airtel blamed the Kenyan government for standing in the way of the proposed merger. Mugo Kibati, CEO of Telkom said politicians' silence on the matter was one of the main reasons why the regulator was yet to approve the deal. The Kenyan government holds a 40% stake in Telkom.

Liberian operators face audit

Liberia's two telecom firms Orange and Lonestar Cell MTN will soon be at the centre of an audit operation initiated by the National Tax Authority (LRA). The general commissioner of the LRA, Thomas Doe Nah, said the audit decision is related to the promotion on free three-day calls, offered for several years by mobile phone companies and cancelled in September by the government. The Liberia Telecommunications Authority (LTA) reorganised the promotional battle between Orange and Lonestar Cell MTN.

Talking satellite

Martin Jarrold, chief of international programme development, GVF

Climate, environment, satellite & A digital ecosystem

During October this year I spoke at an event for information technology security professionals in Riga, Latvia, although the theme of my presentation was a little off the mainstream of topics addressed during the several tracks of the programme. My choice of title? *A "Network of Networks" for Digitally Driven Sustainability: A Cyber Secure Satellite-5G World.* An alternative title might have been "Triangles". What follows explains this cryptic alternative.

The train of thought which led to my choice of the actual title and theme relates to all the available evidence suggesting that we are not on track to avert two existential environment challenges: the nature crisis; and, climate change. Some scientists believe that the acknowledged biodiversity crisis is, in actuality, the beginning of the sixth mass extinction in geological history; and, over 98 per cent of the scientific community acknowledge climate change as a fact. It is equally acknowledged that Africa is the global region most likely to be severely impacted by both.

What has this to do with satellite communications? The link is all to do with data, information, knowledge. Whilst Africa is one region of the world which continues to face the problems of a digital deficit, or digital divide, there is another digital gap that is apparent, one made evident through the fact that of the 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 – part of the *Agenda 2030* to achieve a better future for all humanity – 68 per cent of the 93 environmental SDG indicators cannot, according to the UN Development Programme (UNDP), currently be measured due to lack of data.

This other digital divide must also be bridged, enabling us to acquire and deploy data sets to build a digital ecosystem for the entire planet which will allow data flows to be eventually transformed into insights for sustainable decision-making. Radio communications, including satellites – and, therefore the related areas of the forthcoming "network of networks" with integrated **satellite** and **5G**, and of **cyber security** (see below) – have a key supporting role in achieving the 17 SDGs. The UNDP is working with partners on a digital ecosystem for the entire planet, as detailed in a UN paper authored by Jillian Campbell and David E. Jensen.

Requiring various "frontier technologies" – cloud & edge computing; artificial intelligence & machine learning; the Internet of Things; social media platforms; blockchain & distributed databases; software; mobile apps; augmented reality & virtual reality – as well as satellite, and related communications technologies, the building of such an ecosystem will, as I see it, have its foundations in a series of parallel relationship "triangles".

The three vertices of the first conceptual "triangle" are **Socio-Economy**, **Development**, and **Environment** – all elements of the 17 UN SDGs. The integrity and robustness of a digital ecosystem which will support each vertex and the relationship between the vertices will depend on the inter-relationships between the vertices of two other conceptual "triangles". The first of these features – **satellite**, **5G** (and, to some extent, previous generations of broadband mobile), and **cyber security**; and the second features the characterization of **5G** itself, divided between the three major use cases (the vertices?) of: [1] enhanced Mobile Broadband (eMBB); [2] massive M2M Communications (mMTC); and, [3] Ultra Reliable Low Latency Communications (URLLC). In combination, the major use cases encompass:

[1] Web browsing, video streaming and virtual reality, together generating 10,000 times more traffic than over 4G networks, with greater than 10Gbps peak data rates and providing 100Mbps whenever needed;

[2] Narrowband Internet access for sensing, metering, and monitoring devices, i.e., the Internet of Things (IoT) connecting billions of devices without human intervention;

[3] Services for latency sensitive devices requiring sub-millisecond latency with error rates that are lower than 1 packet loss in 10^5 packets.

The **satellite-5G-cyber security** inter-relationships have been well-addressed by GVF on behalf of the satellite industry (*Joint Statement on the Satellite Industry's Commitment to Cyber Security and a Secure Supply Chain*), as well as by, for example, the European Space Agency (ESA) in calling for proposed solutions to determine the viability of satellite-based services in support of cyber security and to assess technical feasibility and commercial viability for diverse, current and future, vertical sector users of satellite. Potential solutions will be enabled by space as a means to mitigate the cyber security risks and to enhance cyber resistance and the resilience of existing infrastructures, services and operations, and contribute to enhancing the end-to-end cyber security of space-based applications.

The 3GPP – the 3rd Generation Partnership Project producing the Reports and Specifications that define 3GPP technologies, including 5G – has said the incorporation of satellite networks will help enable 5G service rollouts in unserved and under-served areas, enhance reliability and increase service availability everywhere to the benefit of critical communications and transportation applications.

Governments, telecoms network companies and technology groups are working on heightened security standards for 5G and the Internet of Things. Whilst there are apparent flaws in 5G security – such as the use of fake mobile base stations to steal information – 5G data encryption and network user verification mechanisms have improved on 4G, but the 5G weak link is in communication of IoT devices connected to 5G networks, particularly when manufacturing default passwords on such devices are not upgraded.

*Building a global digital ecosystem is firstly dependent on the gathering and accumulation of **RAW DATA** from multiple sources – economic, environmental and social – reflecting the conceptual "triangle" vertices of Socio-Economy, Development, and Environment, elements of the 17 UN SDGs. Secondly, the storage and processing of this data, and the connection of multiple databases with improved metadata, is dependent on an information and communications **INFRASTRUCTURE**. Thirdly, cloud computing and **AI ALGORITHMS & ANALYTICS** extract actionable, intelligence, **INSIGHTS & APPLICATIONS** – from multiple and integrated information streams – as metrics & 'performance dashboards' which are comprehensible to decision-makers.*

All this must happen with a much elevated and broader understanding of the long-term models and incentives that will sustain these efforts. What is needed is to determine how such efforts can protect data security, achieve interoperability, and maintain high standards, whilst answering the question "Will governance be voluntary and collaborative, or regulated and mandated?"

What Do IoT, 5G and Smart Cities all have in common?

By Femi Oshiga, vice president of Service Providers in the Middle East & Africa, CommScope

As we head to Cape Town, we'll be joining 15,000 tech enthusiasts who are eager to discuss Africa's connectivity infrastructure, disruptive technologies, digital services and ICT strategies. It's an exciting time for a region that has the chance to leapfrog in technology as 5G related activities become more widespread across Africa from mid-way through the decade.

According to GSMA, by 2025, there will be commercial 5G services in at least seven markets, including Kenya, Nigeria and South Africa, with 28 million 5G connections (equivalent to 3% of total mobile connections) between them. South Africa's data-only operator Rain has launched the continent's first commercial 5G network early this year and countries are moving quickly toward a state of readiness with 4G adoption approaching mass market and operators progressing with network modernisation initiatives.

Most people think of 5G as a new wireless service for faster smartphones, but it is also a medium that enables a city to become smarter. Citizens and visitors will one day demand new applications also be integrated into city services and capabilities. Growing urban demographics and the rapid expansion of cities forces governments to deploy smart city solutions to sustain city services, drive economic competitiveness, and enable a thriving environment in Africa and the Middle East (AME). Smart city initiatives in the region predominantly focus on four areas: mobility, security, sustainability, and public services.

Looking toward a smart future – a global perspective

To make things "smart" and improve overall efficiency, we connect IoT devices through a network to the cloud (and each other). Thus, anything "smart" requires connectivity, both wired and wireless, at least in most cases. The 5G networks of the future will bring sophisticated connectivity to these edge IoT devices with higher speeds, more machine-to-machine connections and very low latencies – enabling a new generation of applications and use cases that we haven't yet thought of.

Once we connect all the eyes and ears (IoT sensors) of the world to the data center brain, we can start generating intelligent data to drive new analytics and services. As well, more processing power is shifting to the edge, with the deployment of MEC (Mobile Edge Computing) moving closer to the actual end points and users to enable lower-latency applications.

All of these IoT edge devices and MECs need a home close to the users, which is why some city streetlights are morphing into smart poles. Streetlights are uniquely spaced throughout the city; they provide power and altitude and are ready for remodeling with LED replacements. Today, cities are eyeing two types of smart poles for replacing traditional streetlights:

- **IoT streetlight pole** – A streetlight pole can support public Wi-Fi deployments, environmental sensors, gunshot detection and LED lighting controls upgrades. Adding IoT edge devices transforms humble streetlight poles into smart IoT poles.
- **Telco pole** – These are the typical small cell poles deployed by carriers or neutral hosts to support cellular connectivity in dense areas. These poles are built for connectivity and will play a critical role in 5G mmWave deployments. By adding IoT devices, simple telco poles become smart telco poles. With telco poles, the connectivity backbone delivering a path between the edge and the cloud is already established, thereby enabling faster deployments. Due to the larger form factor of small cell equipment, physical constraints should be an early and primary guideline for aesthetic concealment in cities.

It should be noted that smart poles are part of a smart ecosystem and no single company can go at this alone. I am constantly asked if CommScope has any plans to build IoT sensors, software, apps or services for smart poles and my answer is "no, we need an ecosystem." Put simply, these interconnected products and services require multiple players to work in harmony to offer complex services.

This is why it is critical for the industry to support an open ecosystem that allows customers to choose their own edge devices, software and cloud providers. This is particularly important due to the long lifecycle (decades) of public projects compared to typical enterprise (years) engagements. In addition, regulatory guidelines should also be considered.

At CommScope, we provide the physical layer for smart poles and do that exceptionally well. This starts with the fiber and copper solutions connecting all the racks inside a data center. From there, we supply outside fiber solutions to connect these data centers to the central offices (head ends) for the carriers and all the way to the business/home or macro/metro cell tower. At these end points, we typically see the conversion from wireline to licensed or unlicensed spectrum wireless.

These wireless networks are also experiencing constant changes where licensed (4G/5G) and unlicensed (Wi-Fi, Bluetooth, LoRa, etc.) are beginning to converge. For example, smart buildings are expected to provide reliable cellular coverage inside the building along with ubiquitous Wi-Fi and support for IoT wireless networks. Add the upcoming CBRS private networking play and we soon realize we are building multiple networks under one roof – all delivering ones and zeros to endpoints. How will all these networks converge in the future?

By providing the connectivity piece in this complex puzzle, CommScope adds tremendous value to the customer. We will continue to build out our ecosystem so we can offer complete solutions with our partners. With the acquisition of ARRIS and Ruckus Networks, CommScope has the resources of a Fortune 250-sized company that is well placed to drive the future of connectivity in the region.

In a new era of IT, the network underpins everything

Below are example solutions that enable a smart future for network operators across the region:

- **Fiber for High-Speed and Robust Connectivity:** Smart cities will be built on fiber. CommScope's fiber technologies enable faster connectivity in buildings, the data center and central office.
- **Ultra-Connected Homes are Becoming a Reality:** Consumers are experiencing an increasingly digital life and network operators are seeking ways to unlock the best user experience. CommScope is delivering reliable, high-bandwidth Wi-Fi to every corner of the home and sees the smart media device bringing connected home technologies together for a unique personalized experience.
- **Powering Connectivity for Smart Cities:** As smart cities add new mobile-connected devices like security cameras and air quality sensors, they must have access to electricity. This is not always an easy task considering devices may be several hundred meters away from a power source. Network operators are using CommScope's powered fiber cable systems to speed and simplify installation, and power these types of network devices.
- **Digital foundation for Smarter Buildings:** As the number of connected devices grows, the location of these devices is becoming more important. CommScope's automated infrastructure management (AIM) system knows exactly what is connected, how it is connected and where it is located. The software automatically tracks changes, issues work orders, and documents the entire network. It also provides root-cause analysis in the event of failure, helping restore services faster. ■

Safaricom names Peter Ndegwa as new chief executive officer

Safaricom has hired Peter Ndegwa, current managing director of Diageo Continental Europe, as its new chief executive officer (CEO), effective April 1, 2020.

