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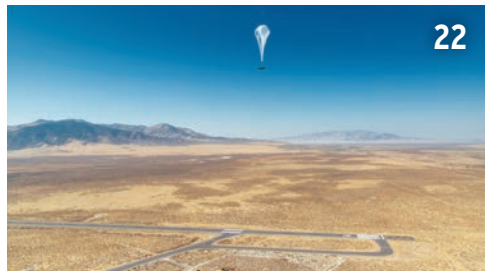Test and measurement
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A note from the Editor

The Mobile World Congress may not be happening this year, but telecoms life goes on, as this issue of Communications Africa makes clear. Africa is assessing new ways to bring power to remote base stations, TV to smartphones and mobile commerce to more people. There's also a lot of excitement about 5G and the opportunities it could bring – but satellites may offer more immediate benefits. Balloon-assisted base stations, MVNOs for the African diaspora and rogue apps are also highlighted in this issue. Welcome to what looks like being another eventful year for African communications – and Communications Africa!

Cover photo: EUTELSAT KONNECT satellite, built by Thales Alenia Space, successfully launched aboard the Ariane 5 rocket. See page 15.

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UNCDF bats for open APIs to boost Uganda's digital economy

THE UNITED NATIONS Capital Development Fund (UNCDF) stressed how fast-tracking interoperability between companies will contribute to the growth of the digital economy at an 'OPEN APIs/ OPEN DATA in the Digital Economy' workshop in Kampala, Uganda.

Convened by the UNCDF and facilitated by Aiaze Mitha, an international expert in DFS and open payments ecosystems, the workshop, held last November, gathered over 70 participants from fintech, startups, telecos and government institutions that are now reflecting on the benefits of open APIs.

"Third-party partnership programmes are the standard model for growth employed by large enterprises across all industries. Companies testify to the significant benefits including accelerated growth, higher brand awareness, increased revenue and presence in new markets," Mitha said.

A participant at the 'Open APIs Open Data' workshop.

In Uganda, only 28 per cent (5.2 million) of the adult population use formal financial services (defined as banks, microfinance deposit taking institutions and savings and credit cooperative organisations). On the other hand, according to Bank of Uganda, the number of registered mobile money subscribers by July 2017 was 22.9 million, demonstrating that increasingly customers are looking for quicker and more convenient processes. However, traditional financial service providers are limited in their ability to innovate and deliver advanced customer experiences. According to Mitha, tomorrow's financial services providers (FSPs) will need to be radically different to compete in the digital finance space. Opening their systems will allow for more willing and talented companies, particularly startups, to innovate for the customers of these FSPs – thus improving the value proposition of the latter with new services.

By fueling innovation, open APIs can provide customers with a wider choice of innovative services and solutions to meet their various needs, noted the experts, adding that this can lead to increased flexibility and transparency in how customers transact.

Orange sets up new MEA HQ in Morocco

ORANGE HAS OPENED its new Orange Middle East and Africa headquarters in Casablanca Finance City Tower (CFC), Morocco.

The building meets the recent standards with international "LEED Gold" certification from the World Green Building Council. With 900 sq m over two floors, the head office features video-conference and telepresence rooms, enabling the teams to remain connected to other countries in the region, as well as a Social Hub that supervises and monitors the digital activity of Orange and the industry in general in Africa and the Middle East in real time. The head office was inaugurated in the presence of Stéphane Richard, chairman and CEO of Orange and Alioune Ndiaye, CEO Orange Middle East and Africa.

Janngo pledges US$66mn fund for Africa's tech-enabled start-ups

PARTICIPATING IN THE 50th World Economic Forum, African social start-up studio Janngo has pledged US$66mn to back technology startups through its dedicated investment vehicle Janngo Capital Startup Fund.

The fund is a first-of-its-kind venture capital and impact vehicle investing from seed through growth stage across Africa and targeted at least 50 per cent of start-ups founded, co-founded or benefiting women.

This initiative is part of Janngo's broader commitment on financing the the Sustainable Development Goals (SDGs) in Africa, as a member of the Goalkeepers Community and the Global Future Council of the New Economic Agenda of the World Economic Forum.

"In 2050, we'll be roughly 2.2 billion people in Africa, which means that we need to find now massive ways to feed, educate, house, care for and employ more than 1 billion people in less than 30 years. We believe traditional development models have failed because they were unbalanced and unsustainable – either only focusing on commercial returns or too heavily aid-based: our thesis strikes the right balance between delivering solid returns to our investors while being socially accountable, solving key market failures and leveraging technology to help leapfrog development. That's our ikigai, our reason for being, as Janngo means "Tomorrow" or "Future" in Fulani," explains Fatoumata Ba, executive chair of Janngo and managing partner of Janngo Capital.

Of its US$66mn venture capital fund dedicated to finance tech-enabled start-ups in Africa, a US$16mn anchor investment was made by the European Investment Bank.

There is currently a US$42bn funding gap for women entrepreneurs in Africa according to the African Development Bank. Additionally, the larger the ticket size, the harder it is for women in emerging markets to get access to capital.

In Africa, 3 million jobs are created every year when at least 20 to 30 million jobs will be needed to absorb its fast-growing labour force in the coming years, the company said in a statement.

SAPS, Facebook launch 'Amber Alert' for missing kids

THE SOUTH AFRICAN Police Service (SAPS), in partnership with Facebook, has launched the Amber Alerts tool to help find missing children. South Africa has become the first country in Africa to join the Facebook Amber Alerts programme

The tool enables the police to seek assistance from the public when it is suspected that a child has been abducted.

Through Facebook's Newsfeed, the Amber Alert enables people to instantly share important information about the missing child and suspected abductor – such as a photo, hair colour and clothing – with their friends, family and Facebook groups.

By working with law enforcement in helping to share the right information with the right people, Facebook aims to help reunite missing children with their families as soon as possible.

Emily Vacher, Facebook's director of Trust and Safety, said, "Amber Alerts is available in more than 20 countries worldwide, with more to follow. We are excited to partner with the South African Police Service to make Amber Alerts available in an African country for the first time."

How Amber Alerts work in South Africa

The decision to declare an Amber Alert is made by the law enforcement when investigating a suspected abduction case. Once the law enforcement agency has been notified about an abducted child, it must first determine if the case meets their Amber Alert criteria, which includes:

- The abduction is of a child age 18 or younger
- There is a reasonable belief that the child has been abducted
- The South African Police Service believes the child is in imminent danger of serious bodily harm.
- There is enough descriptive information about the victim and suspected abduction for law enforcement to issue an Amber Alert to assist in recovering the child.

❝ Beyond the GCC, the wider MENA region has an opportunity to benefit from the technological developments delivered by 5G and IoT. To fully embrace those benefits the region's governments must support regulatory frameworks and policies that ensure 5G flourishes, including making sufficient spectrum available.**"**

- Mats Granryd
Director general
GSMA

❝ [The new Orange MEA operational head office in Morocco] sends a highly symbolic message that provides further proof of our desire to be even closer to our customers and to make Orange MEA the preferred multi-services operator for people in Africa and the Middle East.**"**

- Alioune Ndiaye
CEO
Orange Middle East and Africa

❝ The introduction of this mobile money service [MoMo] is a pivotal step in MTN's strategy and represents MTN's participation in the next phase of increasing convergence we are seeing between financial services and mobile technology.**"**

- Godfrey Motsa
CEO
MTN SA

❝ This ambitious satellite programme has resulted in a world-first broadband satellite for the African and European continents that demonstrates the suitability of satellite infrastructure as a means to deliver high-quality

broadband services, contributing to bridging the digital divide within rural areas.**"**

- Rodolphe Belmer
CEO
Eutelsat

❝ Having been the first network to commercially launch 5G in Africa through Vodacom Lesotho, we expect to be able to launch 5G services in South Africa this year.**"**

- Shameel Joosub
CEO
Vodacom Group

UNICEF opens first drone and data academy in Africa

AS PART OF its efforts to promote the use of drones in programmes and services that will impact the lives of children and young people, UNICEF has opened the first African Drone and Data Academy (ADDA) in Lilongwe, Malawi.

"Humanitarian and development programme delivery in Africa and beyond can benefit significantly from the application of drone technology," said Henrietta Fore, executive director, UNICEF. "The African Drone and Data Academy will be instrumental in equipping young people with the skills they need to use the technology to benefit children and their communities."

Building on the work of Africa's first humanitarian corridor launched in Malawi in 2017, the academy will develop expertise in the use of drones for humanitarian, development and commercial purposes across the continent through a 12-week course. It plans to train approximately 150 students to build and pilot drones by 2021. Funding from UNICEF's partners will provide free tuition to the first cohort of 26 students from across Africa.

A drone takes off during a demonstration for residents in Thipa village, Kasungu District, Malawi.

"In Malawi we strongly believe that adopting modern technologies such as drones and advanced data analysis and management techniques will help us to serve our children better. We are proud to partner with UNICEF in such an exciting endeavour," said James Chakwera, director of Malawi's Department of Civil Aviation. The curriculum has been developed in partnership with Virginia Polytechnic Institute and State University (Virginia Tech) in the US. The course will combine theoretical and practical methodologies in making, testing and flying drones.

By 2022, the academy will run a tuition-free two-year master's degree program in drone technology, in conjunction with Malawi University of Science and Technology (MUST). It will also deliver a curriculum that will build local capacity and a favourable ecosystem for the emergence of sustainable business models for using drones for humanitarian and development missions.

Kevin Kochersberger, associate professor at Virginia Tech, who will lead the project, said, "The academy will give graduates the necessary skills for jobs using drone applications ranging from agriculture and health to natural resources monitoring."

Saudi Telecom to buy majority stake in Vodafone Egypt

SAUDI TELECOM COMPANY (STC) has signed a memorandum of understanding with Vodafone Group in connection with the acquisition of Vodafone's 55 per cent shareholding in Vodafone Egypt by STC.

STC and Vodafone have agreed on a cash consideration of US$2.39bn. The final consideration will be determined upon signing of the definitive agreement.

Nasser al Nasser, CEO of STC, said, "The potential acquisition of Vodafone Egypt is in line with our expansion strategy in the MENA region."

Following the completion of due diligence on Vodafone Egypt by STC, any binding agreement with respect to this transaction will be subject to obtaining the approvals of STC and Vodafone boards.

Grammy bites: 9,000 users attacked by malware disguised as Billie Eilish in Nigeria

CYBERCRIMINALS ARE ACTIVELY abusing the names of artists and songs nominated for a Grammy 2020 award, in order to spread malware, according to a report.

Kaspersky protection technologies detected a 39 per cent rise in attacks (attempts to download or run malicious files) under the guise of nominees' work in 2019, compared to 2018. Ariana Grande, Taylor Swift and Post Malone were attackers' favourites, with these nominees' names used most often in 2019 as a disguise for malware.

The popularity of music and its widespread availability are the reasons why, even in the age of streaming services, music is not free from malicious activity, said the report. Criminals use popular artists' names to spread malware hidden in music tracks or video clips, it revealed.

In light of the biggest music awards of the year, to show the extent of the problem, Kaspersky researchers analysed Grammy 2020 nominated artists' names and song titles for malware. As a result, Kaspersky found 30,982 malicious files that used the names of artists or their tracks in order to spread malware, with 41,096 Kaspersky product users having encountered them.

Analysis of the nominated artists showed that the names of Ariana Grande, Taylor Swift and Post Malone were used most to disguise malicious files, with over half (55 per cent) of detected malicious files named after them.

The connection between the rise in popularity and malicious activity is very evident in the case of newer artists such as Billie Eilish. The teenage singer became hugely popular in 2019, and the number of users who downloaded malicious files with her name has risen almost tenfold compared to 2018 – from 254 to 2,171, and the number of unique distributed malicious files from 221 to 1,556. In Nigeria, while the number of users attacked by malware disguised as Billie Eilish songs accounted for only 381 in 2018, 2019 saw this number increase to 9,722. Overall, Nigeria saw 55 of such malicious files distributed in this region in 2019, with 94,630 attacks.

Tereco data centres add VMware cloud in South Africa

DATA CENTRE PROVIDER Teraco has announced that VMware Cloud is now available via VMWare Cloud Verified service providers in the Cape Town (CT1) and Johannesburg (JB1) data centre facilities. VMware Cloud is capable of providing a faster and easier way to migrate existing enterprise application workloads to the cloud.

Jan Hnizdo, CEO, Teraco, says that this collaboration will further expand business opportunities for clients already present within Teraco's data centre facilities as they adopt a cloud-first approach for their existing and next-generation applications. "With VMware Cloud now available within Teraco, enterprises can take advantage of private and secure multi-cloud connectivity, and quickly deploy hybrid cloud infrastructures. The premise of Teraco's vendor-neutral data centre offering is to serve local and global markets at the digital edge and through channels critical to the connected world we live in."

Hnizdo says that through the Teraco cloud services ecosystem, the addition of VMware Cloud will further enhance the ability of service providers to deliver more innovative cloud strategies.

