Radio spectrum
Can regulators manage it?

Broadcasting
TV meets cellular

## AfricaCom
Is it too soon to talk 5G?

Messaging
Kenya is losing its voice

WRC-19: Shaping the future of spectrum use

FEATURES: ● Network optimisation ● Mobile data ● Solar power
REGULAR REPORTS: ● Agenda ● Solutions
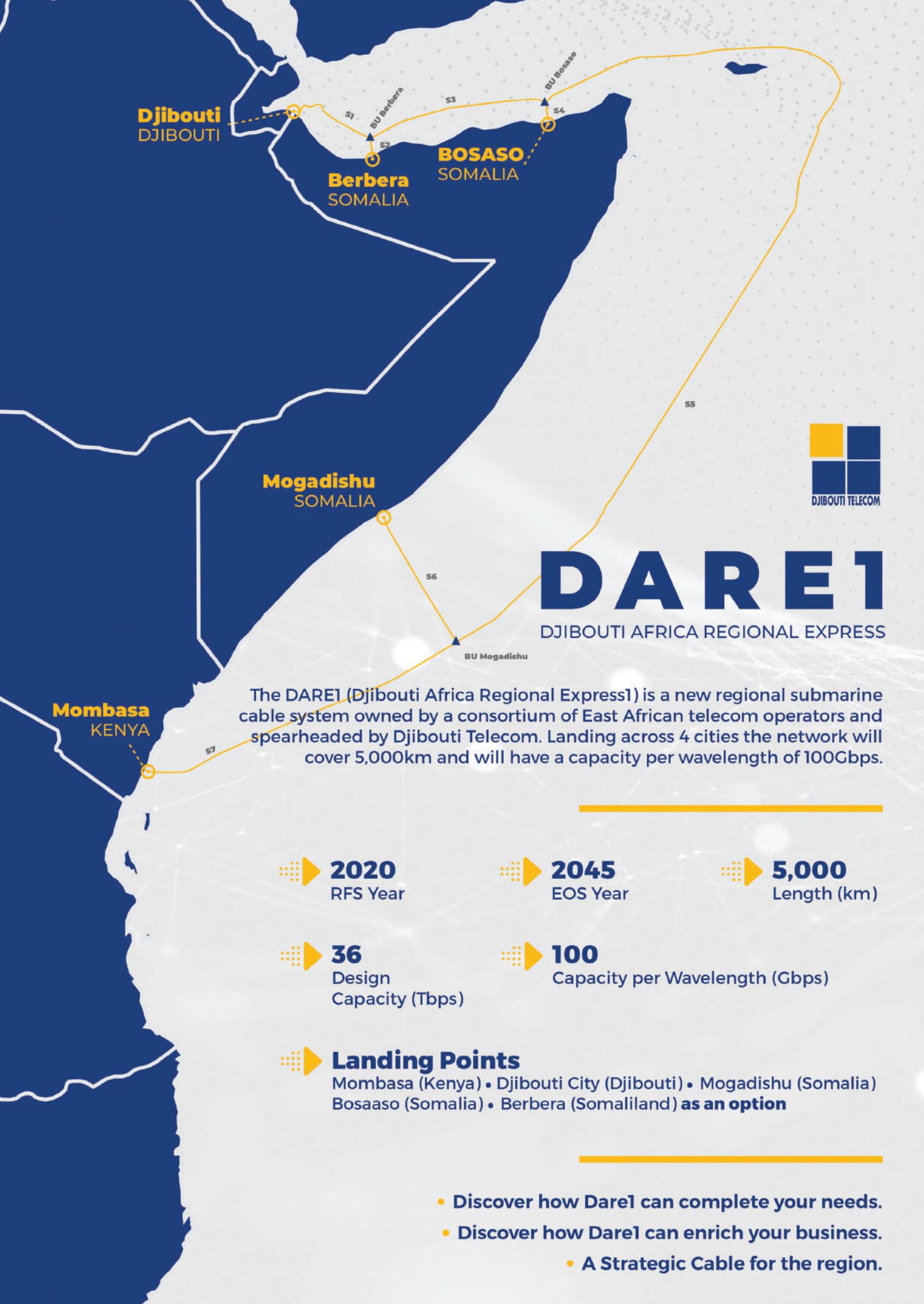
Djibouti
DJIBOUTI

Berbera
SOMALIA

BOSASO
SOMALIA

BU Berbera

BU Bosaso

S1

S2

S3

S4

S5

Mogadishu
SOMALIA

S6

BU Mogadishu

Mombasa
KENYA

S7

DJIBOUTI TELECOM

DARE1
DJIBOUTI AFRICA REGIONAL EXPRESS

The DARE1 (Djibouti Africa Regional Express1) is a new regional submarine cable system owned by a consortium of East African telecom operators and spearheaded by Djibouti Telecom. Landing across 4 cities the network will cover 5,000km and will have a capacity per wavelength of 100Gbps.