Nicholas Nganga, the chairman of Kenya's dominant player, issued a statement confirming the appointment. He said Ndegwa "brings a wealth of experience in general management, commercial and business strategy, sales and finance operations, having spent over 25 years in various roles within the financial services and fast-moving consumer goods (FMCG) sectors in Africa and Europe".

Ndegwa currently oversees the operations of Diageo across 50 countries in Europe, the Middle East and North Africa.

In July 2019, former Safaricom CEO Michael Joseph was parachuted in as interim CEO following the passing of popular telecom luminary Bob Collymore.

At the time of his death, the company's board decided that Joseph would be a safe pair of hands until it was able to secure a permanent replacement.

Joseph was the founding CEO of Safaricom and handed the company over to Collymore nine years ago

At the same time Kenya's Communications Authority (CA) released a report which stated that Safaricom had gained market share in the fixed broadband segment. According to the CA's Q1 report (January to March 2019), Safaricom secured over 16,000 connections and its subscription base was recorded then to be at 126,792 or 31.5% market share.

Contact Ooredoo customer support by WhatsApp

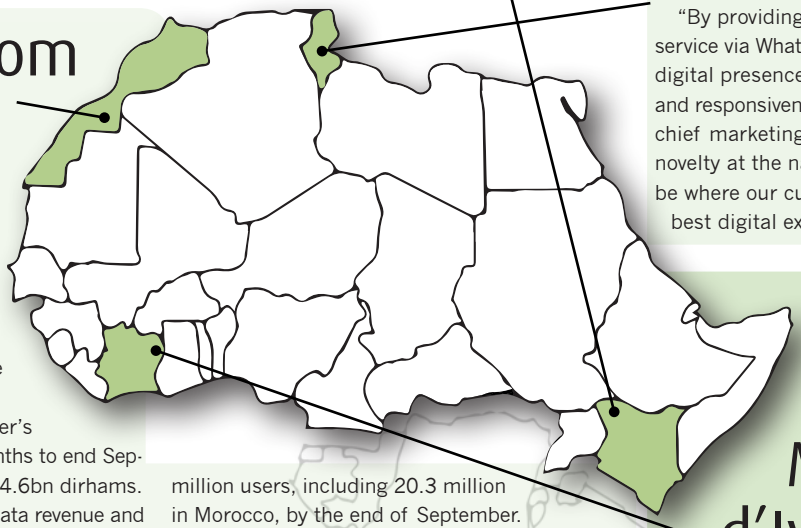
Ooredoo Tunisie has made its customer support service available via messaging application WhatsApp.

This new service allows Ooredoo subscribers to benefit from direct, fast and accessible information 24/7. Customers can now reach the operator at any time to send a request or request information. To benefit from this, customers just need to create a conversation within the app, adding the phone number +216 22 11 11 11 and chat directly with an advisor.

This launch will help to reinforce Ooredoo's position as a leader in customer relations in Tunisia, where the operator won the 2019 Best Customer Service Award.

"By providing our subscribers with a customer service via Whatsapp, Ooredoo is strengthening its digital presence by offering even more proximity and responsiveness," said Houssem Abbassi, chief marketing officer at Ooredoo Tunisie. "This novelty at the national level shows our desire to be where our customers are to offer them the best digital experience. "

Maroc Telecom sees flat Q3 return



Maroc Telecom reported an adjusted third quarter profit of AED1.625bn (US$170 million), up 0.4% compared with the same period in 2018.

Morocco's largest telecom player's adjusted profit in the first nine months to end September rose 1.3% year-on-year to 4.6bn dirhams. This was thanks to higher mobile data revenue and cost control, the company said in a statement.

Elsewhere, third quarter consolidated revenue rose to 9.46 billion dirhams, up 1% compared with the same quarter last year – this was courtesy of an improved performance on the Moroccan market.

Revenue for the first nine months was up 0.9% to 27.3bn dirhams.

The group's customer base grew 10.6% to 67.6 million users, including 20.3 million in Morocco, by the end of September.

Maroc Telecom operates subsidiaries in Benin, Burkina Faso, Côte d'Ivoire Gabon, Mali, Mauritania, Niger, Togo and the Central African Republic.

Headquartered in the capital Rabat, Maroc Telecom is 53.09% owned by multinational Emirati based telecommunications services provider Etisalat and 30% owned by the Moroccan government.

Ouattara appointed MTN Côte d'Ivoire CEO

MTN Côte d'Ivoire has hired MTN Congo Brazzaville chief executive officer (CEO) Djibril Ouattara as its new head, effective November 1. He will succeed Freddy Tchala, who left the same post in September. Current MTN Congo Brazzaville chief technical and information officer Ayham Moussa will assume the role of acting CEO of MTN Congo Brazzaville until a permanent appointment is found. No time frame has yet been given for finding a permanent replacement.

"Djibril is a seasoned executive with experience spanning more than 15 years in telecoms. In his most recent role as CEO of MTN Congo Brazzaville, he made significant strides in delivering on the company's BRIGHT strategy," the group said in an update to shareholders.

MTN also highlighted the fact that Ouattara had implemented a successful turnaround, including a network transformation. This helped MTN Congo Brazzaville win the award for best network in the country for two consecutive years, as well as an aggressive supply and distribution transformation leading to significant value share growth.

5G to generate billions, says Ericsson

African and Middle Eastern network developers can expect a potential revenue opportunity up to US$46bn by 2030, provided they adapt their business model to become service enablers and creators.

That is according to Ericsson's 5G Business Potential beyond Mobile Broadband report. A sequel to the 5G Business Potential report, Ericsson highlighted the "industry verticals" that are prominent in the region and offer clear opportunities for 5G use cases.

"5G will introduce opportunities that will allow operators to adopt new business models and develop new services, applications and revenue streams," Chafic Traboulsi, VP and head of networks, Ericsson Middle East and Africa said at GITEX Technology 2019 in Dubai. "These new 5G applications and services are expected to have a profound impact on consumers, businesses and industry digitalisation which underscores the importance of releasing our research at this time."

Ericsson has identified four industry verticals that form the primary focus in the addressable 5G business potential opportunity and cited clear opportunities for the following 5G use cases: oil and gas (mining), transport and automotive, public Safety and critical infrastructure and manufacturing.

Ghana regulator pledges successful SIM card re-registration

The Ghana Chamber of Telecommunications (GCT) has pledged to work with the ministry of communications to prevent the recurrence of problems that led the government's directive to re-register all SIM cards.

Ken Ashigbey, chief executive officer (CEO) at the GCT, welcomed the directive because it would curtail the use of mobile phones for criminal activities. He said the industry endorsed it even before it received the regulatory directive from the National Communications Authority (NCA).

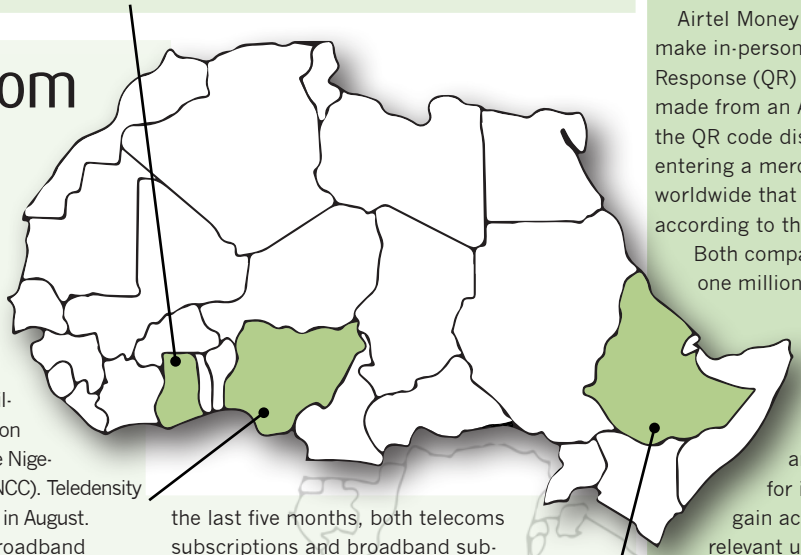
The GCT is the umbrella organisation that regulates and promotes the interests of telecommunication businesses in the west African nation.

Ghana's minister of communications, Ursula Owusu-Ekuful said phone users have until June 2020 to re-register their SIMs or risk losing them. She added that the valid ID cards to be used for the re-registration would include driving licences, SSNIT cards, passports and the Ghana Card.

Owusu-Ekuful also said a detailed programme would be rolled out by the NCA and that the exercise would be conducted with the telecommunications companies.

Once there is a database to verify those who presented ID cards for SIM card registration, it would be very easy to confirm that the ID card presented was genuine, she added. It would also deter people from using fake ID cards for registration and subsequently using them to commit different crimes.

Nigeria telecom subs rise by two million in August



Nigeria's telecom subscriptions increased by two million to 176.9 million on August 31st from 174.9 million subscriptions in July, according to the Nigerian Communications Commission (NCC). Teledensity rose from 91.65% in July to 92.67% in August. The NCC also revealed a rise in broadband subscriptions to 67.0 million in August from 64.4 million in July. Its statistics show that in the last five months, both telecoms subscriptions and broadband subscriptions have been on the increase, which it attributed to steady telecom regulation.

Ethiopia launches advisor search for sale of Ethio Telecom

The world's largest telecom monopoly has moved a major step closer to privatisation after Ethiopia launched a search for an adviser on the sale of a stake in its national operator.

Ethio Telecom, whose 44 million subscribers give it the biggest single-country customer base of any operator in the continent, is the big attraction in a major privatisation programme that will open the nation's market to foreign investment for the first time ever.

The transaction adviser, which the government hopes to appoint in the next few weeks, will help it structure the process, determine a minimum value and select the right partner, according to Eyob Tolina, the minister leading Ethiopia's economic liberalisation.

Ethio Telecom, which generated revenues last year of (US$1.2bn), had separately appointed KPMG to assist with its own valuation of the business, the minister said. While the government has previously signalled only that it would sell a minority stake of up to 49% he said it now had a specific number in mind and that the adviser would help gauge market sentiment. International companies including Vodafone, MTN, Orange, Etisalat and Zain have all expressed interest in gaining access to what is regarded as Ethiopia's fastest-growing market.

Ethio Telecom is one of the so-called "Big-5" group of state owned corporations in the east African nation, alongside Ethiopian Airlines, the Commercial Bank of Ethiopia, Ethio-Insurance, and the Ethiopian Shipping Lines.

Airtel Africa and Mastercard target 100 million mobile users

Airtel Africa has partnered with Mastercard to give its more than 100 million mobile phone users across 14 African countries access to the financial services giant's global network.

The companies said in a statement that the Mastercard virtual (non-plastic) card allows Airtel Money customers (including those without a bank account) to make payments to local and global online merchants that accept Mastercard cards – "while ensuring that the customer's financial data is always secure and private".

Airtel Money customers will also be able to make in-person payments at outlets via Quick Response (QR) codes (whereby payments are made from an Airtel mobile phone by scanning the QR code displayed at checkout or by entering a merchant identifier, at any location worldwide that Mastercard QR is accepted), according to the statement.

Both companies said that there are over one million merchant locations across Africa that accept Mastercard QR payments. The statement further added that Airtel Money customers would benefit from competitive pricing and preferential exchange rates for international payments, "and gain access to other domestically relevant use cases including bill payments, merchants payments and value-added services such as cash management solutions".