"The choice of Teraco's digital infrastructure platform is critical for the enterprise when transforming and embracing digitalisation. It must enable scale, performance and security and assist in building digital architecture that provides resilient data centre services," explains Hnizdo.

Dave Funnell, senior manager Cloud Business at VMware, sub-Saharan Africa, says that VMWare is now being viewed as the 'Switzerland of Cloud' as it partners with the six major hyper-scalers as well as over 4,000 local cloud providers.

Together with Teraco, VMware's expanded portfolio will enable service providers to deliver new cloud services for differentiation and, in turn, potential revenue growth, and create clouds.

DIGITAL LAB AFRICA invites applications for content creators

DIGITAL LAB AFRICA (DLA), the reference platform for next-gen content in Africa, has launched its latest call for applications: DLA #4.

The Digital Lab Africa call for applications is open to anyone from the field of digital content creation: artists, producers, designers, start-ups, SMEs, collectives, students or entrepreneurs, based in sub-Saharan Africa or a national of a country in this region. The call targets innovative digital content from the perspective of form, storytelling and technologies used in one of these five categories: immersive realities, gaming, music, animation and digital art.

Any creatives and cultural entrepreneurs from sub-Saharan African countries can now apply until 1 March 2020, and get the chance to take part in the DLA acceleration program.

Western Union partners with Airtel Money for real-time cross-border money transfers into Africa

WESTERN UNION, A leader in cross-border, cross-currency money movement and payments, and Airtel Africa, a leading provider of telecommunications and mobile money services, have come together to launch real-time payments soon into millions of Airtel Money Wallets, enabling customers to move money in real time across 14 countries in Africa.

The collaboration with Airtel Africa will enable more than 15 million Airtel Money mobile wallet users in Nigeria, Uganda, Gabon, Tanzania, Zambia, DRC, Malawi, Madagascar, Kenya, Congo, Niger, Tchad, Rwanda and Seychelles to simply route any money transfer received from across the world into their wallets. It will allow senders around the world to push funds directly to an Airtel Money mobile wallet in real time and store value or pay for goods and services. Service launch is expected in the course of 2020.

"The future of money transfer is about customer choice – allowing them to move money whenever, however and wherever they want. Our platform cuts through the complexities of cross-border money movement and payments so millions of customers can access their funds in real time and in a manner that suits their local infrastructure and preferences," said Western Union president and CEO Hikmet Ersek, speaking at the World Economic Forum Annual Meeting, Davos, Switzerland.

Raghunath Mandava, CEO of Airtel Africa, said, "We are

The collaboration with Airtel Africa will enable more than 15 million Airtel Money mobile wallet users.

Photo: Adobe Stock

very excited to partner with Western Union to offer Airtel Money customers better access to one of the world's largest money transfer organisations. International remittances into Africa are a lifeline to some of our customers. This partnership will give our customers the convenience and security of directly receiving and sending remittances from their Airtel mobile money wallets. They will now be automatically credited and debited via their Airtel mobile money wallets on their phone and can immediately access the funds to pay bills or merchants and transfer funds to family and friends or convert to cash from the widespread Airtel Money agents, kiosks and branches."

This tie-up with Western Union adds to other tie-ups that Airtel Africa has already put in place to help customers get inflows from across the world.

Clean fuel company offers sustainable energy initiative for telecom industry

GENCELL ENERGY, WHICH develops fuel cell solutions that offer clean power, is rallying the telecom industry to transition to sustainable energy.

As the telecom industry welcomes in the new decade, combatting climate change and protecting our planet are at the epicenter of policy and strategy. Government, industry and corporate leaders are coming together to lead the transition to a sustainable, low-carbon future. Acknowledging its key role as a part of the solution, the telecom industry is taking responsibility to ensure that the intelligent connectivity behind the diverse digital solutions underlying our world runs on clean, emission-free power.

More than 50 operators have joined a GSMA-led initiative agreeing to disclose details about the environmental impact of their businesses as a step in their carbon reduction roadmap.

To support these efforts, GenCell Energy is inviting industry players to read its post on the topic at www.gencellenergy.com/news and share details of any other telecom projects supporting transition to sustainable energy that they know about in the form at the bottom of the post.

How mobile is enabling a low-carbon future

Source: GSMA 2019 Mobile Industry Impact Report

Sparkle expands African network with new point of presence in Nigeria

SPARKLE, THE FIRST international service provider in Italy, has announced the expansion of its African backbone with a new point of presence (PoP) in Lagos, Nigeria.

Located at Medallion, the largest carrier-neutral data centre in the country, the Lagos PoP is fully interconnected with Sparkle's

Photo: Adobe Stock

The PoP in Nigeria adds to the existing points of presence in Egypt, Tunisia, Tanzania and Djibouti.

global Tier-1 IP transit service, Seabone, providing high-speed internet connectivity to local and international OTTs, ISPs, content and application providers to support the uptake of social media, eCommerce, online music, games and videos in the country.

DDoS service - which grants Seabone customers the option to protect their network from attacks – and the Virtual NAP solution - that allows customers to access the main internet exchange points without the need to build any proprietary infrastructure - complete Sparkle's portfolio of services offered via the Lagos PoP.

The PoP in Nigeria adds to the existing points of presence in Egypt, Tunisia, Tanzania and Djibouti, extending Sparkle's IP backbone in the region and consolidating the company's positioning as leading provider and first Tier-1 backbone in Africa.

Commenting on the news, Mario Di Mauro, CEO of Sparkle, said, "With this new opening, Sparkle ends the year with more than 160 globally distributed PoPs, 18 of which launched only in 2019, a confirmation of the fast pace that Sparkle has given to its relaunch journey."

Two worlds getting closer

A forward-looking focus from forthcoming events covering 5G and broadcast content.

TWO EVENTS WITH two different themes but sharing a very forward-looking focus are on their way in April. One focuses on fixed and mobile communications, the other on broadcasting, but both are linked through the possibilities offered by ever-evolving communications technology and the growth in delivery mechanisms and platforms.

Continuing Africa's fascination with a technology that promises a lot to development but is still some way off, the 5G Africa Forum is coming to Johannesburg from 15-16 April.

Is it too early to focus on 5G when 4G is still rolling out? Not according to the organisers who suggest that the one policy action that would do the most to accelerate African development is connecting the unconnected, and that 5G could play a role in that action with faster speeds, more reliable connectivity and numerous new services.

Why now? Well, standards approval is underway, 5G mobile network deployments are beginning and 5G-compatible smartphones are about to arrive. Africa, the organisers suggests, needs to be better prepared. Hence this summit, bringing together operators, vendors, researchers and others to encourage innovative cross-domain ideas, present research, and discuss recent trials.

A few days after this, in Las Vegas, a long-established event called NAB Show kicks off – from 18-22 April to be exact. Strictly speaking it's about content – but content, as various articles in this issue and previous ones will indicate, can be widely defined. It can also be delivered on a growing number of mediums and platforms. Which may be why NAB Show describes itself as the only industry event covering the full array of opportunities emerging at the crossroads of entertainment, media and technology.

That's no idle boast when you realise that NAB Show now attracts

NAB Show now attracts over 90,000 attendees from over 160 countries.

over 90,000 attendees from over 160 countries, not to mention 1,600 exhibitors, and that it offers at least 800 conference sessions.

More to the point the visitor profile doesn't just take in the expected areas like broadcast, online, video, audio, advertising, post-production, radio, satellite, film, social media, sports, television and cable. You may also find yourself meeting experts in AI, VR, streaming, e-sports, gaming, IoT, IT, mixed reality and mobile.

These two events may seem very different, but with 5G promising new broadcast platforms and content delivery growing more diverse, the worlds of communications and broadcasting are getting closer and closer.

Events/Événements 2020

MARCH/MARS

8-12	**OFC 2020**	California, USA	www.ofcconference.org
11-12	**Blockchain Africa Conference**	Johannesburg, South Africa	www.blockchainafrica.co
11-12	**Data Centre World**	London, UK	www.datacentreworld.com
17-18	**IoT Tech Expo Global**	London, UK	www.iottechexpo.com/global/
22-24	**Cashless Africa**	Accra, Ghana	www.cashless-africa.com
31-2 April	**CABSAT**	Dubai, UAE	www.cabsat.com

APRIL/AVRIL

1-3	**Digital Infra Africa**	Cape Town, South Africa	www.capacitymedia.com/events/digital-infra-africa
15-16	**5G Africa Forum**	Johannesburg, South Africa	www.mjdvent.com/event/5g-forum-next-digital-revolution-in-africa/
18-22	**Nabshow**	Las Vegas, USA	www.nabshow.com/2020/
20-24	**Hannover Messe**	Hanover, Germany	www.hannovermesse.de/de/
21-23	**ICT4D Conference**	Abuja, Nijeria	www.ict4dconference.org

Entering the next phase

Satellite capacity demand for broadcast in Middle East and North Africa is expected to grow in the near term, especially in the orbital hotspots for video distribution, according to Es'hailSat, Qatar Satellite Company.

There is substantially high potential for satellites in broadband, backhaul, and mobile connectivity.

Photo: Es'hailSat

Satellite connectivity for mobility applications is in high demand, as improved coverage via terrestrial cellular networks would be limited to the local implementation of small cells

OVER THE PAST few decades the commercial satellite industry has gone through a few stages of growth and change. The first boom phase came about 40 years ago when video distribution became the mainstay of the satellite business. The second wave came with efficient fixed-satellite service (FSS) satellites with high-powered spot beams that enabled corporate connectivity, backhaul and consumer broadband.

Over the past few years, however, we have started seeing fundamental changes in the way satellite capacity is being consumed. There are higher demands for non-video use, for a service model as opposed to a raw capacity lease, for efficient technology enabling higher throughput, and so on. This new wave is expected to change the landscape of the industry over the next few years.

Looking at the Middle East and North Africa, satellite capacity demand for broadcast is expected to grow in the near term, especially in the orbital hotspots for video distribution, such as 25.5°E/26°E. We are also seeing a transition from standard definition (SD) to high definition (HD), while some countries are even aiming for a transition to ultra HD. In telecommunications, there is substantially high potential for satellites in broadband, backhaul, and mobile connectivity. As a driver for this potential, the implementation of high throughput satellites (HTS) is expected to increase within the region in the coming years.

Considering the ubiquitous nature and ease of achieving wide coverage through a satellite, satellite connectivity for mobility applications is in high demand, as improved coverage via terrestrial cellular networks would be limited to the local implementation of small cells. The wide coverage of satellites can supplement the gaps and connect the unconnected between these terrestrial networks.

The challenge, however, would be to manage the cost of the ground segment, in order to make it affordable for businesses and consumers to incorporate it within their network. For this reason, we see much innovation moving forward in the flat panel antenna space. It is vital for the satellite industry to evaluate the optimal solution – not only to cater for customer demands, but also to be able to eliminate interference risks and operational difficulties. Satellites are, after all, the best solution for mobile communications. ✆

Satcom connectivity for foreign aid projects in Africa

THE BELGIAN DEVELOPMENT agency Enabel and SES, a leader in global content connectivity solutions, will deliver satellite-based communications for the development and foreign aid projects spearheaded by the Belgian and other European governments. Under the multi-year framework contract awarded following a public tender, SES will bring managed end-to-end connectivity infrastructure and services to over 130 sites to support Enabel and development projects in 20 countries across Africa.

The end-to-end connectivity solution delivered by SES will be supporting Enabel in its goal of providing partners with the right digital solutions and latest technologies. The connectivity will power Enabel's projects and activities, further reinforcing the agency's commitment to the Digital for Development policy (D4D) of the Belgian Development Cooperation and of the European Commission, the Principles for Digital Development and the UN Sustainable Development Goals.

As part of the solution, SES will provide antennae, installation, satellite bandwidth and end-to-end services to allow Enabel and its partners to upgrade the skills of African professionals, elevate the healthcare system and improve people's living conditions.

Access to high-bandwidth connectivity is essential for projects in remote locations as it allows people to deploy critically important tools.

MTN Group in standardisation initiative

TEOCO, A PROVIDER of analytics, assurance and optimization solutions to more than 300 communication service providers and OEMs worldwide, has been selected by MTN Group, the largest mobile operator in Africa, to standardise its radio and microwave network planning tools. MTN Group will deploy TEOCO's ASSET Radio and ASSET Backhaul across subsidiary networks that span 18 different countries. This includes the ability to standardise the

Photo: Adobe Stock

MTN Group will deploy TEOCO's ASSET Radio and ASSET Backhaul across subsidiary networks.

reporting of its population coverage across Africa, to determine the number of subscribers that can access MTN's services.

The use of ASSET Radio and ASSET Backhaul will enable a much better view of the reality in each country, which will in turn help focus capex investments where they are most needed. It will also allow MTN to see the impact of its dual-data strategy – delivering high-capacity 4G in cities and broad 3G coverage in rural areas – to drive data adoption across urban and rural areas in all its markets.