2020
RFS Year

2045
EOS Year

5,000
Length (km)

36
Design
Capacity (Tbps)

100
Capacity per Wavelength (Gbps)

Landing Points
Mombasa (Kenya) • Djibouti City (Djibouti) • Mogadishu (Somalia) Bosaaso (Somalia) • Berbera (Somaliland) **as an option**

• **Discover how Dare1 can complete your needs.**

• **Discover how Dare1 can enrich your business.**

• **A Strategic Cable for the region.**

CONTENTS

A note from the Editor

AS THIS ISSUE makes clear, many end users in Kenya, Nigeria and South Africa use mobile for much more than just voice – and they're not alone. TV, social networks, education, health, music, loans, gambling – all are part of the promise of better and wider mobile phone connectivity for many Africans. No wonder AfricaCom, reviewed in this issue, had a strong focus on 5G, even though it is still some way off in Africa. But without adequate spectrum at reasonable prices this promise will be worth very little. Will Africa's regulators help operators trying to roll out new services by making enough spectrum available – and affordable?
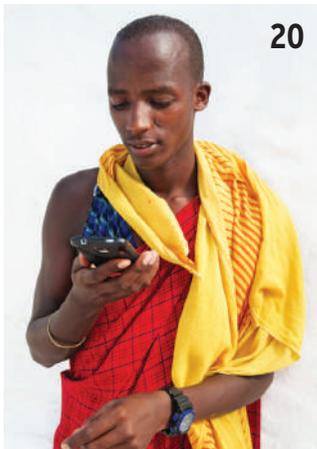
Know the new ways of streaming live video

Why optimisation matters

Stakeholders discuss future of mobile money platforms

REPRESENTATIVES FROM MORE than eight countries in Africa gathered at a workshop in Dar es Salaam in November, organised by operator Vodacom, to look into trends and developments shaping the mobile money industry in Africa. Vodacom also released its Future-Proofing Mobile Financial Services report at the workshop. The report, the first of Vodacom's Public Policy Series, demonstrates how mobile money is driving economic growth and empowering lives through financial inclusion.

Judith Obholzer, managing executive of Legal and regulatory from Vodacom Group, said that sub-Saharan Africa including Tanzania has witnessed rapid growth in mobile money operations and innovations enabling broad-based participation and access to financial services. Sub-Saharan Africa is home to the 10 economies worldwide where more adults now have mobile money accounts than at a financial institution.

Vodacom released its Future-Proofing Mobile Financial Services report in Dar es Salaam.

"Our aim is to provide a platform for leading experts to express their views on trends and developments shaping the industry. The industry continues to evolve at a rapid pace with policymakers and regulators playing a central role in facilitating and enabling an environment for financial inclusion," said Obholzer.

Albert Cesari, assistant manager – oversight and policy at the national payment systems department of the Bank of Tanzania, underscored the impact mobile financial services have made on the economy and the important role of the workshop in ensuring sustainablity of the mobile financial service industry.

"The government is committed to ensure that mobile financial providers continue to be effective players in the future, and that they are able to provide the innovations and investments neccessary in the technical and business dynamics in the financial payment market," Cesari explained.

M-Pesa has been Africa's most successful mobile money service. Research illustrates that mobile money has significantly contributed to social empowerment, economic growth and poverty reduction. It provides people with a safe, secure and affordable way to send and receive money, top-up airtime, make bill payments, receive salaries and get a short-term loan.

Bluegrass migrates 50 websites to Azure

DIGITAL TRANSFORMATION SPECIALIST Bluegrass Digital has completed a migration of over 50 .Net and Linux websites to Azure. The migration covered a range of website CMS platforms such as WordPress, Drupal and Umbraco. These have been deployed to different regions across Europe, US and Africa based on customer needs.

More companies are using Azure to build applications faster and are now using smarter tools to manage performance. Azure offers the cloud platform, designed for developers to build innovative apps. This is the second wave of cloud computing – where firms like Bluegrass are focusing on delivering the innovation their customers demand, not the infrastructure required to run them.

Intracom Telecom supplies point-to-multipoint technology to Dark Fibre Africa

GLOBAL TELECOMMUNICATION SYSTEMS vendor Intracom Telecom has announced that it is supplying WiBAS point-to-multipoint (PtMP) technology to Dark Fibre Africa (DFA), South Africa's open-access fibre infrastructure provider.

The technology is capable of enhancing DFA's ability to provide microwave connectivity solutions to its customers.

DFA's decision to select WiBAS PtMP technology resulted from the need to offer high-quality wireless last mile access connectivity to its wholesale customers who, in turn, provide connectivity to home and business consumers.

Customers of the South African operator will have the opportunity to provide to end users high-speed service, which addresses the need for immediate access while waiting for a fibre service to be installed, or as a permanent solution where appropriate.

DFA owns an extended fibre network, and the WiBAS PtMP system is going to be used to extend the network connectivity and maximise the addressed subscriber's base.

The WiBAS-OSDR hub as well as the WiBAS-Connect terminal are going to be deployed in DFA's network in the licensed 26 GHz band, aiming to offer high-quality ultra-high-speed broadband services.