"Airtel and Mastercard have a shared passion for digital transformation and making mobile financial services accessible to everyone across the continent," said Raghunath Mandava, chief executive officer of Airtel Africa. "Through our partnership we will enable over 100 million Airtel Africa customers make safe mobile money purchases online and in person. The partnership will also significantly bolster Airtel's position as one of the largest offline-to-online digital payment network in Africa. We are really excited to embark on this partnership with a globally trusted brand like Mastercard."

The partners have indicated that mobile internet connections are expected to grow rapidly in Africa due to low cost smartphones and high-speed GSM networks being rolled out by MNOs.

According to the GSM Association's (GSMA) Mobile Economy, sub-Saharan Africa 2019 report, that section of the continent is one of the fastest-growing investment areas for tech firms, with a predicted total subscriber base of over 600 million by 2025.

NCC orders telecoms to monitor and record calls to reduce crime

The Nigerian Communications Commission (NCC) has ordered telecom operators to monitor and record all communications that pass through their networks, in a bid to curb rising security risks, especially offences involving kidnappings.

Nigeria's independent regulatory authority for the telecom industry in the west African country warned that telecom operators that fail to monitor and keep records of calls and communications passing through their networks would be fined.

In addition, the NCC said that all the operators would be expected to have the records to hand and be ready to submit them to security agencies should the need arise. Failure to do so would result in severe disciplinary action in the form of fines and they could even have their licences revoked under the provisions of section 45 of the NCC Act.

The NCC added that it would not pay for any equipment as it had already ordered the operators to acquire the facilities needed to monitor calls at their own cost.

Meanwhile, the Senate confirmed the nomination of Adeleke Adewolu, the nominee from South West, as executive commissioner of the NCC. The confirmation followed the consideration by the apex legislative chamber of the report of its Committee on Communications. Presenting the report at Plenary, the chairman, Senator Oluremi Tinubu, (APC, Lagos) said Adewolu's antecedents and competency had been scrutinised and found worthy to serve as executive commissioner. If chosen, Adewolu would replace the former NCC commissioner representing South West, Sunday Dare, on the NCC board.

Orange 'up for sale' in Niger

French telecom giant Orange is selling its business in Niger, according to reports.

Orange Niger spokesman Roni Alhassane told the media that discussions were ongoing with the buyer, Zamani Com S.A.S., to settle debts owed to creditors and unpaid taxes.

Orange's operations in Niger have recently been hit by difficult market conditions and in February, the company said it was considering all possible options for the business. A Niger court appointed an expert earlier this year to examine its situation and support its negotiations with creditors.

Telecel-RCA and Rimbo Holding, owned by businessman Mohamed Rhissa Ali have been linked with a bid for Orange Niger in the past. Maroc Telecom is said to have cooled its interest.

African nations paying high rates

Customers in African nations are paying some of the highest rates in the world for basic internet access, with some forking out more than a fifth of average earnings, new research has found.

The Alliance for Affordable Internet (A4AI) explored 136 low and middle-income countries for its annual Affordability Report, in which it looked at what consumers were paying out as a proportion of their income.

Middle-income examples in the report included Ghana and South Africa, while low income examples were Liberia, Mali and Mozambique.

An initiative of The Web Foundation, founded by inventor of the World Wide Web Sir Tim Berners-Lee, with partner organisations that include Google and Facebook, the A4AI's definition of affordability is 1GB of mobile broadband data costing no more than 2% of average monthly income. However, the average across the African continent is 7.12% and in some cases 1GB costs more than a fifth of average earnings. To put that into context, if the average earner in the US paid that percentage of their income for internet access, 1GB of data would set them back US$373 per month.

The report said such prices are "too expensive for all but the wealthiest few," and said cost was the primary reason why around 49% of the global population is still offline.

Citizens of Chad, the Democratic Republic of the Congo and the Central African Republic pay more than 20% of average earnings for 1GB of data. The most affordable rates in the continent are in Egypt at 0.5% and Mauritius at 0.59%.

Overall, the report found that costs are falling faster in low-income countries than middle-income counterparts, but in many cases prices remain prohibitive.

Seacom and Vodacom team up

Telecom business Seacom and Vodacom Business Africa, the operator's enterprise-focused subsidiary, have joined forces to initiate the next chapter of both companies' African network connectivity ventures.

Since the launch of its business division, Seacom has substantially grown its customer and partnership base and the new partnership ensures that it can meet customer and partner demands beyond existing markets.

Vodacom Business Africa has a history of investing in the creation of network capability, supported by technological partners on the continent. This has increased connectivity and driven digital growth within the 47 countries in which it operates.

Managing director Guy Clarke said the main benefit for customers from the partnership was that their access was paired with a single contract execution across multiple territories, supported by cross-border customer service.

"The new partnership equips Seacom with this appealing capability, while extending its capacity when linking existing services across other platforms, including the Internet of Things, cloud and unified communications," he said. "We're confident our partnership will translate into growth for both parties."

Seacom chief commercial officer Steve Briggs said the addition of the Vodacom Business Africa network would significantly augment the geographic reach for its business clients across the continent.

"In addition, this opportunity further cements the strong commercial relationship already enjoyed between Seacom and the Vodacom group," he said.

Airtel Uganda the only profitable unit in east Africa for 2018

Airtel Uganda was the only unit in east Africa to return a profit for the year ended 2018, according to latest results posted by the Indian telecom giant.

Tanzania, Kenya and Rwanda all posted losses, registering a consolidated loss of US$46.5m in the three countries.

The details of the performances are contained in a Bharti Airtel Africa financial report for the year ended 2018.

In Uganda, the company's profits grew by almost 30% from $65.6m in 2017 to $90.5m last year.

Airtel Tanzania saw its losses narrow to $15.94m in the period compared to $47.1m posted in 2017 pushing accumulated losses to $436.6m.

Elsewhere, the company saw its revenues dip to $202.6m from $212.9m in the period under review.

The Tanzania unit current assets now stand at $211.8m while liabilities add up to $625.7m, leaving the business trying to claw back losses.

Airtel's Kenyan unit posted a $27.43m loss last year, down from $59.5m in 2017, while the Rwanda saw its loss widen 10 times to $3.16m in the period, barely a year after it acquired Tigo.

According to the latest data supplied by the Uganda Telecommunications Commission (UTC), MTN has a market share of approximately 47% per cent - slightly ahead of Airtel's 44%.

This particular market is largely controlled by the two telecoms with other players such as Africell still some way behind.

A leap into the future: Africa's journey towards future-proof networks

Technology has the potential to fundamentally transform countries enabling rapid improvements in industrial production, societal services and people's way of living and interacting with their environment.

Africa has gone a long way in its digitization journey from mobile telephony to broadband – connecting and digitizing entire sectors economies, jobs, education, healthcare, government and societies. As digital infrastructures and interactions become increasingly central to the functioning of Africa's societies and economies, affordable broadband access will need to be extended to billions of individuals.

Africa remains the fastest growing mobile market in the world. At the end of 2018, there were 720 million mobile subscribers in Sub-Saharan Africa, equivalent to a penetration rate of 81%.

Based on Ericsson Mobility Report findings, LTE subscriptions will see the highest growth in Sub-Saharan Africa. The region is also forecast to see stronger growth in LTE subscriptions at 34 percent between 2018 and 2024, though GSM/EDGE subscriptions will still be relevant, comprising 13 percent of the total subscriptions in 2024. The increase in smartphone penetration will continue to drive service providers' investment towards mobile broadband technologies, as well as WCDMA/HSPA and LTE networks.

Building a future-proof 4G network today will pave the way for a 5G-ready tomorrow, orchestrated by intelligent and efficient solutions, which will empower seamless connection in Africa.

Empowering an Intelligent, Sustainable and Connected Africa

What is now needed is a framework that embeds ICT squarely in the efforts to address inclusive socioeconomic development in Africa. As we continue toward a more urbanized world and the impacts of climate change grow progressively dire, the need for innovations in line with Sustainable Development Goals becomes truly paramount.

ICT has a unique potential to enable other industrial sectors to move towards the low-carbon economy that will be central to meeting the Sustainable Development Goals (SDGs) of the United Nations (UN).

Digitalization creates an infrastructure that can boost livelihoods, promote financial inclusion, and improve access to health, education, government services and more. Furthermore, it aids in humanitarian matters such as addressing poverty and hunger, refugees, peacebuilding and disaster response.

Ericsson is a strong believer of using technology to create sustainable improvements in societies and utilize mobile broadband networks to tackle a range of global challenges. We take a proactive stance and collaborate with a wide range of stakeholders to scale the impact of our joint programs and initiatives in areas like climate change, education, human rights and humanitarian response.

Technology for Good is Ericsson's initiative where we use our expertise in new technologies, our solutions, and our advocacy to make life better around Africa. This is because internet access is a fundamental enabler to improve quality of life, as it provides the opportunity to access useful information and services – becoming a critical factor in fulfilling the SDGs.

We have used technology and its game-changing potential for making progress towards reducing environmental impact. For instance, our solar power solution is helping to reduce the dependency on diesel. In the Central African Republic, together with telecom operator. Maroc Telecom, we have rolled out a 3G modernization program using a solar hybrid solution to help reduce the carbon footprint. With 7.2 fewer hours of generator runtime per day compared to the conventional hybrid system, this equates to more than 7,000 liters of diesel saved per site, per year, and a 50 percent reduction in total yearly operating expenses.

Another great example is Ericsson Mobile Financial Services (MFS) platform, which provides easy-to-use, secure, next-generation mobile financial services. The flexible, reliable and efficient m-commerce solution includes Ericsson Wallet Platform, systems integration, operational support and further development opportunities. Millions of unbanked mobile users are now enjoying mobile financial services. The solution currently covers 13 African countries and several in South Asia.

Modernizing technological innovation towards the challenges that the countries are experiencing, will help Africa emerge its economy in a more sustainable manner. ICT can provide inclusive socio-economic development and has the potential for rapid service improvements and digital readiness across societies and industries.

Technological Transformation

Digital transformation is an incremental process, enhancing the current network in a step-by-step fashion. As the process unfolds, partnerships will prove essential to enabling a cross-industry engagement in refining 4G for the future.

The telecoms industry has grown rapidly over the past years, where fair competition, global standards and economies of scale have driven down prices, secured investments and improved accessibility and affordability. Today's mobile technologies and building practices offer two major advantages: Scalability of technology, as the demand for performance grows and Economies of scale, as solutions that have the greatest volumes continuously achieve decreasing cost per unit of output.

This facilitates deployment of cost-effective mobile coverage solutions, making it possible to connect low-income subscriber groups with low-cost, low-energy solutions where needed, in presently uncovered areas.

Across Africa, 4G mobile technology has the potential to drive the creation of a digital and all-inclusive future, essential in connecting personal and professional lives. Investment in 4G will result in rapid service improvements and digital readiness that can lead to inclusive socio-economic development and has the potential for creative solutions and forward-looking trajectories across societies and industries.

If Africa is to compete in the digital age, a focus on people is the starting point, around which we can build everything else including the infrastructure and systems required. We need to invest in the African talents and equip them with the right digital skills, ICT, IoT, data science, mobile application development, e-Commerce, mobile money, amongst others.

www.ericsson.com

Kenwood's NX-1000 'all-rounder'

Kenwood says its new NX-1000 series of professional two-way radios – for everyday use – is "packing" the latest digital protocol, NXDN or DMR. This One-"K"-Fits-All solution, the firm claims, is "certain to enhance business efficiency by providing the best match for individual radio requirements".

One added advantage, Kenwood says, is mixed-mode operation to ensure seamless integration with legacy radios and existing systems while smoothing the onward migration path to digital.