Orange Egypt enhances VNF capabilities

RED HAT, INC., a provider of open source solutions, has announced that Red Hat's open hybrid cloud technologies are providing a horizontal cloud platform for Orange Egypt's virtual network functions (VNFs), helping the service provider to more quickly deliver new services to customers, optimise its network investments and reduce operational expenditure. Building on the foundation of Red Hat OpenStack Platform and Red Hat Ceph Storage, Orange Egypt is the first Orange affiliate to manage 100 per cent of its live customer traffic over a fully software-based platform spanning several sites across its region.

Red Hat OpenStack Platform is massively scalable infrastructure with unified automated management, enabling Orange Egypt to launch and adapt services to better fulfil customer demand. With Red Hat Ceph Storage, Orange Egypt has a massively scalable storage solution for its workloads. It has been able to roll out software-defined capacity expansions for its telecom packet core to serve summer hotspots in Alexandria and northern coastal areas. Orange Egypt was able to make 50 per cent capacity upgrades in only two working days per site, which is nearly 10 times quicker than its traditional process.

With this new deployment, Orange Egypt was also able to deliver new cybersecurity services such as parental controls and malware protection to its consumer and business customers faster than previously possible with its traditional system. The third VNF that Orange Egypt has launched on its platform is mobile data optimisation (MDO), enabling transmission control protocol (TCP) acceleration aimed at reducing network latency and improving the user experience.

The third VNF that Orange Egypt has launched on its platform is mobile data optimisation (MDO).

Photo: Adobe Stock

MWC cancelled; GSMA looks forward

AS READERS WILL be aware, the 2020 Mobile World Congress has been cancelled. Concerns about the international outbreak of coronavirus had driven a number of exhibitors such as Intel, Sony, Amazon, A&T, BT, Vodafone, Orange, Deutsche Telekom, Ericsson, LG and Nokia to withdraw from the event, citing fears that they could not guarantee the health of their employees under the circumstances.

John Hoffman, CEO of GSMA Limited, said: "With due regard to the safe and healthy environment in Barcelona and the host country today, the GSMA has cancelled MWC Barcelona 2020 because the global concern regarding the coronavirus outbreak, travel concern and other circumstances, make it impossible for the GSMA to hold the event."

Over 100,000 visitors attend the event, which has grown massively in the thirty or more years since it was first held. The GSMA board is, however, looking forward. It said: "The mobile industry is committed to harnessing the power of mobile technology and connectivity to transform the lives of billions of people around the world, and we are committed to a great MWC Barcelona 2021."

Step into the future of satellite, broadcast and content creation

CABSAT is back – and with it an indispensable guide to the revolution in broadcast, satellite and content creation in the Middle East, Africa and South Asia. Vaughan O'Grady looks back at last year's CABSAT and forward to this year's event – and the growth and change in the industries it highlights.

Photo: CABSAT

Pleased to meet you: networking at CABSAT

IN 2019, ON the occasion of its 25th edition, CABSAT, the leading specialist event for the broadcast, satellite, digital media and filmed entertainment industries for the Middle East, Africa and South Asia (MEASA), brought together a large number of members of the creative industries on one platform. Its aim? Nothing less than to guide the region's industry through the next revolution in broadcast, satellite and content creation.

The show housed 456 exhibiting brands and sponsors and 14,172 attendees. Other statistics supplied by the show's organisers noted that there were 305 delegates and speakers and 1,178 pre-arranged meetings, and that visitors came from about 114 countries.

Among the countries supplying most of those visitors aiming to source new products, solutions and suppliers, to network, and to learn about the latest trends and innovations, were many of the countries you would have expected – Saudi Arabia, Oman, Jordan and Bahrain, for example.

But Africa was also strongly represented, and not just the North African countries like Algeria, Egypt and Sudan. Nigeria and Kenya sent a number of attendees, and there were smaller numbers of visitors from numerous other countries.

All were focused on some or all of the three content sectors covered by CABSAT. The first among these is content creation (which includes production houses, TV companies and producers). The next sector is content production and post-production (which includes professional audio/video/radio playout equipment, storage, cloud and media security, and augmented and virtual reality). Finally there is, of course, content distribution and delivery (which includes satellite carriers, OTT, telcos and regulators).

The visitor profile was not too surprising, with TV contributing most visitors – over a quarter – along with digital media, which supplied 23 per cent. Photography, film, audio, radio and e-sports were also strongly represented.

5G advances in the MENA region are reshaping the media conversation

And, it seems, many of them made their presence felt online, with Instagram boasting 1.25 million impressions, Facebook 3.1 million impressions and LinkedIn and Twitter also kept busy. A high level of exhibitor satisfaction – some 90 per cent of exhibitors were satisfied with CABSAT 2019 – was an encouraging

signpost for the 2020 show.

A number of future trends were identified by exhibitors and visitors at last year's show. In particular over 50 per cent of exhibitors felt that 5G would have an impact on their business. However, a number of other trends and concerns were mentioned. They included hybrid satellite solutions, artificial intelligence, security technologies, next generation cloud, content rights acquisition, social media, and IPTV/OTT. This year, perhaps, we will find out how accurate those predictions were.

Now CABSAT is entering its 26th edition with a newly evolved format that will bring the entire content, satellite, broadcast, digital media and entertainment ecosystem under one roof.

Taking place at the Dubai World Trade Centre (DWTC), from 31 March – 2 April, CABSAT 2020 will unite the media industry's creative experts and most sought-after technology suppliers to "unpack and unveil the latest in consumption habits, digitisation efforts and next-gen revenue opportunities being shaped by modern audiences", as the organisers put it.

Reflecting the concerns discussed after last year's event, for the first time CABSAT 2020 will be hosting a 5G Focus Day, a one-day seminar to explore 5G advances in the MENA region that are reshaping the media conversation.

While the advance publicity for the show

suggests that The Middle East and Africa region is set to be at the centre of the 5G revolution, with 30 million 5G mobile subscriptions expected in the region by 2024, it's really the Middle East leading the way. All six GCC countries are expected to launch 5G mobile services in the next two years, with the UAE aiming to deploy 5G in 2020.

Nevertheless, whether 5G arrives in your country now or in a few years, it's reasonable to argue, as the show's announcement does, that as 5G networks become a reality, new products, services, business models and entire industries will be born.

That's undoubtedly worth talking about – and at CABSAT you can. Under the theme of 5G and Beyond, a seminar at CABSAT 2020 will give visitors a glimpse of how 5G will drive productivity, task automation and digital connectivity. Featuring a series of technical and strategic keynotes, panel discussions and workshops, the seminar will address the needs of broadcasters and content providers to transition smoothly into the 5G era.

On a more traditionally broadcast-focused

A newly evolved format will bring the entire content, satellite, broadcast, digital media and entertainment ecosystem under one roof

note, CABSAT's Content Creation pillar will be keeping the industry engaged with its core competence. The Content Congress will, we are told, engage a unique cross-section of senior industry stakeholders with up-and-coming influencers to share forward-looking insights into how to adapt traditional broadcast models, the benefits of disruptive thinking and the future of broadcasting – not only for the region, but worldwide.

Key speakers sharing their knowledge and insights at this year's CABSAT include Bernie Su, three-times Emmy award-winning American web series creator, writer, director and producer; Sanjay Raina, senior media and entertainment industry professional and broadcast and media trailblazer; David Clark, CTO of Sky News Arabia and the man behind the launch of all Sky News Arabia's OTT products across major smart TVs as well as Apple TV and Amazon Fire; Archana Anand, chief business officer, ZEE5 Global and the name behind the digital charge at ZEE, launching the digital platform ZEE5 across over 190 countries; Yusuf Al-Butti, head of technology and engineering at twofour54; and Klime Mickovski, head of digital data and insights, Sky News Arabia, and global digital transformation and growth guru for digital media and telco brands.

A very busy CABSAT exhibition floor in 2019.

Photo: CABSAT

But it's not all broadcast, by any means. Making its debut this year is the all-new GVF SATEXPO Summit, formerly known as the GVF Satellite Summit, which will focus on industries including aviation, military, maritime, humanitarian assistance and disaster response. This summit will extend over two-and-a-half days during CABSAT, featuring keynote addresses, a series of themed interactive sessions, and special focus sessions, covering key topics on the satellite industry agenda.

Launched last year, CABSAT's Esports section will provide broadcasters, advertising and marketing agencies, premium brands and game developers a tremendous opportunity to understand, learn and adapt these bite-sized formats. Also launched at CABSAT 2019, the Esports Congress will once again discuss opportunities across the plethora of original revenue generators the skyrocketing gaming phenomenon presents, in the form of networking as well as panel discussions and keynotes.

Government recognition of esports, monetisation in the industry and how game publishers view the region are some of the topics that will be discussed at the Congress, to be held on day one of CABSAT.

While CABSAT's Digital Hub will continue to focus on the digital and over the top (OTT) technologies that facilitate the delivery of video or digital content via internet protocol and purpose-built platforms for 'anytime, anywhere' consumption, this year will also see the photography and videography sectors evolving further at the show, through an event called Imagescape.

The show will continue to feature the latest in video and photography. At this event, held in collaboration with broadcast equipment supplier Advanced Media Trading, the visitors will get access to free workshops, educational seminars and interactive learning sessions, presented by leading professional photographers.

In collaboration with mena.tv, CABSAT will also host Contentscape, where original Arabic and international content will be screened to visitors. This will also be a platform for

businesses to exhibit their latest content, and explore production and co-production opportunities, while discovering the latest formats in TV and film. As well as a dedicated content marketplace for buying and selling content in the MENA region – especially for content buyers from across the region who are looking to buy content for TV, film, serial dramas, documentaries, comedy, kids' entertainment and animated series – the platform will also be appropriate for creative professionals involved in film-making to create, launch and establish a viable and successful content market in the region.

The CABSAT Global Meetings Programme

Government recognition of esports, monetisation in the industry and how game publishers view the region are some of the topics that will be discussed

will also provide opportunities to exhibitors, visitors and delegates to network and have pre-arranged meetings set up before they even arrive at the venue with key players. Last year, 1,178 meetings were booked as part of the programme, engaging with 5,000 users and deals worth up to US$3.75mn signed during the programme.

While some other major shows may make similar claims, CABSAT can reasonably argue that, for its region at least, it really is the ultimate event for the satellite, media and entertainment industry. It's also well positioned: with much of the satellite and broadcast industry keeping a close eye on a young, growing, content-hungry African population, the opportunities in not just the Middle East but Africa, north and south, will surely grow.

CABSAT is well positioned to take advantage of its reputation and position to showcase that growth as it happens. ✆

Why more African countries are joining the space race

Afrian nations have seen a record number of satellite launches and contract announcements in the last year as the continent has experienced a sharp increase in countries making their first foray into space - and more additions to that number are due soon, as Barry Mansfield explains.

Photo: EUTELSAT

EUTELSAT KONNECT satellite installed on Ariane 5's SYLDA (Kourou, French Guiana).

The formation of the African Space Agency means that Africans can expect much-improved connectivity across the continent

FROM 1998 TO May 2019, African states launched 35 satellites, intended mostly for communications, earth observation, technology demonstrations, scientific experiments, military radar and educational projects. In fact, the African space industry is already worth about £5.7bn (US$7.4bn) – a figure expected to increase by 40 per cent to £7.9bn (US$10.3bn) by 2024. The formation of the African Space Agency (set to be headquartered in Egypt) by the African Union (AU) means that Africans can expect much-improved connectivity across the continent.

2019 brought a sharp increase in the number of space-faring African nations. Sudan launched a civil and military remote sensing satellite last December, with the government planning ground facilities in Khartoum North. Rwanda's first satellite, RWASAT-1, launched from Japan last September (it was developed at the University of Tokyo by 15 Rwandan engineers), holds a communication payload for collecting and forwarding data to remote monitoring stations on the ground – partly for environmental and disaster management purposes. It also holds two cameras for earth observation.

Ethiopia's first remote sensing satellite, ETRSS-1, was launched from China's Taiyuan Satellite Launch Centre last December. This multi-spectral civil earth observation satellite will transmit data to Ethiopian researchers and public bodies for weather pattern monitoring, agricultural planning, drought early warning systems, mining activities and forestry

management. China provided US$6mn in funding for the technology and trained Ethiopian engineers, while the Ethiopian government allocated US$2mn for the ground station facilities near Addis Ababa.

This development has inspired Ethiopia's Space Generation Campaign, an effort by the Ethiopian Space Science Society (ESSS) to guide the nation's growing community of young scientists. The country's most prominent space advocacy and outreach group already boasts 10,000 members, 20 branches and 100 school clubs. The government itself is also investing heavily in indigenous capacity for satellite development, signing an agreement with French space firm ArianeGroup to build an assembly, integration and testing base in Addis Ababa by 2022.