Additionally, DFA will be using the advanced network management system, uniMS, along with the recently introduced RF planning features, so as to optimally design the PtMP network.

"This technology will enable us to provide our customers with quick wireless connectivity solutions while they are waiting for fibre deployment or in areas where dense fibre deployment would not be feasible," says Andreas Uys, chief technical officer at DFA.

John Tenidis, marketing director of Intracom Telecom's wireless solutions portfolio, stated, "We are looking forward to supporting DFA in delivering ultra-high-speed wireless connectivity and differentiating its business offering to its customers."

EastNets partners with Refinitiv for anti-money laundering (AML) solution

COMPLIANCE AND PAYMENT solutions provider EastNets and financial markets data provider Refinitiv have announced a partnership to offer enhanced automated access to software and data that enables real-time risk management and improved compliance capabilities to companies at risk of financial crime.

The partnership is expected to integrate Refinitiv's Risk Intelligence data within EastNets' cutting-edge technology, including the en.SafeWatch Filtering (SWF) solution. EastNet's SWF solution utilises machine learning and analytics to perform AML detection in real time.

According to a recent report from Refinitiv, 72 per cent of global companies have fallen prey to financial crimes such as money-laundering. In response, many of these companies intend to ramp up innovation and adopt technology-driven solutions as they seek to plug compliance gaps more quickly and efficiently. EastNets and Refinitiv are set to deliver services to new and existing customers in 190 countries.

EastNets' SWF screening technology works with Refinitiv's API technology to integrate the company's data including its World-Check Risk Intelligence data. This will help customers to securely manage risk and meet regulatory obligations by utilising Refinitiv's comprehensive data alongside en.SafeWatch Filtering from EastNets.

According to Hazem Mulhim, "Combining the strengths of EastNets' en.SafeWatch Filtering with a connectivity toworld-check from Refinitiv delivers hightened protection against contemporary fraud and regulatory risks".

Phil Cotter, managing director of the risk business at Refinitiv, said, "Businesses exposed to financial crime threats must maximise their use of technology and collaborations such as this could prove key to realising the potential of innovation to uncover criminal activity."

❝ It has been encouraging to note that the discussions, various technologies and innovations showcased during AfricaCom have primarily centred on technology as an enabler for socio-economic development.❞

- Stella Ndabeni-Abrahams
Minister of communications and digital technologies
South Africa

❝ 5G is a reality for inwi. It is a reality that we anticipated and prepared for through modernising our infrastructure.❞

- Fadoua Laaroussi
Program and planning director
Moroccan operator inwi

❝ All stakeholders must come together and collaborate to realise universally affordable access to the internet for all Africans.❞
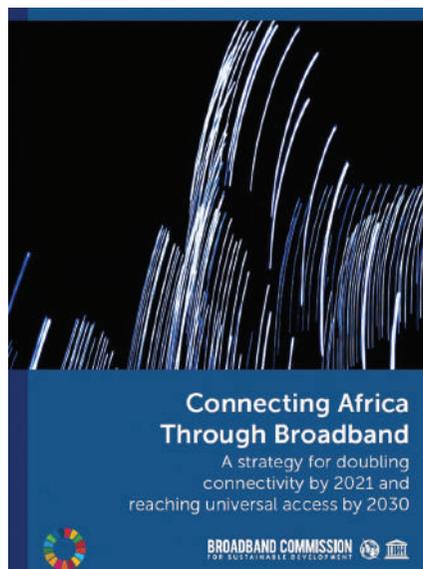
- World Bank Report
Connecting Africa Through Broadband

❝ Nigeria presents a significant growth opportunity in data. The acquisition of this spectrum will enable us to further deliver on this growth opportunity.❞

- Raghunath Mandava
CEO
Airtel Africa

❝ We're excited to partner with ISOC and members of the ISP association to help launch the second Internet Exchange Point in the Democratic Republic of Congo. This new infrastructure will help improve connectivity by lowering the cost of delivering internet services to people in the region.❞

- Kojo Boakye
Head of public policy for Africa
Facebook

❝ We must ensure that the decisions taken at WRC-19 will not only allow for new technologies and services to be deployed without interfering with existing ones, but also extend the benefits of technological advancement to all the world's citizens, bringing potential benefits to our society, the global economy and the environment.❞

- Mario Maniewicz
Director
ITU Radiocommunication Bureau

Greenlight Planet pairs with telecom operators for PAYG solar

RECOGNISING THE NATURAL synergy between the telecom and pay-as-you-go (PAYG) solar industries, Greenlight Planet, which designs, distributes and finances solar home energy, has partnered with major telecom operators in Africa. The company is pursuing a telecom-focused strategy that aims to have a far-reaching impact on more than 600 million unelectrified consumers across the African continent.

Greenlight has collaborated with more than fifteen telecom operators, banks and payment gateways to make Sun King products more affordable and accessible for rural individuals. Full-fledged sales and distribution partnerships have been launched with three leading telecom operators, Vodacom (Tanzania), Orange (Burkina Faso) and Telma (Madagascar), to enable sales of solar-powered energy solutions through each operator's subscriber base and mobile money channels.