Kenwood radios can to be found in many of today's racing cars and the company says that while drawing on these strengths, the NX-1000 series has been conceived as a single, affordable platform that offers the latest digital protocols plus the ability to satisfy the widest range of user requirements. Customers can pick either the NXDN or DMR digital CAI; FM analogue only models are also available.

There's the choice of basic and standard keypad models are available, with the option of a high-contrast backlit LCD for more intuitive operation. RF output is 5W (VHF & UHF). Kenwood reckons operating ease is further enhanced with a 7-color LED indicator that provides useful information at a glance, such as battery level and 'selective call' alert. *www.kenwoodsa.com*

Ampleon releases new 12V LDMOS power amplifiers

A new line of 12V laterally diffused metal oxide semiconductor (LDMOS) transistors from Ampleon is aimed at commercial, public safety and defence mobile radio applications.

The 12V LDMOS portfolio will cover ceramic and plastic packages with a minimum longevity commitment of 15 years and the first two products on the market are the BLP9LA25S and the BLP5LA55S. Both devices are designed for 12V nominal mobile operation over the entire VHF and UHF frequency bands from 2 to 941 MHz and deliver 25W and 55W respectively. Ampleon claims they combine ease-of-use and extreme ruggedness without sacrificing performance as they enable over 18 dB gain and over 65% efficiency over the full operating frequency range.

This results in fewer stages, improved stability, simplified cooling and thus smaller systems. Ampleon reckons the linearity makes the solutions ideal for TETRA applications, while their ability to handle extreme mismatch levels over 65:1 voltage standing wave ratio (VSWR) enables highly robust handheld radios that withstand harshest environments possible. In addition, these broadband 12V devices are housed in compact over-molded plastic (OMP) TO270 packages, ensuring smallest footprint and minimising system costs. *www.ampleon.com*

EXFO introduces 'industry first' integrated test solution for DWDM networks

EXFO claims its Optical Wave Expert is the first device to integrate DWDM channel power validation and intelligent OTDR fault-locating capabilities on a single port. Designed to save multiple service operators (MSOs) time and money, the Optical Wave Expert equips field technicians to automatically measure, diagnose and troubleshoot optical fibre links.

"We're delighted to bring an innovation to market that reduces 'time-to-cash KPIs', streamlines operations and empowers cable operators' field operations to get it done right the first time," says said Stéphane Chabot, EXFO's vice president of test and measurement. Even field technicians with no DWDM network experience become instant experts in diagnostics and troubleshooting. The Optical Wave Expert, which is easy-to-use, compact and portable, fills an existing gap in the market by eliminating the need for multiple instruments and seamlessly isolating problems for quick resolution."

The integration of channel checker and OTDR capabilities on a single port means less unnecessary manipulation of the optical fibre and improved field efficiency. Instead of the 'trial and error' process that previously relied on separate, less proficient devices which increased the chance of disabling nodes, EXFO's Optical Wave Expert ensures faster meantime-to-repair and accelerates service turn-up and time to revenue.

EXFO says technicians can now perform real-time channel power readings through an intuitive GUI environment and benefit from tuneable OTDR capabilities. What's more, bar graph and table views are available on a wide touchscreen display for instant visibility. *www.exfo.com*

Siklu unveils EtherHaul 2-foot dual-band antenna

Siklu, a specialist in fixed 5G millimetre wave technology for gigabit wireless access, smart city and security networks has released its new EtherHaul 2-foot (61 cm) dual-band antenna (EH-ANT-2ft-DL5). The company says it's designed to work seamlessly with Siklu's ExtendMM feature on the EtherHaul 8010FX, 2500FX and other Siklu E-Band models.

ExtendMM is a Siklu product suite consisting of the new dual-band antenna, software for monitoring and provisioning, a built-in switch in the EtherHaul radios, plus purpose-built accessories. They are all integrated with Siklu SmartHaul Apps – such as LBC for link planning and WiNDE for network design.

The Israeli firm says this system of hardware and software easily and seamlessly combines a high-capacity EtherHaul link with an inexpensive, unlicensed, low capacity and lower frequency link, such as 5, 11, 18 or 23GHz. The net result, Siklu claims, is that "customers can have confidence in engineering and extending their EtherHaul links to distances never considered before".

When the new dual-band antenna is combined with ExtendMM, installation is simplified, as there is now a single cable run to the rooftop or tower, as opposed to two cables for two antennas. Siklu claims this approach is said to save both time and labour costs during installation, as well as recurring payments for hosting fees.

"As the leader in fixed 5G mmWave systems, our customers look to us for innovative solutions, and extending the range covered with our E-Band systems is a request we have heard many times," says Ronen Ben-Hamou, Siklu's CEO. "Siklu continues to deliver the broadest portfolio of mmWave hardware and software solutions in the market with new and exciting 5th generation EtherHaul products on the horizon." *www.siklu.com*

Icom introduces LTE/POC mobile radio terminal for commercial vehicles

Icom's new IP501M, an LTE/PTT over Cellular (PoC) mobile radio, completes its range of LTE radio products. The company says that as the IP501M uses public mobile networks, it offers users nationwide coverage. The IP501M has the same Man Machine Interface (MMI), operating menu and key layout as Icom's IP501H/IP503H hand portables. It also supports full duplex operation, allowing users to talk and receive at the same time during individual calls and group calls. As the device uses public mobile networks, it doesn't require a radio licence. What's more, with the optional HM-230HB command microphone connected, users have a display and 10-keypad control handheld-like interface. Furthermore, the IP501M can also be connected via Bluetooth to wireless headsets for hands-free operation.

"Our LTE radio system is perfect for any transport company providing [an] incredibly simple, secure full duplex solution at a reasonable cost with nationwide coverage," says Ian Lockyer, marketing manager at Icom UK. *www.icomuk.co.uk*

Antenna Company claims industry first

Antenna Company claims it has developed the industry's first 5G dielectric resonator phased antenna array designed specifically for 5G mm-wave applications.

The 64-antenna Dielectric Resonator Antenna (DRA) combines patented SuperShape and DRA technology to achieve wide-band operation over the 24-30 GHz frequency bands. Antenna Company says the mm-wave DRA array demonstrates reduced scanning losses, lower sidelobe levels and greater maximum scan angle compared to a conventional patch array using the same configuration and inter-element separation.

What's more the firm says the improvements in scanning performance enable better coverage over the usable frequency band.

The design, so the company says, achieves over 40 dBm of peak EIRP, which is suitable for use in customer-premise-equipment (CPE) products. The design is scalable to support 37-40 GHz frequency bands for global band support across the mm-wave spectrum.

The production version of the design, featuring 64 dual-polarization antenna elements, 5G NR radio transceiver, RF front-end, and support for beam-steering and beam-forming is planned to be released in 2H-2020. *www.antennacompany.com*

Zyxel provides multi-gig experience with new WiFi 6, 10G PON and managed WiFi products

Zyxel Communications expanded its WiFi 6 (11ax) portfolio with a brand-new managed WiFi platform, MPro Mesh and a 10G PON platform. The company said the products are designed to help service providers to unlock the full potential of their networks and deliver multi-gigabit connectivity to their customers.

Its expanded Wi-Fi 6 portfolio offers the choice of DSL, ethernet, active fibre, PON and extender models that can fit a variety of deployment scenarios.

Zyxel's MPro Mesh solution combines the abilities of its managed Wi-Fi solution with the industry standard, EasyMesh to deliver corner-to-corner, "high-performance" Wi-Fi with even greater mesh hardware compatibility.

"As more devices are falling into the hands of end-users, bandwidth demands are in turn increasing at an exponential rate, meaning service providers' networks must keep pace with their customers' demands," said Allen Lin, vice president at Zyxel broadband EMEA business unit. "Our newest range of solutions have specifically been designed with this in mind; from ultra-fast, whole-home WiFi coverage to delivering gigabit connectivity to the home or enabling seamless connectivity on the move, we are ensuring service providers can deliver a multi-gigabit experience to their customers – wherever they are."

The products made their debuts at the Broadband World Forum 2019 in Amsterdam. *www.zyxel.com*

Look out for...

Quectel makes 5G data call over mmWave module

China's Quectel Wireless Solutions completed a data call over its 5G mmWave module, in full compliance with 3GPP Release 15 5G NR standards.

The call on September 25 was made over a Quectel RM510Q-GL 5G module based on Keysight's 5G testing device in a lab. It paves the way for the upcoming 5G mmWave field tests and commercial deployment of 5G internet of things (IoT) projects.

Tailored for IoT/eMBB (enhanced mobile broadband) applications, Quectel RM510Q-GL features the Snapdragon X55 5G modem and supports mmWave and sub-6 GHz frequencies in both 5G standalone (SA) and non-standalone (NSA) operations.

The M.2 module covers almost all the mainstream carriers worldwide. Designed backward compatible with LTE-A and 3G networks, RM510Q-GL integrates multi-constellation GNSS receiver, eSIM, as well as high-speed interfaces such as USB 3.1 and PCIe 3.0. This makes it suitable for globally-deployed mobile devices including Always Connected PCs (ACPC), industrial PDAs, mobile gateways amongst others.

Taipei-based AsusTek Computer is planning to use RM510Q-GL for its next-generation 5G mmWave laptops, according to Quectel. Leveraging its 5G modules and local technical support, Quectel says it will accelerate the time-to-market for AsusTek to enhance its competitiveness in the 5G era.

Quectel, which is headquartered in Shanghai, also showcased commercial 5G modules at the Qualcomm 5G Summit in Barcelona and Mobile World Congress Los Angeles in October.

RM510Q-GL features the Snapdragon X55 5G modem and supports mmWave and sub-6 GHz frequencies in both 5G standalone (SA) and non-standalone (NSA) operations

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Third parties, towers and theft

Outsourcing to tower companies is a growing trend in developing nations. Robert Shepherd looks at the pros and cons associated with it

The outsourcing of tower management by operators in Western countries to third party tower companies (towercos) became something of a trend in the last decade, or even before that.

Of course, every industry embraces outsourcing in one way or another. However, most companies do it because they are either unable to or just not good enough at carrying out the job themselves.

The telecom industry would appear to be slightly different to say car manufacturers, because operators are not looking to get their parts made more cheaply. They are asking a third party to do exactly what they do – deliver connectivity.

However, the trend has not slowed down, but it continues to gather pace. No longer the preserve of a select group of wealthier nations, Africa has since been inspired by the efforts of players in the US, Europe and Asia and followed suit.

Caroline Gabriel, principal analyst, wireless Analysis Mason

So, if an operator is equipped and has the wherewithal to do it themselves, why do they bother outsourcing?

Samantha Naidoo, SAP industry value advisor

"There is greater predictability of cost, based on regular contract fees rather than unpredictable bills for maintaining your own towers"

for services and telco industries for EMEA south says that historically African telecom companies have seen benefits outsourcing to tower companies. "For example, Aviat Networks in South Africa; Eaton Towers, Helios Towers and IHS Holding in Africa etc," she says. "Globally, this trend has extended to some large telcos such as Bharti Airtel, Vodafone, France Telecom – Orange, Etisalat Nigeria etc." Naidoo adds that telco tower outsourcing started around 2013 initially in Europe, then Africa before expanding globally.

"This was due to the intense competition amongst telco companies with an even stronger drive to reduce costs," she continues. "Opportunities arose to convert capex to opex through infrastructure outsourcing and through shared towers amongst operators."

French giant Orange is one of the largest operators in Africa and so who better to ask about the rationale behind it and the real benefit from a provider's point of view?

"Most of the sites across the Orange footprint are operated by Orange and its subcontractor (e.g Ericsson) or by the partner operator in case of a shared site," says Yves Bellego, director of network strategy at Orange. "There are various contracts and partnerships possible. Using a tower company is a way to facilitate the hosting of several operators on a single pylon. Keeping ownership of towers ensures more flexibility to evolve the site, as to introduce 5G for example."