In late January, Eutelsat Konnect successfully launched from the Guiana Space Centre in Kourou, French Guiana. Built by Thales Alenia Space, the goal is to provide full or partial internet access up to 100Mbps (with total capacity of 75 Gbps across a network of 65 spot beams using the Ka-band) for 40 countries across the continent. Konnect is designed for a lifespan of 15 years or more, but it will be joined in 2022 by the Eutelsat Konnect VHTS (very high throughput) variant, which is presently under development by the Thales Group division. The VHTS promises huge capacity of 500Gbps.

Egyptian satellite operator NileSat recently signed a contract with US company SpaceX to launch its NileSat-301 communications satellite in 2022. Thales Alenia Space won the contract last December to carry out design, manufacture and in-orbit acceptance testing, while also providing a control system for Nilesat in Alexandria and Cairo. Nilesat-301 will help expand the company's provision

Photo: EUTELSAT

EUTELSAT KONNECT satellite, built by Thales Alenia Space, successfully launched aboard the Ariane 5 rocket.

of direct digital broadcasting services and Ku-band communications in two new large regions of Africa, while providing broadband Ka-band coverage over the whole of Egypt.

Tunisia is also joining Africa's space community with its first satellite, Challenge ONE, set to be launched in July this year from the Russian-run Baikonur Cosmodrome in Baikonur, Kazakhstan. Another scientific research and technology demonstrator, it will allow for experiments in the latest information technologies and possible practical applications. The small system was created by Tunisia's own publicly traded engineering and technology consulting firm, Telnet Group, at a final cost of £350,000 (or about $455,0000 – compared to an equivalent commercial price of

around $1.7mn). Elsewhere, Senegal has signed a Memorandum of Understanding

with ArianeGroup to conceive a design and construction centre for satellites weighing under 50 kg (known in the industry as CubeSats) with the objective of establishing a local ecosystem of scientific research and industrial innovation in the space sector – in conjunction with universities, start-ups and larger companies. This arrangement will see the first Senegalese nano-satellite launched by 2021, with the base itself likely to be completed by 2022.

Finally, the European Space Agency and AXA have signed a Memorandum of Intent to co-operate on improving healthcare services across the continent. Announced last October, the plan is to enable teleconsultations, delivery of medicine to private homes and more widespread use of health coaches to African patients.

Starting in Egypt, ESA aims to provide remote regions with improved internet coverage and urban areas with backup. The emphasis will be on improving accessibility, affordability and quality with AI-driven services that would have been unthinkable just 10 years ago. ✪

The Ethiopian Space Science Society (ESSS) already boasts 10,000 members, 20 branches and 100 school clubs

Agricultural issues? The answer may be in the stars

SATELLITE DATA IS aiding sustainability; it's already in use by Kenyan maize farmers to monitor crop pests and reduce losses. This Pest Risk Information Service (PRISE), which is backed by the UK Space Agency and the Global Challenges Research Fund, is already operational in Malawi, Rwanda and Zambia. The objective is to identify pests like maize stalk borer before dispatching text message alerts to Plantwise plant doctors. Plantwise is a global programme led by international not-for-profit organisation CABI. These officials pass on relevant information to farmers in the field.

Doctors also pass on advice via their network of plant clinics. A survey established that farmers who did not sign up for the alerts suffered higher production losses – averaging over 25 per cent. PRISE estimates that 40 per cent of the world's crops are lost to pests in this way, threatening the livelihood of smallholders, while limiting trade and food supply chains. PRISE also aims to empower input suppliers to predict demand more accurately and provide suitable products where they are most urgently needed. This also means that insurance and financing companies should have a more detailed risk assessment picture.

Due to new classes of satellite, such as those used by Europe's Copernicus programme, images are more frequent, precise and available free of charge. A similar project, AfriCultuReS (supported by the European Commission and the Group on Earth Observations), extends the concept to improved monitoring of water availability and productivity, soil moisture detection and crop water requirements assessment, as well as livestock grazing and rangeland monitoring. AfriCultuReS aims to achieve market readiness quicker than the 10-year period typical for this type of technology.

Smartphone or smart TV?

OTT TV would seem ideal for the African market. It allows viewers to use computers, phones or mobile devices rather than expensive fixed televisions. In addition, the content offering is improving, bringing more localised shows to viewers. However, this remains a challenging market for both content suppliers and end users, as Max Signorelli of IHS Markit Technology explains to Phil Desmond.

IN 2018 RESEARCH group IHS Markit Technology, now part of information provider Informa Tech, published a report called The Sub-Saharan Africa TV and Online Video 2017 Market Monitor. It provided a fully updated, comprehensive, analytical and insightful description of the state of the pay TV and the online subscription video markets in the Sub-Saharan African region.

One of its authors was Max Signorelli, a research analyst with a focus on media and entertainment technology research products and solutions, and an ideal person to comment on the success, or otherwise, of OTT TV in Africa.

The original report came out a year or two ago. It offered a number of interesting findings on OTT in the region. Firstly, this was, and still is, a market that is developing. "Sub-Saharan Africa's OTT market is clearly underdeveloped relative to its size and its potential with just over one million paid subscriptions across all operators in 2018," Signorelli says. "South Africa forms the largest market by a significant margin."

As for the big players, Naspers' Showmax was the market leader, surpassing Netflix paid subscribers by more than 60 per cent. Naspers Limited is a multinational internet group. Headquartered in South Africa, its principal operations are in internet communication, entertainment, gaming and e-commerce. Showmax is an online subscription video on demand (SVOD) service that launched in South Africa in 2015.

Signorelli adds: "The presence of Showmax is further extended by

Sub-Saharan Africa: 2019 paid OTT subscription market shares by operator
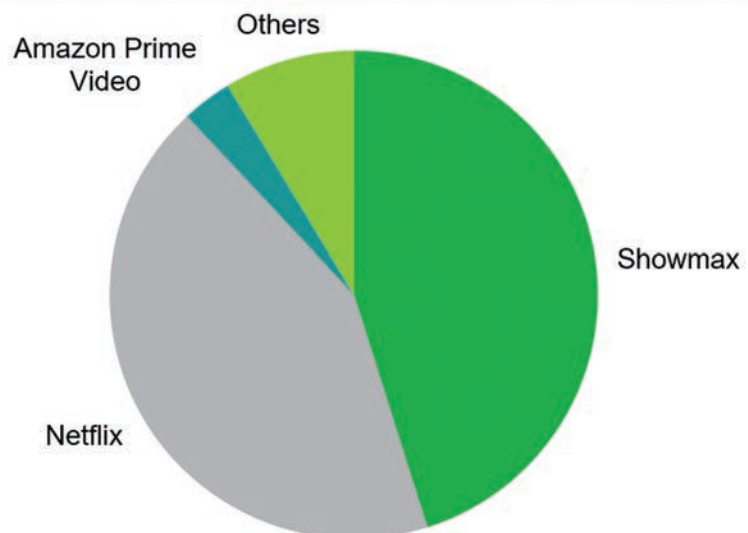
Source: IHS Markit Technology

its free and discounted provision to various tiers of DStv subscribers across numerous sub-Saharan African countries." DStv is a sub-Saharan African direct broadcast satellite service owned by South Africa's MultiChoice.

You might have thought that some big international players would try to get into this market, but some element of localisation is important in building a content business in Africa and not all players have achieved that. As Signorelli says: "Amazon Prime Video [an American internet video on demand service that is developed, owned, and operated by online retail giant Amazon] had little impact owing to a distinct lack of service development and localisation, even in South Africa."

Of course three years is a long time in OTT TV. A few things have changed since 2017. For example,

as part of Naspers' efforts to expand its online presence across the region, Showmax localised its platform in Nigeria in July 2019. Showmax began to offer the service in local currency (N2,900 per month as opposed to $7.99 per month) and secured a new content partnership to show live Big Brother Naija content as well as further exclusive Big Brother programming.

However, the big international names are playing the content game with more skill these days. Subscription-based streaming service Netflix has continued to expand at an impressive rate across the world and has closed the gap with Showmax in sub-Saharan Africa even more in 2019. As Signorelli says: "Such growth is likely to continue into 2020 as Netflix begins to invest more in local African content, including

new original content."

One would assume of course that mobile-device-based TV would have a strong market in Africa. In an interview with this magazine that appeared in issue six of 2019, IROKOtv CEO Jason Njoku said: "Mobile is first, second and third in our market." Is this the case for other players – and likely to remain the case?

Signorelli points out that the appeal of different subscription platforms is still very binary in sub-Saharan Africa. He explains: "Cheaper video subscriptions such as IROKOtv specifically target these mobile users and have seen some success there. More expensive subscriptions with large, premium content libraries like Netflix and Showmax cannot target these users in the same way owing to their cost."

But the mobile market is, it seems, here to stay. As Signorelli points out: "Going forward, these platforms will need to target these mobile markets if they are to have

The big international names are playing the content game with more skill these days

any level of mass appeal in the next decade."

And that is indeed what is happening. Showmax already offers mobile subscriptions in Kenya as part of its localisation effort there in October 2016, and Netflix is increasingly trialling mobile subscriptions, starting with much larger Asian markets, in this case India and Malaysia. "These platforms may have to find other ways of being flexible with how content is delivered, however, as the majority of sub-Saharan Africa remains heavily offline-focused," says Signorelli. It's also something of an economic issue. "The implementation of these mobile-focused offerings will be heavily dependent on how the various local economies and infrastructure develop."

That's not the only economic issue. African consumers hoping to access TV on their handsets face a number of challenges. Data costs are only the most obvious. Smartphone affordability is another. And there are others.

As Signorelli points out, few countries across the region have access to content priced in local currency through local payment channels. International pricing for Netflix and Showmax is typically uniform across the world (starting at around $7.99 per month) "but this level is simply too high, especially compared to acquiring pirated content". OTT subscription video is hence unattainable for most and doesn't offer good value for the remaining local consumers, especially when the cost is stacked on top of their data/internet plans.

So what's the answer? "One of the main ways these OTT video platforms gain significant user bases is through partnerships with local operators. These typically allow consumers to find out about and gain access to these video services through bundling or with direct carrier billing for ease of payment." It certainly seems like a viable way ahead, but Signorelli adds: "Few of these partnerships exist across the region and that means these consumers must go to a company directly."

And if you thought things were tough for end users, content providers hoping to make some money targeting the OTT market within Africa have quite a few hurdles of their own to overcome.

"Making an OTT video service convenient for local consumers when piracy is rampant and typical subscriptions don't offer good value for money will be the main struggle," Signorelli

Platforms will need to partner with local operators for marketing, customer billing and creating value through bundling and integration

suggests. He continues: "Platforms will need to partner with local operators for marketing, customer billing and creating value through bundling and integration."

Nor are things going to improve quickly. "Given the economies, currencies and regulations across the array of countries in sub-Saharan Africa, creating a localised, valuable content offering for each one will be extremely difficult, especially as content acquisition costs increase." These, incidentally, are typically priced in US dollars or other stable currencies.

At the moment, of course, smartphone prices are falling. At the same time, 4G is slowly but surely overtaking 3G in many parts of Africa and, in the process, offering faster download speeds and a better data experience. Which begs the inevitable question: Will the continuing growth of the smartphone market and roll-out of 4G be a boost for mobile TV?

Signorelli can see the promise of 4G but is wary of overestimating its potential. As he says: "It will make mobile TV a more appealing option provided that the infrastructure is able to support it at a cost to the consumer that is affordable. The pay TV market will continue to grow but the advancements in mobile are likely to better allow more local consumers to access video content."