In addition, Greenlight Planet has integrated its innovative PAYG technology platform with leading mobile money providers across sub-Saharan Africa, enabling consumers to make continuous installment payments in a secure and simple way. Greenlight Planet establishes unique operating models with each telecom partner to serve and work with each service provider's strategic goals.

Dhaval Radia, senior vice-president at Greenlight Planet, says, "The time is right for telecoms to look beyond their traditional revenue earning models and explore innovative partnerships that can lead to a sustained increase in ARPU and customer retention. By expanding to rural consumer segments with value-added services such as PAYG solar products for daily energy and infotainment, telecom operators can help deliver higher value to their customer base."

Photo: Greenlight Planet

A customer using mobile money to pay for his Sun King EasyBuy solar. home system

Recent collaborations between PAYG solar companies and telecom operators have shown that PAYG solar customers are amongst the active profiles of mobile money users in sub-Saharan Africa.

Ninety-eight per cent of Greenlight Planet's PAYG customers make roughly 60 mobile money payments between US$2 and US$5 each over a period of 12 to 24 months to complete their installment payment plans for a PAYG solar device.

MTN deploys Parallel OpenRAN across 5,000 sites

PARALLEL WIRELESS HAS announced that MTN is set to deploy more than 5,000 sites across its 21 operations, bringing 2G, 3G and 4G connectivity into areas that were previously underconnected, using Parallel Wireless OpenRAN.

Africa is the most digitally divided continent, with only 44 per cent unique mobile users. Traditional 2G, 3G or 4G networks require expensive and bulky equipment for their deployment and operation. These hardware-based networks are difficult and pricey to upgrade.

Parallel Wireless enables a shift to open, software-based, and virtualised OpenRAN network architectures to overcome these deployment challenges, while delivering network agility and much lower deployment and maintenance cost.

Airtel Africa acquires additional spectrum in Nigeria to expand its LTE services

AIRTEL AFRICA HAS announced an agreement between Airtel Networks Limited ("Airtel Nigeria"), a subsidiary of Airtel Africa, and Intercellular Nigeria Limited, to acquire additional 10 MHz spectrum in the 900 MHZ band in Nigeria for a consideration of US$70 million, excluding NCC Fees as per the NCC Spectrum Trading Guidelines. The acquisition of this additional spectrum will allow Airtel Nigeria to expand and strengthen its LTE network across the country.

The acquisition is subject to regulatory approval by the Nigerian Communications Commission (NCC).

Nigeria is Airtel Africa's largest market. In the six months' period ended 30 September 2019, Airtel Nigeria's revenue increased by 23 per cent, with data growth being the largest contributor. Data revenue increased by 76 per cent during the period, driven by the accelerated rollout of its 4G network, with increase in data customer base of 20.8 per cent and an ARPU growth of 43 per cent. During the period, 4G data usage increased by almost 20 times.

Raghunath Mandava, CEO of Airtel Africa commented, "Data is a key pillar of our growth strategy, driven by increasing 4G networks and supported by the increased affordability and increasing penetration of smartphones. With an overall smartphone penetration of more than 35 per cent and data consumption growing by 92 per cent in the six months' period ended 30 September 2019, Nigeria presents a significant growth opportunity in data. The acquisition of this spectrum will enable us to further deliver on this growth opportunity and continue to offer our Nigerian customers an enhanced user experience."

Airtel Africa, the second largest mobile operator in Africa by number of active subscribers, offers an integrated suite of telecommunications solutions to its subscribers, including mobile voice and data services as well as mobile money services both nationally and internationally. The Group has invested to expand its network footprint and number of 4G sites.

Road freight in sub-Saharan Africa goes digital with DHL's Saloodo!

SALOODO!, A SUBSIDIARY of DHL Global Forwarding, the leading international provider of air, sea and road freight services, has launched its digital logistics platform for shippers and transport providers in South Africa, bringing the first digital road freight solution to the region.

An efficient road freight network is a vital conduit of trade within a geographically widespread country such as South Africa but also with 16 landlocked countries within sub-Saharan Africa (SSA). However, much of the region's road freight operations remain fragmented and highly traditional, missing out on the visibility, efficiency and security that logistics technology offers.

"Digital transformation is a top priority for the industry and given the demographics, we expect demand for digital transformation to be driven by emerging markets globally," said Tobias Maier, CEO of Saloodo! Middle East and Africa. "Africa is the world's youngest continent, with 60 per cent of the continent below 25. This is a dynamic generation of digitally-minded young adults, demanding smart, digital solutions both on the business and home front."

The Saloodo! digital logistics platform available in the region offers a single, simple and reliable interface for shippers and transport providers to best optimise cost, routes, cargo and transit times. Backed by DHL's global and regional footprint and expertise, all contractual relationships on the platform are organised via the existing local DHL entity, providing trust and peace of mind to carriers and shippers alike.