Orange is a bigger operator than most. If you look at the footprint the Paris-based firm has, you'll see it operates in close to 20 countries across Europe, Africa and the Middle East. It's fair to say, it's in a better position than most when it comes to explaining the set up.

"We have various types of configurations, depending on countries," adds Bellego. "As such, we operate our own radio sites in France for example, but in most of the other European countries, we outsource the operation of radio sites. In Africa, we also have cases where radio operation is done in-house and others where it is outsourced."

Bellego is coy when asked who Orange shares its towers with other than saying the operator's strategy is to share with its local competitors. "They have the same needs as us in terms of savings, and are also willing to deploy the network innovations," he adds.

Caroline Gabriel, principal analyst, wireless at Analysis Mason, also points to the financial benefits. "There is greater predictability of cost, based on regular contract fees rather than unpredictable bills for maintaining your own towers," she says. "There is lower upfront investment when opening up a new site or expanding a network into a rural or remote area where the ROI is uncertain as well as the ability to reduce staff and other operational costs."


Samantha Naidoo, SAP industry value advisor, services and telco industries, EMEA south


Outsourcing can also offer access to remote areas in Africa where skilled resources are scarce

In addition, Gabriel highlights greater efficiencies through shared infrastructure, such as sharing a location with another operator rather than competing for it, as well as the fact it can reduce time to deploy a network by outsourcing legal work, site contract negotiation etc. to a company with scale and established processes in these areas.

In theory it sounds like a positive step to take, but surely there must be disadvantages?

"Loss of control e.g. of quality of maintenance of tower (there are SLAs but they can be hard to enforce in some regions)," says Gabriel. "You also lose the ability to keep a particularly good site exclusive. Also, where there is limited towerco competition, price negotiations may be tough for the MNO once it has surrendered its towers."

Naidoo says outsourcing also offers access to remote areas in Africa where skilled resources are scarce. "[There is also] access to latest technology and innovation that promise on demand access to connectivity, guaranteed service level agreements and set service management processes all for a fixed managed services fee versus paying a fixed amount to setup a tower which can range from US$200,000 per tower plus on-going operational costs," she adds. "In addition, country permits, IFRS16 Real Estate and Lease Management policies, etc. can delay the process causing unnecessary costs. The risk would be that of operator information security and adherence to compliance regulations such as GDPR, POPI, etc."

> "Globally, this trend has extended to some large telcos such as Bharti Airtel, Vodafone, France Telecom – Orange, Etisalat Nigeria etc."

Daryl Schoolar, practice leader next generation infrastructure at independent analyst and consultancy firm Ovum, is of the belief that not only can it help the operator's overall costs as the expense for base stations site can be shared, but if the operator had previously owned its towers and then sold to a third-party, sales of that asset will only provide it with more capital to spend on network equipment or any other areas the operator deems fit.

"However, the downside is the operator loses control over site location and construction,' he warns. "Also, if the operator had an advantage over a competitor based on-site location, going to a shared tower arrangement means the operator could lose this advantage."

With that in mind, are operators better off owning a tower and then sharing it with another company/rival? That way they know the tower company has to up its game as it's providing for more than one operator.

"There is no one right answer for this," he adds. "It is based on an operator-by-operator situation."

Gabriel says that it depends on how far the operator wants to offload the cost and hassle of maintaining the tower. "If it believes ownership is still valuable for other reasons, sharing of course reduces its overall costs," she says. "But in many ways it seems that sharing with a rival is the worst of both worlds – keeping the cost and responsibility but losing exclusive rights to a good location."

Naidoo says some firms are saving up to 30% in operational expenses by outsourcing towers (which can be leased to multiple companies at once). "This includes a standard fee that can be charged to competitors for sharing space on the towers thereby subsidising part of the cost of maintenance," she says. "That said, the onus would still lie with the operator to provide

the skillset, geographic reach and technology capability to support this versus outsourcing this to an external company."

Bellego adds that the "commonality between all the countries we operate in" (it's a group-wide strategy) is to share radio sites with its local competitors. "Globally, at a group level, we share more than 53% of our radio sites," he continues. "Roughly, half is passive sharing (a common pylon hosting radio from Orange and from a competitor) and half is active sharing where we share not only the pylon but also the radio equipment."

Still, it's a major step moving from your own towers and base stations so one would imagine maintaining a high quality is paramount otherwise it defeats the object.

"Most operators in Africa have outsourced passive infra – towers, roofs etc – but not active base stations," says Gabriel. "That is often prevented by regulators and even when it is allowed, it removes a great deal of control of network quality, timing of network upgrades and other key decisions from the MNO."

Naidoo adds that over the years, the cost of maintaining these towers have forced operators to pursue other cost efficiency initiatives. "In terms of economics and quality, the SLAs guaranteed by these outsourced companies allow the operators to focus on their core capability of delivering premium connectivity to customers without compromising on cost and quality," she adds and says that 2019 has seen increased pressure from regulators for improved quality with penalties to operators for poor customer service. "The benefits of consolidating tower companies promises an opex reduction as well as extended access to remote areas where connectivity is already an issue," she adds. "This in turn will make competition from other telco entrants difficult."

Clearly the trend is growing because it tends to be working. However, what are the chances of it reversing and tower management coming back in house?

"The question is more around efficiencies created," says Naidoo. "Whether it's outsourced or in-house, how do you guarantee the quality of service provided for your end customer?

The latest trend with base station monitoring by drones as well as predictive maintenance through solutions such as SAP Asset Intelligence Networks require an additional upfront and ongoing investment in these Intelligent technologies," she adds. "Are telcos able to invest in developing the right skillset and tools necessary to sustain the on demand economy?"

Bellego adds that the need to benefit from economies of scale, to be cost effective while mastering quality of service and deployment of new services (such as mobile IoT and 5G) will remain the same. "Whether it is in-house or not, having a greater amount of managed networks will matter even more than today," he says.

Schoolar says: "I see no sign of this trend reversing" while Gabriel believes there will be more outsourcing of towers especially as African operators expand their 4G coverage and capacity. "It is especially valuable to have a towerco which supports power systems in areas of unreliable or absent grid power," he adds. "More generally, operators are increasingly differentiating more on their core network (scalability, range of services supported) and the quality of their RAN signal more than their passive sites. So, outsourcing makes sense at a time when margins are falling – more data to deliver, falling ARPUs etc. Those trends will only intensify in Africa and elsewhere. Markets which are opening up to more competition, like Ethiopia, are often starting to consider licensing towercos as part of that process as it may improve the business case for new entrant MNOs, if they don't have to invest in sites or rent from competitors."

Daryl Schoolar, practice leader, next generation infrastructure, Ovum

"If there are fewer third-party tower companies there might be less innovation in how and where to deploy sites as there is less competition to drive innovation"

Gabriel says she expects there to be "more active RAN sharing too", where regulators will allow it, to reduce costs and to help meet government targets e.g. for coverage of rural areas which are not highly profitable.

We've heard the pros and the cons from an operator and analysts (sadly no towerco was willing to comment), but if this is a growing trend and competition amongst towercos increases, what will happen if consolidation occurs?

"Having limited usage of towerco services, we have no view on this question," says Bellego.

However, Schoolar says it can lead to eventually higher site rentals and possibly fewer site solutions. "By this, I mean, if there are fewer third-party tower companies there might be less innovation in how and where to deploy sites as there is less competition to drive innovation," he adds.

Gabriel says it benefits operators "when they can just deal with one towerco" to cover many sites across a whole country or several countries. "However, it weakens their negotiating position (although MNOs are consolidating too)," she continues. "Many MNOs are looking to work with one large towerco but also add other smaller providers to the mix – e.g. cities and governments who own sites – so that they are not over-reliant on one partner."

So, weighing up the pros, cons and of course, the costs, is it worth it? Schoolar certainly thinks it is: "As these arrangements appear to be increasing, not decreasing, the general answer appears to be yes." ■

The problems caused by theft

Theft of power sources is a major problem in Africa. Here is what some have said on the subject:

"The problem with both solar and wind power is how to store the energy. Batteries are still expensive and subject to theft the same way as diesel. As long as the cost of batteries remains high, they will be the target of theft. A hybrid solution helps with power issues when there is no sun or wind, but it doesn't solve the theft problem. And, the operator needs to have fuel cost savings of the hybrid system outweigh cost of diesel, generator, and solar equipment costs."

Daryl Schoolar, practice leader at Ovum

"That too is part of mobile operators' opex, including fences with barbered wires, human guards and patrols."

Stéphane Téral, director, IHS Markit

"I don't know if theft of diesel generators is increasing because it has always been there. There is enhanced security now with CCTV, which of course is an investment. As business models involve they have to continue to address this issue."

Alessandro Ravagnolo, principal, Analysys Mason

"HIMOINSA generators are fitted with anti-theft devices. We also offer remote monitoring that can disable a unit automatically if the unit is moved beyond specific parameters."

HIMOINSA

"This is one of the biggest headache of the telecom players and many solutions to prevent and avoid fuel and battery theft are being tested now and some already approved and deployed on site. The interest towards the use of Lithium batteries @48V is also fed by this issue, as the thieves cannot use them to power their 12V home appliances."

Giuseppe Taranto, telecom business leader, Ausonia

"Fuel, battery and asset theft is a huge problem in Africa. By blending fuels, eliminating batteries (or severely reducing the need for batteries on site) helps reduce the theft risk. Furthermore, our microturbine genset does not have any reusable parts that can be put into a regular diesel generator too."

Stuart Kelly VP market development Bladon Micro Turbine

IoT weather station for improved food and water security

Two examples of how IoT has become invaluable to utilities and the world of agriculture

Weather touches pretty much all aspects of farming life, affecting multiple disciplines such as agriculture, hydrological forecasting and emergency alert systems.

That means the ability to forecast weather is critical to agriculture and to ensuring a viable, adequate water supply. Even prior to climate change, millions of farmers worldwide were facing the effects of uncertain weather conditions, with insufficient and irregular rainfall, floods, droughts, and soil degradation all contributing to reduced yields.

Like the rest of the world, Africa is facing the ongoing, monumental upheaval of climate change. In sub-Saharan Africa, agriculture accounts for more than 30% of GDP while employing more than 60% of its working population. The effects of changing environments will need to be addressed if the continent is to up its food production to meet its own needs. Central to that goal is the expanded acquisition of weather data to help farmers plant the best crops at the correct time so as to optimise production.

Reliable, cost-effective weather stations, strategically placed, can help farmers decide when and what to plant; when to apply fertilizers or pesticides; when to harvest; and how to manage livestock. Basically, farmers can plan food production growth with advanced knowledge of weather conditions. For example, automated weather forecasts make it possible to manage crops in real time, providing early warnings, helping farmers

adjust irrigation, improving soil management, and providing the optimal time to harvest. This expanded understanding of regional environmental conditions helps create a knowledge-based farming community that can improve productivity through highly focused weather insights.

Responding to Africa's needs

To address the growing need for up-to-date weather information, the Trans-African Hydro-Meteorological Observatory (TAHMO) initiative seeks to install and operate up to 20,000 weather stations in sub-Saharan Africa.

The first TAHMO weather station was installed in 2012. Now in 2019, TAHMO has installed more than 500 weather stations in Benin, Burkina Faso, Cameroon, Chad, Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Mali, Malawi, Mozambique, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

In collaboration with the Meter Group, TAHMO has developed a small, reliable, automatic weather station with no moving parts. All the sensors are in a one-piece sensor unit, which employs bi-directional communication for remote firmware updates and data transmission. The weather station itself is solar powered, and the cost for the station is quite low when compared to other varieties with similar functionalities. The station is built using current Internet of Things (IoT) developments in sensor technology and that helps makes the cost much lower.