There's another issue too. Useful though the mobile phone is as a medium for access to content, it is not necessarily ideal for the industry supplying that content. Signorelli says: "OTT players typically want to move the viewer from the smartphone to the TV screen (smart TVs) as research indicates that content watched on a big screen, like the TV set, creates more 'stickiness' than watching on the small screen." That said, he adds: "For sub-Saharan Africa, however, this development in consumption habits may have to wait longer." ✪
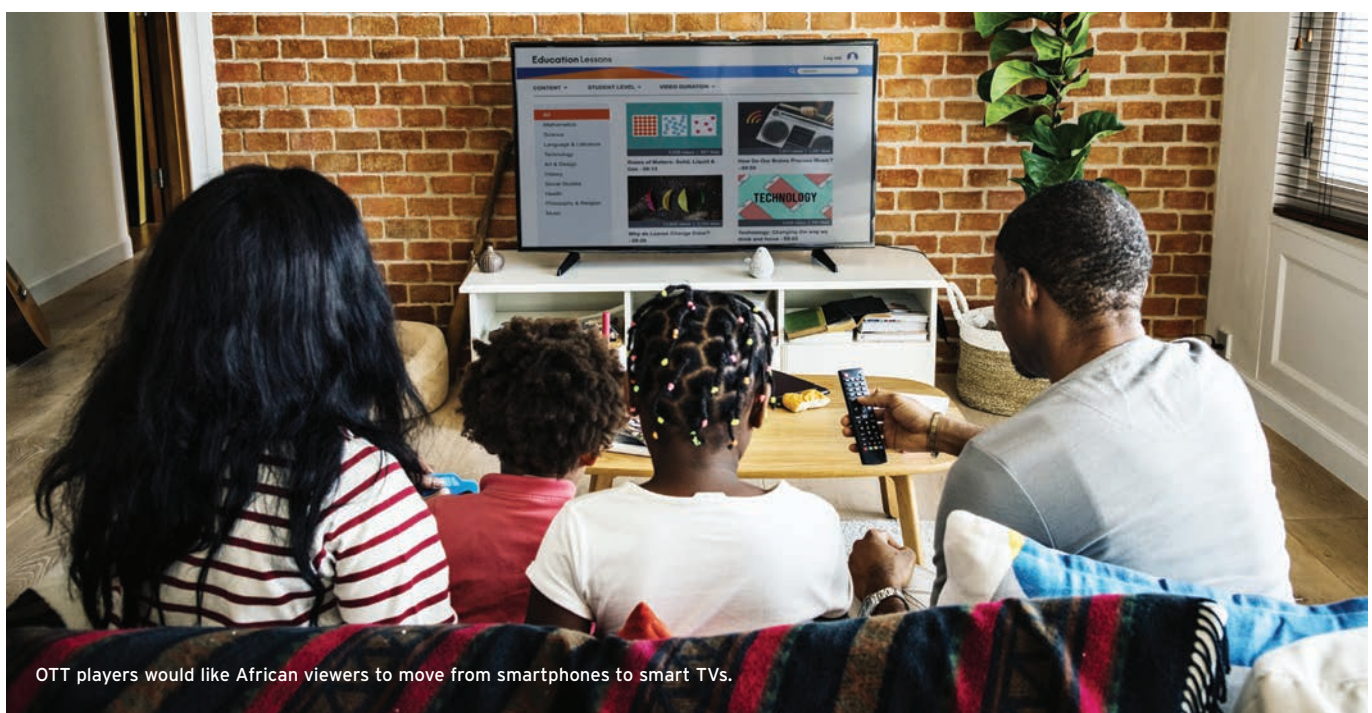
OTT players would like African viewers to move from smartphones to smart TVs.

Photo: Adobe Stock

A recognised response to identity fraud

In November the Africa Prize for Engineering Innovation, run by the UK's Royal Academy of Engineering, announced its 2020 shortlist. Among the shortlisted groups is Ghana's BACE, which uses live facial recognition technology to prevent identity fraud. Charlette N'Guessan from BACE explains how it works.

Communications Africa: Tell us about your background as a tech entrepreneur. How was the BACE API first developed? How does it work?

Charlette N'Guessan, BACE: I graduated with an electronic and software development background. BACE has four founders and we are all software engineers. We decided to build the BACE API because we noticed that online identity fraud is increasing on the continent at a staggering pace and financial institutions are spending a lot of money to meet 'Know Your Customer' regulatory requirements since the majority of African countries have issues with identity schemes.

The BACE API is a piece of software that uses facial recognition powered by artificial intelligence, which enables financial institutions to verify their customers' identities – even remotely. Our API is built on high security standards and we believe that the BACE API will help financial institutions to fight against fraud and give local citizens more access to financial services in the most secure way possible.

"Telco companies can use our solution for online SIM card registration"

Communications Africa: Is facial recognition software a game-changer in tackling identity fraud and cybercrime in Ghana?

Charlette N'Guessan, BACE: Most definitely, and not just in Ghana [but] across the globe. Facial recognition is part of the biometric technologies that define the uniqueness of humans. Facial

Charlette N'Guessan: "We believe that the BACE API will give local citizens more access to financial services"

recognition is making inroads into building robust security platforms. Facial recognition powered by artificial intelligence is one of the most robust and powerful technologies that will be able to beat fraudsters and guarantee a good customer experience.

Communications Africa: Who/which companies/industries has/have adopted the software so far? Where do you see it mostly being used?

Charlette N'Guessan, BACE: Our current clients are in the financial industry. However, we have noticed that our solution can be used by organisations in the public sector and transport (companies like Uber can use our API when onboarding their drivers for identity verification), while companies that provide security hardware solutions can integrate BACE API to identify intruders or unknown persons using video surveillance. Telco companies can use our solution for online SIM card registration.

Communications Africa: Do you have any plans to roll out the software to other African countries?

Charlette N'Guessan, BACE: We are actively looking for partnerships to help us to extend our services in countries in the West African region, which is our initial target market, then Kenya, Rwanda and South Africa. However we are happy to receive proposals from any interested parties across the globe.

Communications Africa: How will this new software help people to access financial services?

Charlette N'Guessan, BACE: We have started working with universities as a data source to enable their students to verify their identities using their student ID via our API. According to financial institutions, they are unable to give access to their services to students (usually foreign students) because they are not able to verify their identities. In Africa the majority of local students don't have a national ID or passport, and foreign students' IDs are not easily verified. Currently, universities are providing student ID cards to identify their students, but this data is not digitised in a way that is useful outside the context of the universities, and it is creating a gap between financial institutions and students.

The main goal of the BACE API, which is identity verification, in this context, is to help students both foreign and local, gain access to financial products using their student ID, verifiable with their face and validated against their university database, since that is a secure data source that validates their identity. The possibilities of such access include student credit and specially crafted financial products for students. ✪

For more on BACE go to www.bacegroup.com Bace can be reached via email at founders@bacegroup.com. The company is happy to talk business with any interested party across the globe.

Invisible ads
and non-human clicks

Specialist mobile security company Upstream works with operators in a number of countries to protect consumers and businesses from mobile transaction fraud. Here the company examines recent threats to end users in Egypt.

MALWARE IS LURKING unseen within many popular apps and commits background fraud targeting advertisers, operators and consumers. Last year, in Egypt, specialist mobile security company Upstream identified three million infected devices along with suspicious activity emanating from more than 4,600 apps.

These rogue apps behave normally on the smartphone's screen, but in the background they click on links and adverts, sign users up to subscription services, and consume vast amounts of data from prepaid contracts. Advertisers pay the app developer for the false clicks generated by the app and often also receive personal data about the smartphone user – all without permission or any visible sign on the screen.

Specialist mobile security company Upstream works with operators in Egypt to protect consumers and businesses from this type of fraud. The company's Secure-D platform monitors app activity and blocks suspicious transactions. In an end-of-year report*, Upstream revealed that it had checked more than 200 million Android transactions in Egypt in 2019, and had blocked a staggering 99 per cent of them as fraudulent.

"Fraudsters recognise the power of smartphone video"

Egypt's worst offending apps in 2019 were:
1 – Snaptube (94 million blocked transactions)
Fraudsters recognise the power of smartphone video, making it very popular as a means of screening fraudulent activity. The Snaptube video app spread very quickly and in no time at all the Secure-D platform had blocked 94 million transactions in Egypt. Snaptube lets people download videos and songs from popular social media and entertainment sites to watch offline. In the background, however, a hidden component generates fake clicks and hijacks personal data.

Upstream exposed Snaptube in October last year and it is now removed from the Google Play store. Unfortunately, it is still available on third-party Android app stores and still 'live' on many phones.

Egyptian consumers were usually unaware of fraudulent activity on their mobile phones.

2 – VidMate (71 million blocked transactions)
VidMate, another popular video app, has chalked up more than 500 million downloads worldwide. Like Snaptube, it lets people download videos and songs to watch offline. With VidMate, the hidden component not only generates fake clicks and purchases, it even downloads other suspicious apps without the user's knowledge. In common with Snaptube, the VidMate app is now only available on independent app stores.

3 - Ai.type (13 million blocked transactions)
Ai.type is designed to analyse users' typing style, learn from it, and ultimately speed it up. However, this customisable keyboard app, with more than 40 million downloads worldwide, also delivers invisible ads and non-human clicks. The removal of the app from the Google Play store in July spiked a surge in suspicious activity as fraudsters looked to capitalise on their already installed base. Some 13 million fraudulent transactions were blocked in Egypt during 2019.

These three apps make up nearly 180 million of the blocked transactions in Egypt. Upstream blocked around another 30 million transactions in the country in 2019 from a staggering 4,600 badly behaving apps. Fraudsters target Android handsets because Android's 'open' operating system is easier to work with and there are a host of non-official places to visit and download apps.

In addition, in many countries like Egypt, many consumers use pre-pay mobile phones as their main method to access the internet. These people also often use their airtime credit to buy digital services. The fraudsters can take advantage of this to subscribe people to premium services without their knowledge.

The 2019 Upstream report on global mobile ad fraud states that "the Android ecosystem has a critical problem with malware". The full report covered activity across 31 operators in 20 countries and some 700 million subscribers. Worldwide Upstream found 98,000 malicious apps and blocked 1.6bn suspicious transactions. ✪

*The full report, called The Invisible Digital Threat, is available at https://www.secure-d.io/mobileadfraud2019report/, and contains a section on Egypt. The Secure-D index of all the suspicious apps blocked by the platform is available at https://index.secure-d.io

Home and away:
calling across the continents

x-Mobility is a mobile virtual network aggregator (MVNA), providing a white-labelled MVNO service for brands wishing to enter the mobile space. Gist Mobile is a new MVNO – running on x-Mobility's AppVNO service – targeting the West African diaspora in the UK, US and Canada. The founders of both companies tell Communications Africa why they are working together and who could benefit.

Using x-Mobility the MNOs can offer users branded OTT services.

Photo: Adobe Stock

Communications Africa: Can you explain your MVNA/MVNO concept in more detail? How does it keep costs down for everyone involved? What part does technology play?
Aramide Adebanjo, co-founder of Gist Mobile: Technology is a huge part of this service offering. Gist Mobile is an app virtual network operator (VNO) that uses voice over IP technology (VOIP). It is an over-the-top (OTT) service that requires only a connection to Wi-Fi or mobile data to operate, like other OTT apps such as WhatsApp, Viber and Skype.

Anyone can use the app, provided they have a smartphone and an internet connection on their mobile devices. Because the technology uses VOIP, voice calls can be originated and terminated using data networks. That greatly reduces the cost of making these calls as it uses existing packet data networks to offer the service instead of the more expensive dedicated circuit-switched networks prevalent in developing markets such as Africa.

Shanks Kulam, co-founder of x-Mobility: It keeps costs super-low for the user, as they make and receive roam-free calls and texts via the AppVNO OTT app. It adds new digital revenue streams for the MNO such as the international mobile number subscriptions, plus it enables both MVNOs and MNOs to extend their brands in a digital-first OTT nature to offer their branded services beyond their geographical boundaries – targeting new users such as those in the diaspora.

Communications Africa: Can you clarify the value chain?
Shanks Kulam, x-Mobility: x-Mobility enables brands / MVNOs to launch telco-OTT services. We enable the brands / MVNOs to launch new telecoms services quickly and globally. For MNOs, such as the West African MNO we are launching with soon, it provides a new 'international' revenue stream that they would not otherwise have access to.

The international revenues work as subscribers can now afford to make calls and text back home when travelling due to the roam-free nature of our AppVNO. They also have the ability to subscribe to new digital services such as international mobile numbers. For example, African travellers can have a real French number when they travel to France, and maintain that French number even once they return home to West Africa, to continue to receive calls and text roam-free. Many of the MNOs that we are discussing this with see this as a great way to counter the other OTT offerings out there. Using x-Mobility the MNOs can offer users branded OTT services that can also create additional revenues and increase ARPU.

Communications Africa: Why the West African diaspora?
Aramide Adebanjo, Gist Mobile: The West African diaspora is really a subset of our sub-

Saharan target market but a key one to start with. We feel this is a market that has been underserved in the area of affordable and seamless communications. Being West Africans ourselves and having first-hand experience in the challenges of making affordable low-cost calls and the inconveniences associated with constantly changing SIMs when travelling, using phone cards with scratch vouchers and access codes to make international calls, we feel there is a unique opportunity to simplify this for our customers. With the Gist Mobile app, our customers can make affordable calls with ease. The easy-to-use interface of the app is integrated with their contact address book; all they must do is simply select their contacts from within the app and they get the benefits of cheap calls, texts and, if the other party has the Gist Mobile app, free instant messaging and calls.

"Many MNOs see this as a great way to counter the other OTT offerings out there"

However, more importantly, where our app offers differentiation to other calling apps is the ability to own international mobile numbers. The Gist Mobile OTT app provides virtual (SIM-free) mobile international numbers to our customers who can 'rent' this number for as long as required and don't need to worry about changing SIMs. Inbound calls will be received free over data no matter where they are, and outbound calls will be at

Shanks Kulam, co-Founder of x-Mobility: "Subscribers can now afford to make calls and text back home when travelling"

Photo: Gist

Aramide Adebanjo, co-founder of Gist Mobile: "The West African diaspora is a market that has been underserved"

competitive low-cost rates. The calling party is also able to make 'local' calls.

Gist Mobile has partnered with x-Mobility to provide our app VNO service. x-Mobility is a UK-based mobile virtual network aggregator and enabler (MVNA/MVNE) providing white-labelled MVNO services for brands like Gist Mobile looking to create a mobile proposition. Its disruptive new MVNO / AppVNO service hybrids a traditional SIM-based MVNO program with a full white label OTT App (AppVNO). Our international numbers are sourced via x-Mobility. As our brand and customer base grows, we plan on forming allegiances with MNOs in Africa where possible.