"With real-time visibility, Saloodo! will inject greater transparency and efficiency to the road network in the region, enabling shippers – from small enterprises and start-ups to large multinational groups – to find trusted and reliable freight carriers in South Africa. This will in turn help carriers manage existing fleets and optimise capacity with full truckload shipments," Maier added.

Telecom pioneer teams up with Liquide

FOUNDER OF FREEDOMPOP Stephen Stokols has teamed up with Liquide's founder and chairman, African entrepreneur Amadou Kane Diallo, to raise US$1bn for high-speed wireless access in Africa.

Eight years ago, Stephen Stokols launched FreedomPop in the United States, offering the first free mobile internet service in the world. FreedomPop went on to expand into six countries and serve millions of customers.

Liquide, which was founded in 2019, is already in talks with a government in West Africa to purchase a distressed government-owned network that has seen its market share erode to more aggressive foreign competitors.

Liquide aims to purchase the network, upgrade it, and bring low-cost accessible wireless services to the country by 2021.

Facebook hosts its first 'Facebook iD8 Nairobi' conference

FACEBOOK BROUGHT TOGETHER over 400 developers, startups and businesses from across sub-Saharan Africa in a first-of-its-kind conference dubbed "Facebook iD8 Nairobi". As part of its effort to create opportunities for innovation, community building and education throughout the continent, "Facebook iD8 Nairobi" created a space for developers and start-ups to showcase talent from across the continent, while sharing their developer journey.

Emeka Afigbo, Facebook's global head of developer programmes, noted Facebook's plan in partnership with Andela to train and equip thousands of developers from its Developer Circles across 10 countries in Africa with technical and non-technical skills in 2020.

Facebook iD8 Nairobi highlighted the latest insights from Facebook, with new technologies and products for attendees to build and experiment with, and programmes to help them at any stage of their journey. There were hands-on demonstrations and discussions with Facebook product experts who provided guidance and help to unlock challenges developers face in their development process. The conference provided an opportunity for developers and start-ups to learn how technology such as AR/VR, messaging and Open Source can offer tangible solutions for businesses in Africa.

Emeka Afigbo, said, "We look forward to reconnecting with the ecosystem to share the latest technology , product and program updates. Facebook iD8 is a two-way dialogue

Photo: Facebook

The conference was an opportunity for developers and start-ups to learn how technology can boost business.

where we also have a chance to hear from our developer and startup community about their experiences and roadblocks as well as provide an opportunity for members of our community to connect with others who share their challenges and aspirations."

Fatma Ali, a developer lead for a Facebook Developer Circle in Eldoret, stated, "This opportunity has enabled me to connect and get mentorship to build my career while equipping me with leadership skills to work with the developer community."

Sewagodimo Matlapeng, a developer lead for a Facebook Developer Circle in Cape Town, concluded, "Through Facebook iD8, I gained insights on how we as developers, male and female, can seize opportunities and curb challenges in the developer community."

Ecolog and Mireo sign deal for digital solutions powered by "SPACE-TIME"

ECOLOG INTERNATIONAL, A provider of integrated services, technology, logistics, facility management, construction and environmental solutions, and Mireo, a provider of advanced software technology in Geo-Information-Systems and big data analysis as well as GPS tracking and fleet management solutions, have signed an agreement to provide a integrated digital solution.

Photo: Ecolog

Leonardo Siladic (CEO of Mireo) and Ali Vezvaei (CEO Ecolog International) sign a strategic partnership agreement.

Under the terms of the agreement signed during the 1st Arab-German Economic conference in Düsseldorf, Ecolog will establish a global solution centre, providing the services and solutions to defence and humanitarian sectors as well as logistics and commercial markets. Built upon Mireo's SPACE-TIME Cluster – capable of instantly storing and analyzing petabytes of space, time and sensor data – Ecolog will provide a range of digital solutions in urban mobility, intelligent logistics, predictive analytics and maintenance, as well as advanced AI algorithm optimisation.

Ali Vezvaei, CEO of Ecolog International said, "This partnership will enable us to redefine the boundaries of what is possible today in a wide range of applications from predictive analytics, energy distribution, and asset surveillance, all the way to connected and autonomous mobility."

Leonardo Siladic, CEO of Mireo, added, "Innovation is a key value at Mireo. We are focused on providing sophisticated, world-class technology to address tomorrow's challenges." This agreement supports advancement in a range of applications using SPACE-TIME.

Telcos unveil commercial blockchain services to seize new revenue streams

BLOCKCHAIN, AFTER A relatively slow build-up over several years, is being touted as a revolutionary technology with the potential to reshape many industries, both in terms of their operational and business models, says GlobalData, a data and analytics company.

The company's report, 'Decoding the Blockchain Ecosystem for Telecoms: Value Chain, Players, and Telco Opportunities', notes that, although still emerging, blockchain is being driven by increasing demand for digital security along with government investments and the promise of reducing transactions time and costs.

Telcos are joining the development of blockchain use cases to enhance wholesale services, improve fraud management solutions and streamline internal processes. Additionally, telecom operators can use blockchain technologies to enhance existing products, for example IoT services, as well as to expand their enterprise solutions portfolio and yield new revenue streams, for instance identity-as-a-service solutions.