The TAHMO weather stations records data at a five-minute interval, which then is transmitted remotely over the GPRS network hourly (or at a higher temporal scale). This high-resolution data can be aggregated into daily, weekly, or monthly data sets according to the needs of the user. A multitude of weather attributes are available, such as temperature; rainfall, barometric and vapour pressure; relative humidity; solar radiation; wind direction and speed; lightning strikes; and a library of historical data.

Data only is useful when it actually is used. To that end, TAHMO, which is a non-profit organisation, makes its weather station monitoring data available to national meteorological agencies, government entities, or scientific research users for free. Basically, any researcher seeking to develop peer-reviewed articles for publication can obtain any and all data once they have signed a no- charge agreement clarifying end usage of said data. Fees are incurred only for non-research use of the data. The fees then are used to maintain and grow the observation network.

The majority of weather stations are being installed at local schools (primary, secondary, and at universities), where teachers are using the data from their 'hosted' station in their classroom lessons. Weather stations in schools serve multiple purposes. The concept is to make science, geography, and math education a natural part of students' lives by seeing how weather data translates into quantitative information. This process builds and conveys weather and climate knowledge to the next generation of people on the front lines of climate change in Africa. And, by having the station within school boundaries, theft becomes much less of a problem than if the stations were widely dispersed in fields.

"The TAHMO project is ambitious—seeking to work across the African continent, making millions of measurements per day, and feeding them every hour to the entire global community," says John Selker, co-Director, TAHMO. "Aeris provided the platform we needed to be able to reliably and easily manage communication to a complex continental-scale network of sensors. Aeris support has allowed us to react in hours to critical issues, which is fundamental to our users gaining confidence that essential data will be delivered in cases of weather emergencies, and reliably for the long term so that TAHMO data can be woven into their enterprises."

Today, TAHMO is active in 21 countries in west, southern and east Africa. Its weather monitoring stations currently ship with Aeris SIMs installed, thereby shortening the deployment process and lowering the cost across the entire supply chain. After experiencing the level of support from Aeris, TAHMO decided to use the Aeris SIM cards globally on its network.

TAHMO says it is committed to serving the public by advancing the free and open exchange of hydro-meteorological data collected with its monitoring stations. By allowing the free download of all its raw data for scientific research and governmental applications, TAHMO supports and adheres to World Meteorological Organisation (WMO) Resolution 40 and Resolution 25 (policies and practices for the exchange of meteorological and related data).

For TAHMO, the partnership with Aeris is producing better coverage at a reduced cost. The heightened support service from Aeris is enhancing the wide application of the weather station solution in most parts of Africa. Improved farm productivity now has an IoT weather roadmap. What's more, farmers throughout Africa are starting to reap the benefits. ■

Remote monitoring

On average 37% of South Africa's water supply is apparently being lost before it reaches users due to leaks. As a result, water conservation has become a critical issue for the region.

That means African utilities are today looking beyond the meter and they require innovative end-to-end connected solutions that enable utility operations to run more efficiently, reliably, safely and of course, cost-effectively. This is while they tackle the key issues of non-technical losses (NTL) due to electricity theft and non-revenue water (NRW) that has been lost before it reaches the customer.

Honeywell and Vodacom are cooperating in the pilot in the City of Matlosana, a local municipality in Dr Kenneth Kaunda District Municipality, in North West.

The two companies have set out to prove use cases and underline the benefits for utilising NB-IoT for smart utility metering applications covering water and electricity metering.

For water metering, the main aim is to identify water leaks and losses, as well as conduct water balancing. For electricity metering, the objective is to prove bi-directional communications and provide benefits for future smart metering applications, such as pre-payment.

Utility metering requires cost-effective, reliable and robust two-way communications for advanced metering infrastructure (AMI) and automated meter reading (AMR) applications. There are emerging communication technologies that offer the potential to change the communications landscape. One of these , Narrowband-Internet of Things (NB-IoT), is a low-power Wide Area Network (LPWAN) technology developed to enable efficient communication. For water metering where there is no power source from the meter, Honeywell is providing an NB-IoT modem.

This supports a long battery life and operates with a pulse output from the meter most commonly used in Africa today. This combination provides an ideal platform for use in the African region.

Honeywell Smart Energy's partnership with Vodacom promotes NB-IoT for water and electricity smart metering AMI solutions. In addition, Vodacom's NB-IoT infrastructure can be used in conjunction with Honeywell's smart metering technology. This modem-driven, end-to-end software solution enables customers to implement advanced state-of-the-art analytics, revenue assurance and protection and smart pre-payment to improve utilities' operational performance.

Through the pilot at the City of Matlosana Municipality, Honeywell and Vodacom say they have proven the use cases and the benefits for utilising NB-IoT as a communication technology for smart utility metering applications in water and electricity metering.

The solution offered has identified water leaks and enabled timely water balancing. Furthermore, the electricity meter communications have also been successful and highlighted that smart pre-payment can be implemented with the use of NB-IoT.

"Vodacom working together with Honeywell are showing how the benefits of NB-IoT, long battery life of remote devices and deep signal penetration, assists in actively monitoring service delivery points that are not easily attainable with other existing communication technologies," says Lawrence Juku, executive head utilities of Vodacom South Africa. "We are specifically looking at the water use case for accurate metering of bulk meters and supply points, which are typically located in non-powered, underground chambers, to enable utility managers to get an accurate view of the water supply network by balancing the system and detecting losses in real-time."

Currently this project is on-going but as the project develops further, Honeywell and Vodacom will share future updates on this important initiative, which is changing the communications landscape in Africa as we know it. ■

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On the move: critical communications for the transport sector

Global transport infrastructure spending is set to reach a ten year cumulative total of US$10 trillion by 2025. Paul Ward, international sales director of Etelm, explains why this represents an opportunity for transport providers to review their critical communication requirements

The pace of change in the transport sector is dramatic. PwC has calculated that global transport infrastructure investment is projected to increase at an average annual rate of about 5% worldwide from 2014 to 2025.

The type of infrastructure being developed may vary across global regions, but this general trend of investment remains constant. In Africa there has been a significant investment in major rail projects. This includes the Mombasa-Nairobi railway, for example, which was unveiled in the summer of 2017 and is Kenya's largest infrastructural project since independence in 1963. The 80% Chinese-financed 472km railway will run from the country's biggest port, Mombasa, to its capital, Nairobi. In South East Asia, where overall investment levels are particularly high, there has been a similar focus on rail projects, but this has also been matched by a focus on smart highways and autonomous vehicles, including recent news that self-driving taxis are set to be piloted in Hunan, China.

Whatever the transport mode, however, robust and reliable communication networks are critical to the success of operations, across both the public and the private sector. And as the pressure to operate as efficiently as possible mounts, so too does the ability of those networks to intelligently and dynamically reroute vehicles at the click of a button. This means transmitting data at the same time as voice – not a new requirement in itself, but thanks to the growing role of video and high-bandwidth applications, the sheer volume of data that organisations need to be able to process and analyse has gone stratospheric. Whether we're talking about CCTV on board trains, live mobile departure and arrival information for passengers, or behind-the-scenes applications for crews to access, the data that transport communication networks need to handle is rich, dynamic and broad.

How, then, can the transport sector best deal with these pressures and demands?

Understanding critical communications requirements in transport

There are two major trends in the sector which underpin the needs of critical communications networks. First, the data used to drive dynamic decision-making – such as rerouting vehicles or assigning particular drivers to particular tasks – has become far broader and richer, and analysable in real-time. From GPS trackers to sensors which measure passengers, loads and vehicles themselves, from connected thermometers to demand-responsive services, transport providers are dealing with an extraordinary range of information, which they need to analyse and harness on the move.

Second, transport providers are under greater pressure than ever before to offer cost-effective and highly efficient services. In many parts of the world, providing sufficient public transport to meet the needs of a dispersed and aging population is a major challenge. Meanwhile, climate change and the need to operate as responsibly as possible in terms of environmental impact is at the forefront of public consciousness.

In practice, this means that transport operators need to be highly responsive to changing, on-the-go demands, and highly intelligent in terms of route planning, vehicle and driver allocation.

Building next-generation communications networks

In the past, TETRA (Terrestrial Trunked Radio) has provided an effective and efficient foundation for critical communications networks. Thai state-owned operator CAT Telecom, for example, recognized the vital role that PMR can play by announcing plans last year to deploy a nationwide TETRA network covering more than 200,000 users including government departments, emergency services and other vital industries, including transport operators. In Africa TETRA also remains a common critical communications standard, particular in the transport sector.

The reason for this is simple – TETRA still carries plenty of powerful advantages. Specifically designed for use by the emergency services, military and government agencies, its resilience and reliability is therefore ideal for mission-critical contexts, where downtime is not an option. It is also better placed than many emerging technologies when it comes to handling communications over long distances. However, as that demand for higher bandwidth and data-rich applications increases, TETRA needs supporting.

This is where LTE networks, which offer greater capabilities when it comes to video and other data-heavy use cases, come in. LTE networks enable transport operators to integrate data with their voice communications and therefore integrate smart transport technologies seamlessly into a single communications network. Here, a hybrid approach can offer the best of both worlds.

Given the current levels of transport infrastructure investment in major global regions – Asia Pacific and Africa together are projected to have made a cumulative transport infrastructure investment of over $8 trillion by 2025, according to the figures from PwC – transport operators also have the potential to seize this opportunity to leapfrog communication technology developments by jumping straight to Mission Critical LTE Broadband services. A hybrid communications approach enables the latest communications technology to be rolled out as part of any wider transport infrastructure project, while also ensuring more established technologies can be used for highly critical, highly secure or long-distance communications.

What might this look like in practice? A rail operator might use a TETRA network for its core voice communications, ensuring, for example, that drivers can communicate consistently with stations and centralised staff. An LTE broadband overlay could offer high bandwidth data communications for real time passenger information apps – keeping users updated on journey progress – and security and surveillance systems.

As the demand for mission critical LTE services increases, and as the standards mature, the availability of LTE frequencies, and even 5G connectivity, for private users is likely to increase too, heralding the viability of hybrid critical communication networks.

In Africa, adoption of mobile cellular technology is in full swing and with these technological advances, comes the growing reality of private mobile broadband access – access that can be readily utilised in mission transport critical applications.

The transport sector has mobility at its core and its approach to mission critical communications must move at the same pace in order to deliver both reliability and technical innovation. ■

The race to 5G

Africa has an exciting, burgeoning telecoms industry, undergoing rapid growth and with huge potential for scale. But as the western world takes the 5G lead, where does Africa stand in the race to deploy the next G? President & CEO of HYLA Mobile, Biju Nair, shares his thoughts

While we are seeing 5G subscribers across the US and in South Korea, many countries are just starting to upgrade their networks to 5G – including those in Africa. When it comes to the 5G landscape in Africa, it is worth considering and comparing developments in sub-Saharan Africa and North Africa. Countries like Egypt, Morocco and their neighbours are moving a little further along than the other African countries. Part of the reason is the strong presence of some of the European operators out there, such as Vodafone and Orange.

But with so many Africans still not connected to 2G, 3G or 4G networks, why is so much money being invested in 5G?

What is driving the push to 5G?

The main driver for 5G in regions like Africa, and globally, is that no one wants to be left behind in the race for the next G. In every continent, we are seeing a group operator take the lead, choosing one or two countries that will create a next generation road map.

There is also an opportunity for emerging countries to leapfrog technologies. In India for example, wireless became the best method of communication, so it leapfrogged Wi-Fi.

And now, we are seeing newer G's leapfrog 2G and 3G. I saw this in Sri Lanka firsthand. One group operator was in the process of deploying

"The biggest problem is how to get the low ARPU subscribers off the 2G network — especially when the wage for an individual could be just a couple of dollars a day"

3G technology. But when a new Chief Product Officer came on board, 3G rollout was stopped. The reason? Why invest in older 3G technology, when there is newer, and better technology available – so they embarked on deploying 4G and LTE.