Shanks Kulam, x-Mobility: There's a significant West African diaspora corridor from the likes of Anglo-African Nigeria and Ghana, to Franco-African Cameroon. Our existing B2C test bed AppVNO Vyke.com has gained good organic traction from West Africa to date, with tens of thousands of new subscribers joining every month, the bulk of whom come from this region of Africa.

Communications Africa: Is this service mainly focused on voice and text rather than data?
Shanks Kulam, x-Mobility: Today the service offers super-low-cost local and international voice, text and virtual number subscription services. Soon we'll offer data services via an eSIM bolt-on option within our AppVNO.

Communications Africa: How will you market your offer to your target demographic?
Aramide Adebanjo, Gist Mobile: Gist Mobile is a company established in the UK with the primary purpose of serving African diasporas

"We feel this is a market that has been underserved in the area of affordable and seamless communications"

across Europe, North America and Africa. Our marketing plan focuses heavily on targeted digital and engagement marketing using social brand ambassadors and in-country (local) advertisements via traditional mediums such as radio, print and TV. We have identified key sectors such as sports, entertainment and cultural events as opportunity areas. We plan to roll out our campaigns in phases, with the initial kick-off in the UK and working with our technical partner x-Mobility to issue press releases of our imminent launch and upcoming services.

Communications Africa: Are back office functions like signing up customers and billing fairly straightforward for an MVNO partner? Can data be analysed and used to help improve the business?
Shanks Kulam, x-Mobility: Clearly it's down to the brand to manage the user acquisition side of the business, but our AppVNO solution provides a backend reporting and billing dashboard, enabling the brand / MVNO / MNO to data mine its users and contact them via in-app notifications with new bespoke offers to further increase ARPUs and retention rates. In fact the brand can fully rely on our billing, rating and reporting platform without a need for one of its own.

We've been running our B2C beta AppVNO, Vyke.com, for over two years and have detailed insights from the more than 350,000 registered users that we can share with our brand white-label partners on an anonymised basis. We have details about typical ARPUs, usage profiles, lifetime value etc. It's a comfort and benefit to our brand partners knowing that they are partnering with a mature, proven AppVNO platform with all the insight and knowledge from a live service, versus trying to build and launch their own service.

Communications Africa: Where do you intend to go next with this concept?
Aramide Adebanjo, Gist Mobile: We intend to build on the current offering and provide not just 'international' numbers to our customers but also national local numbers where possible, accessible by everyone irrespective of location.

We also intend to broaden our customer base; the concept of virtual SIM-free numbering is possible for everyone. There are valid use cases ranging from eliminating the need for carrying multiple mobile handsets to using tablets to make and receive calls and to privacy and mobility. ✆

Is it a bird?
Is it a plane?

No. It's a base station. Or at least it has some of the characteristics of a base station – but it's floating 20 km above the ground. Scott Coriell explains to Vaughan O'Grady what makes the Loon approach to communications unique.

Photo: Loon

A new way to extend internet access to rural and remote populations.

"IT IS EASIEST to think about Loon as a floating cell tower or base station," says Scott Coriell, head of global communications, Loon, a network of balloons traveling on the edge of space, delivering connectivity to people in unserved and underserved communities around the world

He's not joking. Loon has taken the essential components of a cell tower and made them light enough and durable enough to operate at 20kms above Earth. From here, these floating cell towers can relay a local mobile network operator's signal directly to a user's handset below.

As for where the handset and user would be, currently Loon's technology is ideally suited for locations that are plus or minus 20 degrees from the equator. "As the technology advances, we expect that potential service area to broaden and open up new markets for consideration," says Coriell. "Currently we are in discussions with partners around the world about how Loon can help provide stratospheric communications solutions."

Loon combines advancements in materials science, atmospheric modelling, machine learning, communications systems, and more. Or, as Coriell puts it: "Loon has taken the most essential components of a cell tower and redesigned them to be light and durable enough to be carried by a balloon 20 km up in the stratosphere."

Essentially Loon balloons can reach locations around the world from launch sites by navigating the wind. In the stratosphere, different wind currents exist at different altitudes. By moving up or down into these different currents, balloons can change speed and direction and navigate to where they need to go. And, says Coriell, "By moving with the wind, Loon balloons can be arranged into small clusters to provide periods of prolonged connectivity in a defined area." How prolonged? "Our current flight duration record is 223 days."

"Loon operates twice as high as commercial aircraft, and well above ground-based weather events"

Clearly this isn't just a bag with a tower attached. Loon's balloons include a suite of highly sophisticated technologies that are monitored remotely from a mission control centre in Mountain View, California, where specially trained flight engineers monitor the Loon fleet and make adjustments and changes as necessary to ensure its safe and efficient operation. And if it needs to be taken out of service, the lift gas keeping the balloon aloft is released and the parachute automatically deploys to control the landing. "Once on the ground, specially trained Loon recovery teams are dispatched to collect the balloon and its components," Coriell explains.

A big challenge, inevitably, is not technological but regulatory. Permissions to operate above a country are critical to Loon's ability to extend internet access to rural and remote populations that lack adequate mobile internet service.

Coriell explains: "Loon exceeds the international standards for unmanned free balloons set by the United Nations' International Civil Aviation Organisation (ICAO). These standards form the basis for many countries' regulations around the world. While specific regulations differ from country to country, we comply with all applicable international and local laws as required in locations where we operate."

That means working with governments across the world to ensure Loon gets the appropriate approvals, which are a prerequisite to the company operating in a given region.

And in case you were wondering how they avoid 747s, Coriell says: "In terms of flight paths, Loon operates in Earth's stratosphere, 20km above sea level. This is twice as high as commercial aircraft, and well above ground-based weather events."

It's early days yet, but this is a concept that may one day compete cost-effectively with other approaches such as satellites and microwave for rural connectivity solutions. Certainly Coriell thinks so. As he says: "We believe Loon is a cost-effective solution that will allow mobile network operators to expand their service to places where it has not been possible to do so before." ✆

For more information, including explanatory films and animations, go to Loon.com

Testing tomorrow today: 5G on trial in Africa

South Africa has been in the news recently as a country leading the way in 5G trials and rollout in the African continent. Phil Desmond asks Jacqui O'Sullivan, MTN South Africa's Executive for Corporate Affairs, to explain her company's approach to 5G, and takes a look at 5G trials elsewhere in Africa.

The 5G drive continues – and connected cars are one of the test cases.

Photo: MTN

SOUTH AFRICAN OPERATOR MTN has been trialling 5G for some while now. What sort of information were the recent South African 5G trials put in place to bring to light?

MTN SA's executive for corporate affairs, Jacqui O'Sullivan, explains that MTN South Africa has trialled various cases of 5G in cooperation with companies such as Ericsson and Huawei. "So far," she says, "the use cases tested have shown great promise, having demonstrated mobility and fixed wireless applications in both indoor and outdoor settings."

Even at this early stage the various trials achieved throughput speeds of up of 1.6 gigabits per second (Gbps) as well as 520Mbps downlink and 77Mbit/s on the uplink respectively.

Among the 5G trials, Ericsson conducted an indoor trial at MTN head offices in January 2018 and a mobility-enabled-by-5G trial at the Gerotek testing facility in Pretoria in July 2018. Huawei, meanwhile, conducted an outdoor trial in Pretoria in May 2018.

Regular readers will be aware that, in 2018, MTN successfully launched a live 5G indoor solution at Kyalami Grand Prix Circuit and International Convention Centre. This was the first time that MTN SA had deployed a trial 5G network in an indoor business environment with standards-based commercial-grade 5G network equipment and devices.

More recently, in 2019, MTN, together with Huawei, launched a C-band 5G trial on the first day of AfricaCom 2019, as part of the operator's network evolution plan towards 5G. This trial demonstrated the capability of this new technology while giving customers a glimpse of what the future holds, showcasing

We will continue to build our network to be 5G-ready in terms of architecture and capacity

the next generation of applications for consumer and enterprise customers.

O'Sullivan explains: "These pilots have provided infrastructure vendors like Ericsson and Huawei the opportunity to advance from the planning and research phase to collaborative testing with the mobile network operators to ensure that their technology works in a real-life setting."

Like many trials, these were about use cases as well as technology. Thus, even though various international standards bodies are finalizing the standards for 5G, MTN SA continued to work on future-proofing and preparing the network by conducting the first 5G trial in Africa with Ericsson at the beginning of 2018 – where it registered speeds of over 20 Gigabytes per second. "In May, the operator successfully demonstrated a fixed wireless access (FWA) use case in Africa's first live outdoor 5G trial with an end-to-end Huawei 5G solution in a real-life environment," says O'Sullivan.

These past pilots have enabled

infrastructure vendors like Ericsson and Huawei to advance from planning and research to collaborative tests with MTN to ensure that the technology works in a real-life setting. But what happens now?

"MTN intends to launch a 5G network this year, pending the finalisation of the ICASA [Independent Communications Authority of South Africa] spectrum auction process," she says.

Of course the most significant challenge preventing MTN from commercially launching 5G services is the lack of appropriate 5G spectrum. However, MTN has continued to pioneer the use of 5G technology within the country. The aim is to ensure that MTN is in an ideal position to begin supporting 5G use cases in a variety of environments and industries once the spectrum is made available.

"In the meantime, we will continue to build our network to be 5G-ready in terms of architecture and capacity," O'Sullivan says. As for devices using 5G, she says: "The 5G device ecosystem is also maturing and we have started to see devices come to the market with a smaller form factor."

That is the ongoing trial situation. At some stage MTN will be rolling out commercial services So for MTN, what will the initial 5G customer profile probably be? Consumer? Business? IoT?

"Due to its reliability and high speeds, 5G will support many different use cases, which of course will vary from sector to sector. We see 5G having a strong role to play in enabling South African businesses to participate in the Fourth Industrial revolution. To this end, it will provide the building blocks to enable the rapid adoption of the Internet of Things (IoT)," says O'Sullivan.

With IoT, people and devices, such as handsets, computers and tablets and machines, are connected over a wireless network, and are able to transmit data between each other.

"To give you some examples," she says, " IoT makes it possible for people to do things like switching on the lights in their homes remotely, doing remote surveillance of their property, and even switching on the dishwasher

MTN SA and Ericsson conduct Africa's first 5G mobility trial.
Photo: MTN

when they are hundreds of kilometres away. This can all be done with a mobile phone."

But perhaps more relevant to South Africa is its potential in local industries. As O'Sullivan says: "From a business perspective, IoT can be used to do things like limit cattle theft in the farming industry, or detect geyser leaks (ideal for plumbing companies), or secure cargo against theft for small fleet or courier companies." ℗

We see 5G having a strong role to play in enabling South African businesses to participate in the Fourth Industrial revolution

Nigeria's next generation

MTN has also been trialling 5G in Africa's biggest market. The trial, put in place to demonstrate the capabilities of 5G, demonstrated some use cases for enhanced mobile broadband, and ultra-low-latency capabilities of 5G, with help from Huawei, ZTE and Ericsson.

As for which 5G bandwidths were involved, the trials used 800 MHz (mm Wave), 100 and 20MHZ (C-band 3.5GHz). The spectrum used was based on what was available at the trial locations and approved by the regulator, NCC.

The tests, all demonstrated at the demo locations, were certainly varied. They included 5G download speed, WTTx (wireless fibre to the home), AI penalty goalkeeper, hologram, robotic arm, virtual reality, connected healthcare, a 5G vs 4G comparison, and voice over 5G.

The next phase for 5G trialling in Nigeria will be engagement on final frequency assignments with the regulator and key stakeholders.

Even at this early stage there are high hopes for Nigeria's 5G future. As an MTN spokesperson says: "5G has a lot to deliver to the consumer and will play a key role in driving the digitization drive of the current government by further boosting broadband connectivity. 5G speeds and low latency offer a lot of potential in industries like healthcare and security to improve the quality of life of the citizens."

And that's not all...

AS WE REPORTED in our AfricaCom roundup in our previous issue, 5G is still a very long way off in a continent where 3G dominates and 4G is still rolling out.

That said, trials and early launches are under way in a number of countries, with South Africa very much leading the pack. Apart from the MTN trials (above) there's pan-African telecoms group Liquid Telecom, which recently announced plans to launch the first 5G wholesale roaming service in South Africa this year. This followed a major announcement from South Africa's data-only operator Rain, which claimed last year that it had launched the continent's first commercial 5G network in Tshwane and Johannesburg, with plans to extend the network to the major metros in South Africa during 2020.

Meanwhile Vodacom claims it was the first to deploy 5G technology in Africa, providing a network to two business clients in Lesotho in August 2018 after it was granted a temporary 5G testing licence.