Lorenzo Solazzo, technology analyst at GlobalData, commented, "The implementation of blockchain will support telcos' digital services transformation to a more competitive, agile, and customer-centric service provider. Key areas in which blockchain can help telcos transform include roaming fraud management, wholesale fees settlement, mobile money payments, and IoT management."

An increasing number of telcos – including Orange, Telefonica, BT and Colt – are partnering in pilot projects to use blockchain networks in order to increase the efficiency of wholesale fees settlement amongst operators.

Solazzo explains, "A blockchain-powered platform including multi-lateral smart contracts amongst telcos enables faster settlements, saving time and the costs of the fee settlement process."

Let's talk about tomorrow's technology – today

Four very different events are on the way to Kenya, Morocco, Nigeria and South Africa – but these four events all show how technological innovation is making an impression on many different sectors across the continent.

THE SECOND ANNUAL Africa BFSI (banking, financial services and insurance) Innovation Summit takes place from 4 - 5 February 2020 in Nairobi, Kenya, at a time when, the organisers say, Africa's banking, microfinance and insurance sectors are among the most exciting in the world.

We are assured that the continent's overall banking market is one of the fastest-growing and most profitable of any global region – and a hotbed of innovation. There is certainly, as the organisers claim, a locus of new business models in the BFSI sector, emerging in response to challenges that include low levels of banking penetration, heavy use of cash, sparse credit bureau coverage and limited branch and ATM networks.

It is certainly reasonable to claim, as the organisers do, that innovative technologies with a digital mindset hold great potential for banking and insurance providers to achieve growth and to develop new business models and services.

The Second Annual Africa BFSI Innovation Summit will bring together some of the top CIOs, CISOs, CTOs, and heads of IT, ICT, risk, compliance, retail banking, customer experience and analytics from banks, micro-finance, credit unions and insurance companies across East Africa. The summit will provide a variety of learning formats like keynote presentations, panel discussions, fireside chats and exclusive networking that will lead to meaningful business connections throughout Africa.

Taking a slightly different approach to IT, the second African Electronics, Computer and Communication Conference (AECCC 2020) will take place in Rabat, Morocco from 6-8 January 2020. It is co-sponsored by Mohammed V University, the International University of Leadership, the Private International Institute of Management and Technology and the International Association of Computer Science and Information Technology.

AECCC 2019 was held in the International University of Leadership in Morocco from 9-11 January 2019.

The organisers point out that electronics, computers and communication are comprehensive studies of diverse areas such
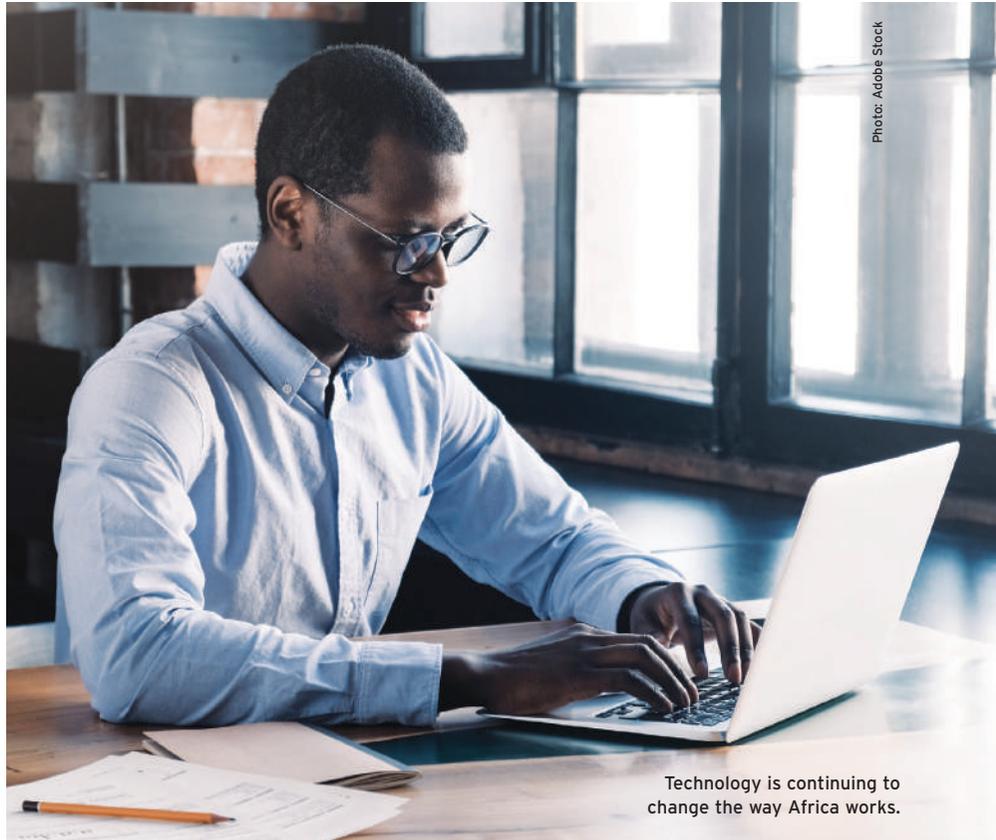
Photo: Adobe Stock

Technology is continuing to change the way Africa works.

as computer hardware and interfacing, computer-based instrumentation and process control, digital communication and networking, electric motors and controls. They add that the related research programs prepare exemplary professionals who are problem solvers and technology promoters.