Whether it is for identity management, banking or mobile money, "digital inclusion" is extremely important, especially in parts of Africa. But for this to happen, you need a high bandwidth, high capacity network. Which makes investing in 4G or 5G extremely important.

Additionally, with every incremental G, the cost per unit – whether that is cost per call, message or megabyte—is going to be driven further down. That means newer networks are more affordable for operators to manage. It also means they can offer certain services for free, while charging for others.

Making money from 5G

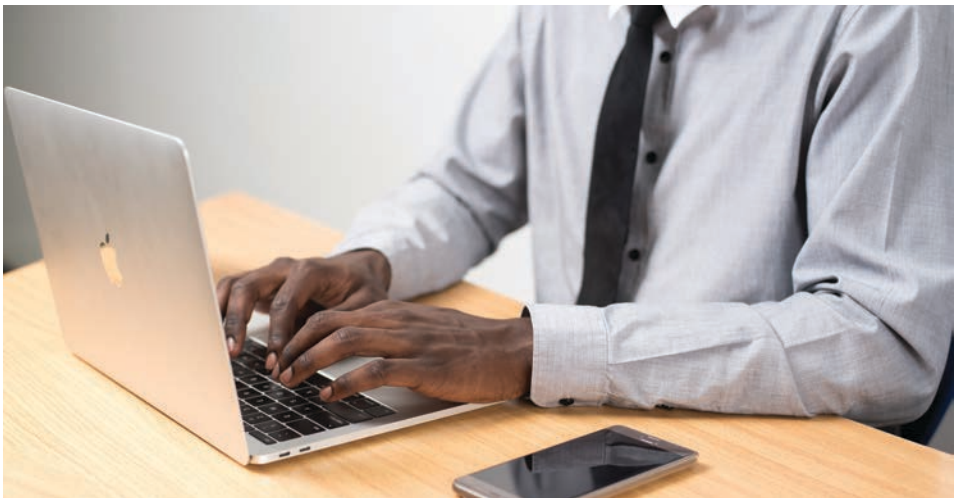
That being said, the million-dollar question is how will operators recoup their investment in 5G – especially in regions like Africa, where the average daily wage in some countries is a few dollars?

The answer lies in digital services, as well as the way operators can offer services to cater to different income levels.

For example, an operator may want to create different tiers of packages. It may offer a family plan with higher data available to a middle-class family, and position this as a mid or top tier plan. It may then want to offer a lower tier plan with a limited number of minutes, messages, and data allowance available per month to lower income households. Then, once subscribers are hooked, the operator can then transition them to a higher tier package with more data availability.

When it comes to monetizing 5G, digital services are important – not just in Africa but globally. There are ways for telecom companies to offer digital services, whether that is through their own processes or through partnerships. These services can include the essentials such as healthcare or finance, or pure media and entertainment services.

Ultimately, it's about getting people onto networks and offering the correct plan and amount of data to suit.



There are ways for telecom companies to offer digital services, whether that is through their own processes or through partnerships. These services can include the essentials such as healthcare or finance, or pure media and entertainment services

Making the upgrade

Of course, there are concerns when it comes to upgrading African subscribers to 5G. The biggest problem is how to get the low ARPU subscribers off the 2G network – especially when the wage for an individual could be just a couple of dollars a day. If, on a 2G network, a subscriber is paying US$1 per month for their text and voice services, how do you convince that person to pay even US$2 a month for some incremental services when they say text and voice is enough for them?

There's also a concern with devices. It doesn't make sense to bring subscribers onto a 4G network without a 4G-enabled LTE smartphone – upgrading to 4G with a feature phone is pointless. But with the cheapest smartphone around US$50, how do you convince somebody to buy a device that's going to be compatible or appropriate for a 4G or 5G network? Most likely, the operator will need to subsidize it.

Learning from Asia

It's no secret that Asia is way ahead of Africa in this space, and there are four reasons for this: South Korea, Japan, China and India. Asia is blessed with having countries which are either the largest economies in the world, or the fast growing. These countries are taking the lead and ensuring that the right level of technology and R&D investment is being made.

I'd say India has undergone the biggest change over the last five years. And with a continued focus on economic growth, a lot of attention is being paid to infrastructure development.

As a result, we have seen large corporations like Reliance maximize the opportunity that insufficient mobile telecommunications infrastructure has brought. Reliance launched Jio with a huge vision – it wanted to build the first 4G LTE network and make voice and text a commodity. Jio also developed a range of digital services which it made available through the mobile phone, such as the ability to watch cricket. This completely changed the landscape in India, and today, India is the largest mobile data consumer in the world.

At the same time, it has the lowest tariffs in the world – it's about 26 US cents for a GB of data.

Africa can certainly learn from the Asian market – by following in its footsteps and being poised to take advantage of the opportunity that 5G networks will bring. ■

Zain launches 5G in KSA

Zain Group has launched 5G services in the Kingdom of Saudi Arabia, going live with its networks in 20 towns and cities across the country.

Its network comprises 2,000 towers across the country, with plans to scale up to 2,600 towers and 26 cities by the end of 2019. The launch follows Zain 5G launch in neighbouring Kuwait.

"5G will bring substantial change for the Kingdom's telecom industry, creating new business models and unlocking opportunities for many sectors such as financial, ICT, agricultural, tourism, entertainment, automotive, health, education and public sectors, to name a few," said Zain Group's vice chairman and group chief executive officer, Bader Al Kharafi. "The technology is also expected to contribute significantly to the country's economy, creating thousands of new jobs."

Al Kharafi added that Saudi would continue to enhance its services and launch innovative offerings "that guarantee satisfaction" for its 8.3 million customers. "We are keen to offer 5G services to all business and individual clients through various service packages at competitive rates," he said.

5G is expected to be a key enabler for Saudi as it looks to embrace a digital economy after decades of over reliance on oil and gas. It has made the digitalisation of its economy a central pillar of its Saudi Vision 2030 strategy

Oman's 5G roadmap

Oman's Telecom Regulatory Authority (TRA) has granted telecom operators Omantel and Ooredoo the right to use a 100MHz 5G spectrum, which will offer endless opportunities for upgrading their services.

Both firms will construct and install 4,400 stations in the Sultanate to operate 5G technology in the next five years, including 1,000 stations in the year 2019-2020.

To enable the effective roll-out of 5G services and encourage investment in the sector, the Omantel and Ooredoo will be exempted from the annual frequency usage fees for 12 months.

TRA also announced details of Oman's 5G roadmap, which will contribute to the research and development in crucial sectors, including education, health and logistics.

The announcement was made at the special 5G Roadmap event organised by TRA, which discussed the planned rollout, legislative developments as well as the readiness of operators to launch the super-speed network commercially.

"Working with the TRA and other government and private sector entities to deliver 5G, we'll be taking the Sultanates technology to the next level," said Ian Dench, chief executive officer at Ooredoo. He added that his company has been preparing for the transition to 5G wireless technology since 2017, recently rolling out operational trials, demonstrations and experience zones at stores in Muscat and Salalah.

Ooredoo have recently rolled out 5G operational trials, demonstrations and experience zones at stores in Muscat and Salalah (pictured)

Bakcell gets nod for Vodafone Ukraine bid

The Antimonopoly Committee of Ukraine (AMCU) has given the green light to Azerbaijani mobile operator Bakcell to pursue its bid to acquire Vodafone Ukraine from Russia's MTS.

Vodafone Ukraine is the country's second largest mobile operator and is owned by MTS indirectly via a holding company based in the Netherlands.

The AMCU floated an option for Bakcell's bid in October – at the time MTS noted that it was open to options but no clear framework for a deal had been agreed.

"The Antimonopoly Committee of Ukraine has given permission to Bakcell LLC (Baku, Azerbaijan) for the indirect purchase of shares of Preludium BV (Amsterdam, Netherlands) which [holds in] excess of 50% of votes in the management company. This will allow the Azerbaijani company to acquire indirect control over [the] Ukrainian mobile operator known under the brand Vodafone,"the AMCU said in a statement published on its website.

New express route to connect OZ with Middle East

Australian subsea firm SUB.CO is to build a new express route between Australia and the Middle East.

According to a company statement, the new cable will directly connect Perth with the city of Muscat in Oman.

The Oman Australia Cable will comprise a three-fibre pair system, with the option to upgrade to a four-pair system as required. There is also the option to extend the cable to the southern Omani city of Salalah and onwards to Djibouti on Africa's Eastern coast.

"I am delighted to be building a new, express route providing diversity and low latency between Australia and EMEA, while at the same time avoiding some of the challenges associated with building through the shallows of the Sunda Strait and busy South China Sea," said Bevan Slattery, founder of SUB.CO. "For me, the Oman Australia Cable is the final piece of an important puzzle to improve Australia's resiliency and recognises the growing importance of Oman in becoming the new 'Cloud hub' in EMEA."

According to a company statement, the new cable will directly connect Perth with the city of Muscat in Oman (pictured)

Perth has also seen three new subsea cables land in the city to meet demand for capacity in the region.

"OAC will be highly complementary to the recent submarine cables between Perth and Singapore as well as Indigo Central, which will be used to extend OAC to Australia's cloud capital – Sydney" added Slattery.

The Oman Australia Cable will begin construction before the end of 2019 and is scheduled to be completed by December 2021.

Nokia and Orange test 5G in Poland

Nokia and Orange have launched 5G testing in the city of Lublin, Poland, as part of the next stage of network trials in the country.

These trials enable data transfer speeds of up to 800Mbps and utilizes 80 MHz on the 3.4-3.6 GHz frequency band. Besides Nokia's 5G radio access technology and Nokia FastMile 5G Gateways for fixed wireless access, Orange will use 5G smartphones in the trial.

"Disruptive technologies such as 5G are creating opportunities not only for telecommunications companies and consumers, but also for enterprises in diverse fields from manufacturing to public safety and the economy at large," said Piotr Kaczmarek, Nokia country senior officer in Poland. "Polish engineers, who have created dozens of 5G innovations in our Nokia research and development locations Wroclaw, Krakow and Bydgoszcz have contributed significantly to 5G technology. As a major investor in the ICT sector in Poland, Nokia is well positioned to support Orange in its transformation towards 5G, delivering proven, secure and innovative end-to-end 5G solutions."

Jean-François Fallacher, president of Orange Polska added: "We have been working on building Polish 5G for over a year now to choose the optimal solution for our customers and the development of the mobile network. Tests with various suppliers give us priceless experience. They also confirm that we are technologically ready to launch this next generation network and show what opportunities it will give to Poles and the Polish economy in the future. I am glad that the trials take place in Lublin, a city focused on development with modern technologies."

The Finnish firm said 10 Nokia 5G base stations operate in the Ponikwoda, Tatary, Wieniawa and Sródmiescie districts.

Portugal to hold 2020 5G auction

Portugal's telecom regulator said it will hold the country's first 5G spectrum auction in the second quarter of 2020.

Autoridade Nacional de Comunicações (Anacom), which will hold the auction between April and June next year, will auction off six bands of spectrum, including the 700MHz and 3.6GHz bands.

"The allocation of rights of use for frequencies should be subject to an auction procedure as this is a potentially more transparent and objective process for all stakeholders and less intrusive in their business plans," A statement from Anacom said.

It is understood that all three of Portugal's mobile network operators, Altice Portugal, NOS and Vodafone Portugal will take part in the auction, although none of them have yet commented on the watchdog's proposal.

Anacom will release more details of the auction after a 20-day period of public consultation.

The Iberian country has been a European leader in fibre network deployment and will hope to use its relative abundance of fibre assets to fast track its 5G mobile network rollout.