MENA is also ahead of the curve but mainly led by Middle Eastern states like Bahrain, Kuwait and Saudi Arabia. That said, Inwi and Maroc Telecom in Morocco have begun trialling 5G technologies, and limited 5G trials were announced by Huawei at the 2019 African Cup of Nations in Egypt in June of 2019. In fact as long ago as March last year Telecom Egypt signed a Memorandum of Understanding (MoU) with Nokia to introduce 5G network and test use cases. In addition, there's a new capital under construction and Egypt has a strong incentive to bring at least some 5G capability to the communications network that supports it.

More recently, ZTE and MTN Uganda announced that they have jointly launched the first 5G SA network in East Africa. The companies showcased a high-speed 5G SA network under the 60 MHz spectrum bandwidth with an actual rate of more than 1.494 Gbps, which can support a variety of applications.

More extraordinary perhaps was news last year that the chairman of Cape Verde's Multisectorial Regulatory Agency of the Economy (ARME) Isaias Barreto has said that Cape Verde will conduct a 5G technology pilot experiment in partnership with Huawei, although where and when across the island country is not yet clear.

Expect more such trial announcements this year but, realistically, trials are not the same as mass-market 5G. And even when 5G is rolled out, in sub-Saharan Africa in particular, industry association the GSMA expects that localised FWA will be a primary 5G use case and the enterprise segment will drive initial 5G uptake.

Remote power: ensuring maximum uptime and longer life

Power for cellular services in Rwanda.

Photo: Clear Blue

Solar and hybrid power are coming together with technologies like machine learning, automated pattern detection and predictive analytics to revolutionise power supply for telecommunications in remote areas. Miriam Tuerk, CEO of Clear Blue, tells Communications Africa how power management for remote communications is evolving.

CLEAR BLUE TECHNOLOGIES is part of a wave of clean technology companies taking a strong interest in Africa where telecommunications in particular can often be a long way from regular grid-supplied power. The company's claim is that it delivers clean, managed, wireless power – anywhere and anytime.

To do this it uses its patented Smart Off-Grid technology, delivered through its Energy-as-a-Service business model, to manage lighting, telecoms, Internet of Things devices, and other critical systems around the world. Clear Blue has thousands of systems under management across 36 countries.

These countries include a growing number in sub-Saharan Africa. As long ago as 2018,

Clear Blue's Smart Off-Grid solution and service provided the accompanying 'power as a service' to provide reliable, wireless, clean managed power for the Vanu cellular base station in Rwanda (Vanu Inc creates solutions for places that do not have good coverage today).

Then, in September 2019, Clear Blue Technologies announced that its Smart Off-Grid technology would be used to power new

Bringing mobile internet coverage to rural areas can be twice as expensive as in urban areas

telecommunications systems in support of voice and data services from 9mobile, a fast-growing communications provider in Nigeria.

The two sites in southern Nigeria are proof-of-concepts for a planned much larger 2G/3G/4G project. 9mobile and Raeanna, a telecoms infrastructure company that creates affordable voice and data solutions, hope to roll out 100 sites in 2020 that will deliver voice and data connectivity in urban and suburban areas of Nigeria.

Following this activity, in November last year Clear Blue announced the supply of Smart Off-Grid solutions and services for seven greenfield sites in Ghana to power a telecommunications network for Vodafone Ghana. The consortium delivering the project will be led by NuRAN

Wireless, a leading supplier of mobile and broadband wireless infrastructure solutions.

Clearly power management concerns will guide the rollout of communications infrastructure into remote areas as much as things like backhaul and indeed the power source itself. And the time is right too. Many alternative power sources are more reliable and economically viable than ever before, so managing them efficiently is also important. We asked Miriam Tuerk, CEO of Clear Blue, to give us both a background to her company's work and to the growth of reliable, low-cost, solar and hybrid power in Africa.

Communications Africa: Why are areas like consumer wireless and IoT suited to your off-grid power systems – notably in developing countries?
Miriam Tuerk, CEO, Clear Blue: When Clear Blue Technologies was launched in 2011, our vision was to meet the global need for reliable, low-cost, solar and hybrid power. We've installed thousands of systems in 37 countries – and counting – with an ever-growing need for our first-of-its-kind technology, especially crucial for developing countries.

With remote, wireless control and management of solar and wind-powered systems, we are able to deliver maximum uptime, longest system life and 80 per cent reduction in installation and maintenance, which creates a viable clean energy option to powering any infrastructure.

When you have so many people relying on the mission-critical infrastructure systems we power, uptime and long system life are paramount. In rural areas and developing countries, you need a system that can remain operational, without the need for frequent maintenance or repairs. Clear Blue Technologies' patented technologies are able to perform in challenging environments, even when it's not always possible to easily access the systems in person.

Clear Blue Technologies' Smart Off-Grid technology offers automated remote management and control, predictive analytics and energy forecasting, and the ability to optimize systems remotely, which significantly reduces the need for technicians to travel to the site for updates or repairs.

Communications Africa: Your Nigerian project is both urban and suburban, while your Ghana project is rural. How do they differ in terms of power demand and installation challenges?
Miriam Tuerk: Using solar power for telecom sites in southern Nigeria has always been challenging, due to the area's frequent cloud coverage. For our projects there, our energy management technology and event-driven analytics were most crucial, as oftentimes

proactive decisions needed to be made about reducing power to preserve battery power.

Bringing mobile internet coverage to rural areas can be twice as expensive as in urban areas. This was certainly one of the challenges in Ghana. Not all areas are easy to get to, so, in addition to being environmentally clean and cost-efficient, these communities need a system that doesn't need frequent visits from workers for repairs and maintenance.

In developed nations, where grid infrastructure is firmly established, customers are more likely to be end users who want a particular solution to a problem.

Communications Africa: Could you explain Illumience? Where does it sit in the network supporting off-grid power? What telecommunications technology does it use to connect to the various sites?
Miriam Tuerk: Clear Blue's Illumience is the industry's most advanced off-grid management technology, providing real-time, 24x7, remote control, monitoring and management of devices using Smart Off-Grid. With Illumience, streetlights, telecom systems, security systems, mobile power and other off-grid systems can achieve unprecedented levels of reliability and performance while slashing installation and maintenance costs.

Clear Blue uses Illumience to provide the ongoing management service paired with our Energy-as-a Service to deliver the first-of-its-kind reliable power being delivered to systems, while system owners also have access to monitor and manage their systems.

Illumience turns an off-grid system into a proactively maintained system, saving cost and enhancing system life because issues can be resolved before they become a problem – and expensive service calls can be avoided. Illumience is a cloud-based solution, which gives you 24-hour insight into your device's operating status and power generation effectiveness. It enables incredible flexibility and power to monitor, manage, control and proactively service your system.

The biggest advance in solar technology has been the drop in price of solar panels

Communications Africa: You say Clear Blue's ability to deliver clean, managed, wireless power is possible because of its unique, patented predictive analytics. What role do data and analytics play in your system? Does the system 'learn' from events and patterns it detects?
Miriam Tuerk: Data and analytics are core to Clear Blue's Smart Illumience management / monitoring platform. Data is produced at the

Miriam Tuerk: "Uptime and long system life are paramount"

site, enriched in the cloud, and augmented with third-party weather data. The Illumience Cloud Software analyses data 24/7, providing immediate notification when a problem is detected. Analytic tools along with historical data are used to triage and determine the root cause. Clear Blue has a patent on energy weather forecasting related to site power management. Machine learning and automated pattern detection is the next step in our evolution as we build more and more predictive analytics into our platform.

Communications Africa: Wind power and – especially relevant to Africa – solar power are growing in efficiency. How much has solar advanced since Clear Blue Technologies started up? How far do you think solar can go as an alternative to grid power for telecoms – especially given the need to support rural wireless and IoT and compensate for unreliable grid power supply in many parts of Africa?
Miriam Tuerk: The biggest advance in solar technology has been the drop in price of solar panels. Efficiencies have helped also. However, the biggest barrier to making it the de facto mass technology is not the efficiency of the solar panel; rather it is the uptime reliability and life of the power system delivered to the customer.

For that, the key critical technology is the management and control of the solar off-grid system. The energy produced and delivered to customers is driven by the algorithms and analytics of the power electronics and control. Without that, the solar panel is a passive device.

Clear Blue's focus has been to address this key need. The ability to optimize the energy put into the batteries and the amount of energy consumed by the loads is primarily a factor of the 'smarts' in the electronics. With the history and predictive analytics that are a core part of Clear Blue's platform, standalone solar off-grid systems, with no need for generator or grid back-up, can be as reliable and effective as other more costly and expensive alternatives. ✆

A completely cashless business

The success of mobile payment in Africa is laying the groundwork for more ambitious app-based mobile commerce systems. However, it takes a lot of careful planning, as the CEO of a Kenya-based mobile commerce platform tells Vaughan O'Grady.

COPIA IS A mobile commerce platform whose aim is to reach middle and low-income African consumers. This ambitious project began as a pilot in 2013 and, after a couple of years proving the concept and building the support infrastructure, the company then focused on expanding the business, which first saw the light of day in Kenya.

Tim Steel, CEO of Copia, explains: "Originally we thought that wholesaling into our agents with shops would be a big part of the business but ultimately decided that selling directly to customers through our agents was a better business model."

In fact customers have multiple ways of interacting with Copia's agents. They can visit an agent location to place an order, they can use the company's USSD to place an order or they can call the contact centre. There's also an app on the way that customers with smartphones can use to place orders.

Apps are an important part of the system. Steel explains: "Our agents that own smartphones can use our agent app, which allows them to browse our online catalogue and place orders for customers. Agents that do not have smartphones can place orders through SMS or USSD." And it's not just agents who can use apps. "All of our delivery crews use a delivery app that provides a route plan, confirms delivery of each order and processes returns."

At the moment, however, the system is partly enabled by the consumer use of low-end mobile phones for transactions. "Our model is based on meeting our customers where they are – so they can use the channel that best

Take your pick: a visit to a Copia agent.

Photo: Copia

meets their individual needs." As more Kenyans adopt higher-end smartphones they may use the app to place their orders. "We will likely be their first interaction with using an app for shopping," says Steel.

The ubiquity of mobile money in Kenya was a key driver in starting the business here

As for back-office and support technology, Copia's processes are completely automated. "Once an order is received in our ERP [enterprise resource planning], it begins a chain of events such as reserving inventory, creating kitting instructions for our warehouse team and developing the most efficient route

plans for our delivery crews. At the same time, we scan all orders at all stages of fulfilment."

The company also makes extensive use of other technology such as an interactive phone and ticketing system, GPS monitoring systems and dashboards for delivery crews, and business intelligence tools.

Of course customer insights are a useful way to improve service, and one of the key advantages Copia has is that it has transaction data for every single end customer purchase: which products a customer is purchasing, how much they have spent, where they live and when they are buying these products.

"We then use data analytics to develop marketing strategies for different customer segments," Steel explains. "We also collect qualitative insights from our customers through regular focus groups."

It's not surprising that Kenya, a mobile money pioneer, is the first target market for this service. As Steel says: "The ubiquity of mobile money in Kenya was a key driver in starting the business here as it is possible to run a completely cashless business. It also provides unbanked customers the ability to interact with the global economy."

But Kenya is just the start. "We are actively planning for our entry into other East African countries such as Uganda and Rwanda, and then expanding into West Africa." ✆

Photo: Copia

Phones, apps, agents and delivery crews come together for the Copia service.

Now, share your trip with Afri Ride app in Africa

NEW ONLINE TRANSPORT platform Afri Ride has upped the ante on ridesharing across the continent through the launch of a transport ecosystem for Africa's fast-growing traveling community and congested cities.

Several factors were considered in the app's design, says Afri Ride founder and managing director Joe Moyo. "Safety, convenience, reduction of carbon emissions, employment creation and the challenge of mobility for Africa's rapid urbanisation.

"Car owners have the opportunity to make an extra income and will benefit by having their car and fuel expenses covered, while riders won't have the large capital outlay involved when buying their own vehicle."

Africa's largest cities – Cairo, Lagos and Johannesburg – are some of the most congested on the continent. The Kenyan capital, Nairobi, is reputed to be the second most congested city in the world. Needless to say, such congestion has socio-economic costs, with the rate of accidents ranking among some of the highest.

Moyo says ridesharing in Africa also eliminates several of the major transportation hurdles faced by individuals in densely populated towns and cities. Vehicle owners can list their car on the Afri Ride app and generate extra income from peer-to-peer rentals, which will help with vehicle finance repayments insurance and maintenance, according to Afri Ride. Furthermore, those who are interested can list driving services in addition to their vehicle, and offer tour guide and shuttle services.

"Africa's people are tech-savvy, and most of them own a smartphone. However, the vast majority do not own their own transportation. And even those who do, battle with poor road infrastructure and extreme overcrowding, as the road networks were never designed to support the number of vehicles that now use them.

"Ridesharing would alleviate the burden that infrastructure is currently having to deal with, and will enable people to navigate cities more easily, and look for work in areas that were previously inaccessible to them," adds Moyo. The United Nations says African urbanisation, with an annual average growth rate of 27 per cent over the past six decades, is set to reach 60 per cent by 2050.