Thus, AECCC 2020 sets out to be a platform to discuss the current progress in electronics, computers and communication between scholars, scientists, engineers and students from universities and industry from all around the world, and hence to foster further research relationships between universities and industry.

Arguably, however, the Intelligent Robotic Process Automation (IRPA) Summit, taking place on 14 February 2020 in the Gallagher Convention Centre in Midrand, Johannesburg, takes computing to another level entirely. The Intelligent Robotic Process Automation Summit is described as the next frontier for

businesses looking to streamline processes, increase productivity and ultimately improve the bottom line.

RPA typically uses artificial intelligence to handle repetitive, rules-based, back-office tasks. And the market is about to experience a period of explosive growth. The RPA market grew 64 per cent to US$200mn last year and is expected to grow 70 to 90 per cent by 2020 because successful pilot projects are inspiring buyer confidence in the technology, according to consulting and research firm reports.

However, say the event organisers, there are some barriers to adoption, such as IT departments concerned about data security and loss of control. Plus, replacing staff with robots in some sectors, such as government, could become a political minefield.

How can these challenges be addressed? At the event in February, the organisers say, attendees will hear from subject matter experts currently evaluating RPA for their businesses in

areas such as finance, procurement, HR, outsourcing and automation, among others.

This conference will feature insightful talks by recognized thought leaders addressing the actual developments and trends in IRPA. Discussions and presentations by a variety of speakers will elucidate solution-based details that, the organisers say, will help attendees face IRPA challenges with confidence. Visitors will find a mix of speakers from diverse organizations sharing their real experiences and expert insights with the event participants.

Finally there's the ultimate technology frontier: artificial intelligence. Artificial intelligence – or AI – has already opened doors to cost savings and heightened customer experience. It will continue to do so as people connect with a growing network of perpetually improving AI solutions. But it is necessary to stay ahead of the curve on integrating AI into key operations, while at the same time checking the horizon for the next revolution in AI. The question is, how will a technology capable of independent reasoning be built: on the model of current AI solutions, or of a different fabric entirely?

Cybernetix.world brings together the most cutting-edge minds and research to co-create the new world of marketing automation, mobility, smart cities, finance, insurance, and cybersecurity say the organisers of the three events that take place under the Cybernetix.world heading.

The events will focus on relevant topics for each region, applying traditional and innovative approaches.

Cybernetix.world is described as a first sustainable decentralized event for global communities. These series of events offer talks, panel discussions and workshops relevant for an enterprise executive but also for a private citizen. The events – taking place across two continents – will cover all aspects of digitisation and the interaction of humans and technology.

Cybernetix.world will take place in Darmstadt in Germany, Stockholm in Sweden and Abuja in Nigeria simultaneously. The events will focus on relevant topics for each region, applying traditional and innovative approaches.

Visitors can attend interactive sessions, keynotes from thought leaders and experts and participate in discussions together with the expert speakers and panellists. ✆

For details on websites where you can find more information on these events, see the Communications Africa events calendar.

Photo: Adobe Stock

Events 2019-20

DECEMBER

| 20-23 | World Symposium on Communication Engineering | Nagoya, Japan | www.wsce.org |
| 20-22 | Conference on IoT, Embedded Systems and Communications | La Marsa, Tunisia | www.iintec.org |

JANUARY 2020

3-5	Frontiers of Computers & Communication Engineering Conference	Singapore	www.fcce.org
6-8	African Electronics, Computer and Communication Conference	Rabat, Morocco	www.aeccc.org
7-11	International Conference On Communication Systems & Networks	Bengaluru, India	www.comsnets.org
18-20	Signal Processing and Information Communications Conference	Bali, Indonesia	www.icspic.com
19-21	Intersec	Dubai, UAE	www.intersec.ae.messefrankfurt.com/dubai/en.html
19-22	Electronics, Information, and Communication Conference	Barcelona, Spain	www.theieie.org

FEBRUARY

1-3	Conference on Distributed Sensing and Intelligent Systems	Agadir, Morocco	www.dsis-conf.net
4-5	Africa BFSI Innovation Summit	Nairobi, Kenya	www.africabfsi.com
6	Cybernetix World Conference	Abuja, Nigeria	www.kuppingercole.com/events/cybernetixworld2020ng
10-14	Financial Cryptography and Data Security Conference	Kota Kinabalu, Malaysia	www.fc20.ifca.ai

Digital landscape or digital riskscape?

Andreas Rex, show director of Intersec, explains why ramping up cybersecurity measures must be a top priority for all firms to reap the benefits of the ongoing digitisation wave.