Alaska Comms names CEO

The Alaska Communications board of directors has named William (Bill) H. Bishop president and chief executive officer (CEO). Bishop has served as the firm's interim CEO since June 2019. He joined the company in 2004 and has served in several leadership roles, including senior vice president of customer and revenue management and chief operations officer. Bishop will also serve on the company's board of directors.

Israel's Bezeq hit with fine

Bezeq Telecom, Israel's largest player, has been fined 30 million shekels (US$8.6 million) for what the competition regulator said was an "abuse of the firm's monopolistic position". The regulator said Bezeq blocked competitors from deploying wired communications networks using the company's infrastructure. It also imposed a financial penalty of 500,000 shekels on a senior but unnamed Bezeq official and said it intended to levy a further eight million shekel fine on Bezeq for misinformation during the authority's investigation.

MPT cleared to launch new service

Myanmar's state-run operator MPT has been granted a mobile financial services licence by the country's central bank after a lengthy approval process. The market leading operator first announced its planned MPT Money service in March 2018 and has been waiting for permission ever since. The service is aimed at accelerating Myanmar's digital economy by fostering greater financial inclusion.

Pressure on Merkel to exclude Huawei

A group of MPs from Angela Merkel's centre-right Christian Democratic Union (CDU) is pressing the German chancellor to keep Chinese vendor company Huawei out of the country's 5G network, for the sake of national security.

The push comes after Berlin in October released a new "security catalogue" for telecoms networks, which critics said lacks teeth because it only obliges Huawei to sign a "no spy" clause while generally opening 5G tenders to the Chinese telecoms giant.

Merkel has come under fire for her decision from allies like the US, which warned the move could have serious implications for future intelligence-sharing between Berlin and Washington.

Critics have claimed that Germany is kowtowing to pressure from China because it fears trade retaliation from the Asian powerhouse, which is Germany's biggest trading partner and an important export destination at a time when the German economy risks sliding into a recession.

However, Huawei and other Chinese telecom companies have long rejected suggestions that their equipment is vulnerable to spying by the Chinese state and said European countries should make their own decisions about 5G security.

The push comes after Berlin in October released a new "security catalogue" for telecoms networks, which critics said lacks teeth

Japan's KDDI to invest in Bangladesh

Japan's second largest telecom company KDDI is keen to invest in Bangladesh's 5G network, IOT, other digital technologies and special economic zones and connectivity sectors.

A two-member KDDI delegation led by its global ICT division general manager Hiroyasu (Hiro) Morishita visited posts and telecom division minister Mustafa Jabbar at his ministry office in the secretariat in Dhaka.

The minister said under the leadership of prime minister Sheikh Hasina, the telecom and digital technology sector of the country has become a target sector for the foreign investment in the last 11 years.

Jabbar described Japan as a true friend of Bangladesh and urged Japanese entrepreneurs to invest and take advantage of the investment friendly environment.

Thailand makes another 5G spectrum bid

Thailand's telecoms regulator the National Broadcasting and Telecommunications Commission (NBTC) has announced details of 5G spectrum auctions scheduled to begin in February 2020, with licences to be issued across four bands and rollouts to start in March.

The watchdog said it would auction spectrum first in the 2600MHz and 26GHz bands, and later in the 700MHz and 1800MHz bands.

A total of 190MHz of 2600MHz airwaves will be released in 10MHz blocks, while 2700MHz in the 26GHz band will be divided in 100MHz blocks, the newspaper said.

Operators will be restricted to a maximum 100MHz in the 2600MHz band and 1200MHz in 26GHz.

In mid-2020, three 5MHz blocks of 700MHz spectrum will be sold at a reserve price of THB17.58bn ($581 million) per block. The 1800MHz spectrum will be split into seven 5MHz blocks, with a starting price of THB12.5bn per licence.

NBTC said it plans to finalise the auction details next month and invite bidders by December 20.

This marks NBTC's third attempt at holding 5G spectrum auctions. It first detailed plans to auction 2.6GHz spectrum in 2016, targeting 2017 to conduct the process, but the sale was subsequently pushed back with no alternative announced. In January, it outlined plans for an auction across the 6GHz, 28GHz and 2.6GHz bands, establishing a dedicated team to draft the conditions for this. Operators dtac, TOT and CAT Telecom later joined forces to launch 5G testbeds at two universities.

NBTC said it plans to finalise the auction details next month

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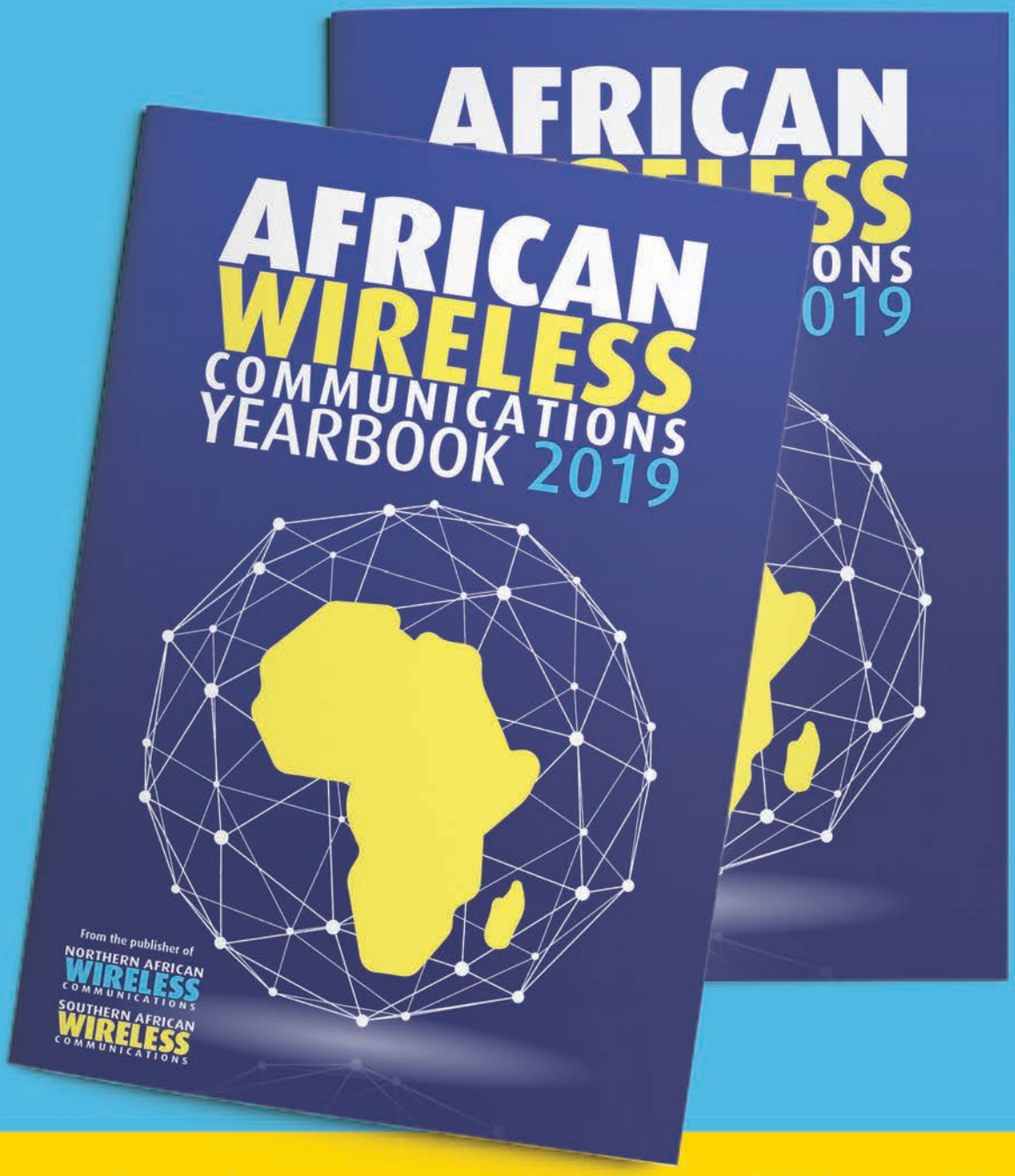

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Q&A

Stephen Newton
CEO
biNU

When was your big career break?

I was a founding team member of the Hitwise EMEA team and started as a business development manager. I was already a lawyer who decided to go a different direction and in many ways had to start back in what could be considered a junior position. I did well for a few years but then became disenchanted but knew that I didn't want to go back to law.

I shared my frustration with the GM and was ready to leave Hitwise to do an MBA to add to my Juris Doctorate degree. The GM convinced me to take a few courses at the IoD of London and then take the role of GM myself. He reasoned that I could earn my "MBA" in practice by running a business. He took a chance on me which paid off as I grew the EMEA division to the most profitable division in the business and the engine that created value for the sale of the business to Experian for over $300m.

I wish I'd had more equity in DoubleClick before the Google sale!

What is the best thing about your job?

It's very satisfying that we are solving an actual problem faced by hundreds of millions of people every single day: high data costs. The best way to think about biNu is to compare it to toll-free calls: most people are familiar with this concept where a company or brand is willing to pay for the cost of a telephone call from their clients or prospective clients. We do the same thing for websites and for applications. We partner with mobile network operators to Zero Rate (Reverse Bill is another term) a website or app. We then offer this service to companies enabling them to reach their clients and prospective clients on any mobile network. The company or brand pays for the mobile customer's use of data on the company's website or application, often supporting this from their already existing marketing, communications and/or client acquisition budgets. The mobile consumer, is then free to engage with the company's/brand's website or application without fear of using or abusing their data allowance.

Undoubtedly the affordable smart phone. This has enabled the lives of millions to be changed

What is the hardest thing about your job?

Getting the content/ media/ advertising market to see that there is an obvious need for a paradigm shift in the industry.

What has been your career low to date?

Playing axe man for a large corporate making hundreds of people redundant in a year.

Who has been your biggest inspiration?

Professionally Larry Page, Sergey Brin, & Jay- Z

What has been your career high to date?

Taking part in two successful exits in less than a decade.

What is your biggest regret to date?

I wish I'd had more equity in DoubleClick before the Google sale!

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

Undoubtedly the affordable smart phone. This has enabled the lives of millions to be changed.

What is the best business lesson you have learned?

Sometimes you need to soften your gaze and find the similarities, businesses are not all that different.

I often say that, in our business, we are not performing heart surgery, no one is dying

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

Maybe content creation.

What is the biggest challenge the industry faces at the moment?

Media consumption in Africa is still dominated by TV/Radio. However, this is a forced reality. Across Africa, there are more phones, than TVs and Radios, but in most countries whether you pay a TV license or not, you have uninterrupted access to Free to Air TV and radio. You don't have the same privilege on the most ubiquitous device, if you don't have data, your portal to content becomes useless. Change this dynamic, make data a non issue, and the mobile phone becomes the largest media outlet automatically.

What, in your opinion, holds a lot of African nations back?

The inability or unwillingness to stand unified.

Which competitor you admire the most and why?

We all have a part to play in the industry solving different problems: affordable devices, affordable "always on" access to data, relevant content (text, products/services), ubiquitous payment mechanisms, trusted delivery mechanisms and all of the technologies that weave this all together. I don't see rivals, I see players in the eco-system. So there are many I admire, WhatsApp, Facebook, WeChat. M-Pesa to name a few.

What is the best thing about working in this industry?

I often say that, in our business, we are not performing heart surgery, no one is dying. However, mobile technology has helped improved the lives of millions by connecting them to the world, to life saving information, to jobs, to commerce. So although no one is dying, it is helping millions to live better lives.

What do you want to do when you retire?

Retire?

biNU *helps organisations to build and maintain #datafree websites and apps which are the data equivalent of 0800 calls. #datafree biNu is also being used by commercial publishers looking to extend their audience reach and engagement with mobile consumers. In August it announced a partnership between biNu and MTN to enable all websites and apps to be #datafree for South Africans.* ■

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