Photo: Afri Ride

Afri Ride connects the entire transport ecosystem on a single, safe and convenient platform.

ZTE introduces new 5G terminal devices

ZTE CORPORATION, A major international provider of telecommunications, enterprise and consumer technology solutions for the mobile internet, has announced a series of new 5G terminal devices including the new-generation 5G Smartphone ZTE Axon, and diversified 5G MBB products such as 5G CPE and 5G Module.

In addition, ZTE has introduced the latest ZTE Blade product, as well as other industry-leading technologies, which will give consumers an outlook of a smarter and connected life in the 5G era.

In 2020, ZTE will introduce nearly 10 5G handsets worldwide and launch a total of 15 or more 5G terminal devices.

To date, ZTE has obtained 35 commercial 5G contracts in major markets, such as Europe, the Middle East and Africa.

G-Core Labs opens new content delivery and hosting PoP in Johannesburg

G-CORE LABS, THE international provider of cloud and edge solutions, has opened a new point of presence of its network infrastructure in Johannesburg. The economic capital of South Africa complements the global architecture of the company's content delivery network with an average response time of up to 30 ms, and provides businesses of any size and profile with hosting services in the format of dedicated servers.

"The African continent is showing fairly good dynamics in the development of internet technologies. Today, 525 million people are connected to the network here, which is about 12 per cent of all users of the global web. Internet penetration in South Africa is about 56 per cent, so more than a half of the nearly 59 million population here watch live broadcasts and videos on demand, play games and buy online," said Dmitry Samoshkin, vice-president of products at G-Core Labs.

The PoP is located in a certified Tier III-class data centre in Johannesburg and offers a speed of access to a dedicated server of 200 Mbps. The functionality of the automatic installation of the most popular operating systems (OS) (Windows and Unix), installed when ordering the server, is provided by the company's dedicated servers. It significantly saves time for system deployment.

All G-Core Labs servers are protected from DDoS attacks using G-Core Labs technology for intelligent filtering of network traffic.

The dedicated servers of the company provide constant free access to their IPMI (intelligent platform management interface), which enables quick solving of any issue without hosting in a remote format.

The global architecture of G-Core Labs content delivery network, located on 5 continents, was created by experts on high-load systems. Today, it includes more than 50 PoP, 5000+ peering partners and 200+ cash servers, and operates daily with a traffic volume of 10+ Tbit/s.

Zimbabwean entrepreneur invents open-sourced technology to improve access to education

ZIMBABWEAN AI EXPERT William Sachiti, CEO of UK-based start-up Academy of Robotics, has published an open-source technology 'Trees of Knowledge' to improve access to education through smartphones in Africa.

This free-to-develop technology enables a tree or rural landmark to broadcast a wifi connection, providing access to a pre-loaded package of educational content. The wifi connection and content come from a micro-computer moulded into the landmark to protect it from damage.

Anyone within a roughly 100m radius can then access the content on any mobile device free of charge. Users can also charge their phone by plugging it into the accompanying solar-powered battery charging station. The micro-computers will run on the power equivalent of a small rechargeable battery and can run for years without maintenance. All the user needs is a wifi-enabled device such as a phone, tablet, laptop or computer. There is no need for the phone to be connected to a carrier or any network provider, removing the issue of expensive data charges.

The technology uses a basic computer like the Raspberry Pi computers which have been used in refugee camps in Lebanon by UNICEF as part of its Raspberry Pi for Learning initiative.

UNESCO's new report Education Progress highlights that in the sub-Saharan Africa the population of primary school-aged children has doubled since 1990 and 1 in 5 children of primary school age are out of school. However, this is a region witnessing rapid growth in smartphone adoption. Already more than 23 per cent of people in sub-Saharan Africa have access to a smartphone – a number which the GSMA estimates will rise to 39 per cent in the next five years.

"One of the challenges in providing education through smartphones is that, while many people have access to a basic smartphone of some description, in many areas 3G coverage is still patchy. The data costs are high for most people and in rural areas keeping the phones charged is a problem when there is limited or no electricity. Trees of Knowledge aims to address all these challenges," says William Sachiti.

Vox, Ellies sign partnership deal to expand product portfolios

INTEGRATED ICT AND infrastructure provider Vox has entered into a business partner agreement with Ellies Holdings to work together in expanding their product and solutions portfolios.

South Africa-based Ellies is a specialist in manufacturing, importing, wholesale and distribution of lighting, electrical and signal distribution products and solutions to both residential and commercial sectors.

This partnership will allow Vox access to over 4,000 satellite installers who will be able to promote and install Vox's satellite service.

The partnership will also allow Ellies to be able to extend its offering to include the entire Information and Communication Technology (ICT) stack.

Aptilo launches new cellular IoT connectivity control service

APTILO NETWORKS HAS introduced Aptilo IoT Connectivity Control Service (IoT CCS), delivered as a service for mobile operators that want to innovate in the IoT era.

Aptilo IoT CCS works with the existing mobile core as well as with the coming service-based 5G core (5GC) architecture. It allows mobile operators to offer instant IoT service creation, with a service that lets enterprises define their own granular connectivity and security policies – at a fraction of the cost.

"The Aptilo IoT CCS service delivers the scalability and flexibility necessary for operators to rapidly innovate in the IoT era, enabling business models that were previously considered unthinkable," said Paul Mikkelsen, CEO, Aptilo Networks.

"We have been working with policy control solutions since 2001 and have recently received requests from many of our 100+ operator customers to extend this to also include IoT connectivity management."

Operators have designed their mobile core for a handful of different subscription types, resulting in a few predefined policies. However, IoT customers often need their own unique subscriptions with complex and dynamic connectivity and security policies. The ability to offer these kinds of instant, customized IoT services is nearly impossible to achieve in the current mobile core.

Operators typically must choose between using the existing mobile core and offer a handful of uniform IoT connectivity services, or adding a dedicated mobile core for IoT – a core capable of handling the complex and dynamic policies unique to each customer.

Aptilo IoT CCS offers a third alternative by adding a connectivity control and security layer for IoT services on top of the existing mobile core. New innovative IoT connectivity services can be produced in a matter of days rather than months.

Operators can put business customers in the driver's seat through a web self-service portal for policy controls enabled by Aptilo IoT CCS APIs. Enterprises receive real-time and historical insights into IoT device connectivity. Aptilo IoT CCS provides security through VPN tunnels and policy enforcement, as well as device traffic filtering, DDos protection and other security features.

Operators can add international mobile operator partners to their Aptilo IoT CCS service. Combined with their ability to instantly localize eSIM cards (eUICC) over-the-air, operators can offer a truly global connectivity without roaming charges.

Through the Aptilo CCS multitenancy virtual APN, operators can offer a secure international connectivity with optional local break-out for selected traffic. The business customer can save significantly in logistics and administration costs by handling just one unified eSIM card and one VPN connection instead of multiple local SIM cards and VPN connections for each mobile operator.

Radix solution for telcos and operators, Android TV device management

RADIX, A LEADING provider of device management solutions, has recently launched its new solution for telcos and operators, Android TV device management and mobile device management (MDM).

Available as a stand-alone cloud-based product or part of Radix' end to end cloud-based device management platform, known as VISO, the solution is platform and device-agnostic, letting telcos and operators stay on top of their device fleet, wherever their employees and customers are and whatever the use case may be.

Nadav Avni, marketing director at Radix, said, "With telcos and operators providing a wide range of connected services and leasing more digital devices than ever, a centralised cloud-based device management solution became a vital need to streamline operations: remote control, assist, manage, maintain, configure, track and lock devices through a single interface, making sure they are ready and optimised at all times.

"Radix VISO device management platform is the only one taking in mind and providing effective administrative capabilities to all stakeholders in the organisation (IT professionals, customer support, billing, training personnel, managers, coordinators and project managers)."

Photo: Radix

VISO Android TV device management and mobile device management (MDM).

Ericsson and Microsoft pair up for next-gen connected cars

ERICSSON AND MICROSOFT are bringing their connected vehicle expertise together. Ericsson is building its Connected Vehicle Cloud on top of the Microsoft Connected Vehicle Platform that is running on the Microsoft Azure cloud platform. The integrated solution allows automakers to deploy and scale global vehicle services such as fleet management, over-the-air software updates and connected safety services much easier and faster while reducing costs. It provides flexibility through modular design and multiple deployment options.

Ericsson's Connected Vehicle Cloud connects more than 4 million vehicles across 180 countries worldwide – approximately 10 per cent of the connected vehicle market. The platform is designed to fit vehicle manufacturers' growing demand for scalability and flexibility with the capability of supporting any connected vehicle service.

Ericsson's Connected Vehicle Cloud offloads vehicle manufacturers' complexity of global 24/7 operations and life cycle management related to connected vehicles with a guaranteed service-level agreement.

The Microsoft Connected Vehicle Platform (MCVP) empowers automotive companies to accelerate the delivery of safe, comfortable and personalised connected driving experiences. It combines cloud infrastructure and edge technology as well as AI and IoT services with a diverse partner ecosystem. With MCVP, Microsoft offers a consistent, cloud-connected platform across all digital scenarios on top of which customer-facing solutions can be built, including in-vehicle infotainment, advanced navigation, autonomous driving, telematics and prediction services, and over-the-air updates.

"The Ericsson and Microsoft partnership will deliver a comprehensive connected vehicle platform at scale to the market," says Åsa Tamsons, senior vice-president and head of Business Area Technologies and New Businesses.

Cellulant leverages technology to block wastages in Africa's agriculture value chain

CELLULANT CORPORATION, THE pan-African technology company, has announced plans to leverage technology to help block inefficiency and wastages in Africa's agricultural value chain courtesy of its improved payment and marketplace solutions, Tingg and Agrikore.

The announcement was made at a summit themed, 'Technology for Transformation: Connecting Everyone to Nigeria's $50bn Agribusiness Opportunity & Creating Jobs for Africa's Youth'.

Tingg is a payment solution accessible to everyone, while Agrikore is a platform built on blockchain technology. These platforms offer services to all players in the agriculture sector in more than 120 African countries.

In a presentation entitled 'Payments Laying Down the Foundation for Connecting Africa', Ken Njoroge, Cellulant's co-chief executive officer, said Africa has a comparative advantage in agriculture but needs efficiency in its value chain to achieve the desired impact on food security, job creation and economic development.

"If you bring efficiency into the agric value chain, ensure that crops don't rot on farms, trucks operate regularly, there are no youth unemployed in rural areas, and no factory producing below capacity; if we can connect these dots, we can bring efficiency that can power the transformation of Nigeria and Africa all across the board," he said.

Njoroge added that Agrikore and Tingg have been tested and affirmed to be connecting everyone in the agricultural value chain while boosting transparency.

"The marketplace and payment platforms are connecting everyone. The payment platform ensures that everyone gets paid in real time as transactions happen. We know it's working, we are working with 120 banks on the continent; large businesses are our customers. This is a

Tingg and Agrikore 2.0 provide access to the marketplace, increase transparency and simplify the whole agricultural value chain.

Photo: Cellulant

collaboration that continues to benefit all parties," he said.

Bolaji Akinboro, co-chief executive officer of Cellulant, added that Tingg and Agrikore 2.0 provide access to the marketplace, increase transparency and simplify the whole agricultural value chain.

Akinboro in his presentation titled, 'From Farm to Fork: Transforming the Agribusiness in Nigeria Through Technology – What does the Future Hold?', emphasised the need to strengthen Nigeria's agricultural value chain so as to derive maximum benefits in the entire sector.

The attendees of the summit include the African Development Bank, Shared Agent Network Expansion Facility (SANEF), Flutterwave, deposit money banks and many food processing companies.

Shields Energy gets IoT Breakthrough Award

SHIELDS ENERGY, A leader in IoT technologies and big data analytics, has announced that its Shields Energy CODA solution has been selected as the winner of the "Overall Consumer IoT Platform of the Year" award in the 4th Annual IoT Breakthrough Awards program from IoT Breakthrough, a leading market intelligence organisation that recognises the top companies, technologies and products in the global Internet of Things (IoT) market.

The Shields Energy CODA solution is a next-generation Building Management System (BMS) and IoT platform that represents a full shift to integrated building IoT solution (BIoT) coupled with big data analytics platforms for industrial and commercial building and estate digitisation. Shields Energy CODA is capable of reducing utility costs, providing granular energy data, building health diagnostics, asset condition monitoring and health and safety improvements. CODA can connect with a multitude of devices within a commercial estate either globally or locally to provide full visibility and digitisation of the operations.

The platform can deliver analysis and comprehensive reports of energy consumption and operational performance and improvement opportunities.

Additionally, CODA can monitor consumption of all loads during operating hours and through heat-map style analytics, to identify each hourly period where consumption is high, medium, low or off, plus a gradient on energy consumption patterns for each energy intensive piece of equipment.

CODA's interactive dashboard showcases current status, condition and operation of the equipment in question.

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