The cyber risks are too great, and their impact too severe.

Photo: Adobe Stock

Photo: Intersec

Andreas Rex, show director, Intersec

Intersec Future Security Summit will run alongside the 22nd edition of Intersec at the Dubai World Trade Centre from 19 to 21 January 2020

AS BUSINESSES RUSH to embrace digital transformation in the Industry 4.0 era, recent research by international cybersecurity experts shows that while cyberspace can deliver superior efficiency and productivity benefits, it can also put businesses at severe risk.

Research from Kaspersky Lab points to a rise in malware attacks throughout the Middle East. In the UAE alone, the research states that attacks shot up by 12 per cent in Q1 of this year compared to the first three months of last year.

The statistics are mind-boggling. Over Q1 this year, some 23.4 million malware threats were reported in the UAE and 1.1 million phish attacks – that's an average of over 12,000 threats every day!

And, in an era of the modern workplace when mobility is essential, there is an equally disturbing factor – mobile users are apparently proving even more vulnerable. Some 52,607 mobile malware attacks in the UAE spiked by 20 per cent year-on-year.

Experts put the rising trend down to a culmination of factors, among them inappropriate use of employer's IT property and unsecured sharing of company data via personal mobile devices. Analysts warn that malicious or criminal attacks are behind 61 per cent of data breaches in Saudi Arabia and the UAE.

What the research points out is that threats don't just come from outside an organisation; they can be instigated by those inside. It delivers a stark wake-up call to companies that security within will lessen the threat from the outside.

Cybersecurity experts are now unanimous in advising companies to design 360-degree inside-out, outside-in cyber security plans as part of their sales and growth strategies – because both can be stopped in their tracks by one successful cyber-attack.

Ways of ring-fencing against the threat are to come under the spotlight at the Intersec Future Security Summit, which will run alongside the 22nd edition of Intersec at the Dubai World Trade Centre from 19 to 21 January 2020. This is when industry experts will analyse critical security threats, examine security loopholes in business ecosystems and discuss how cutting-edge technologies can be tailored to meet evolving security requirements.

In addition to the Future Security Summit, the Intersec Arena will have a cyber security track, while Intersec's Information Security section has around 100 exhibitors showcasing the full gamut of cybersecurity, from anti-virus software and anti-spam filters to back-up/recovery systems, software protection, and biometric identification systems.

Without pre-empting the Summit, the likelihood is that the experts will be uncompromising in their messaging that the threats are not going away and the solution is to swiftly utilise the latest security technology to guard against them.

The risks are too great, and their impact too severe, not to sit up and listen. ✆

More information is available at: www.intersecexpo.com

Unlocking the potential of 4G and 5G in Africa

The arrival of 5G could be a game-changer for African economies and jobs. However, for now, 5G is a very long way off in a continent where 3G dominates and 4G is still rolling out. But that didn't stop it being a major talking point at this year's AfricaCom conference and exhibition, as Nancy Onyango reports.

Photo: Nancy Onyango

Something to say: high-level participants examined the promise and potential pitfalls on the way to greater connectivity in Africa.

THE THEME FOR the 2019 AfricaCom conference and exhibition was 'Accelerating business transformation to strengthen African economies'. This may be a locally-focused theme, but is in line with a global focus on the Fourth Industrial Revolution (4IR) and how it has the potential to advance economies – notably African economies – by creating jobs. Not surprisingly then, the buzzword during the three-day conference was 5G, the essential ingredient for 4IR.

Internet users across the continent are looking forward to the 5G promise that, once available, it will be up to 20 times faster than current 4G networks. Some studies estimate that 5G will add over 10 trillion dollars to the global economy over the next 15 years and create millions of jobs across the globe. As Nicolas Blixell, vice president, Ericsson, put it, "If you don't have 5G, you don't have the fourth industrial revolution."

With that in mind, this review highlights some key takeaways from some of the main speakers during AfricaCom, the annual event held in Cape Town that brought together over 15,000 attendees, 450 speakers and 500 exhibitors during its 22nd edition from 12 to 14 November this year.

Fifth generation technology may soon be ready for widescale rollout, but is Africa ready for 5G? Africa is certainly uniquely positioned to benefit from the new technology, in terms of new jobs from increased automation, the societal problems that it may solve, and developments in education, infrastructure and health.

At the moment, though, 4G/LTE is still on the way in much of the continent. At the end of 2019, around 25 per cent of mobile subscriptions are expected to be for LTE in the Middle East and North Africa, while in sub-Saharan Africa LTE will account for around 11 per cent of subscriptions.

The region's wireless technology needs and uses are anticipated to evolve, however, and by 2025, 82 per cent of subscriptions in the MENA are expected to be broadband, while in sub-Saharan Africa mobile broadband subscriptions will increase to reach 70 per cent of all mobile subscriptions (largely LTE, though some 5G subscriptions will also be

There is still lots of work to do in addressing infrastructure challenges

part of the overall figure), according to the 2019 Ericsson Mobility Report.

On the first day of AfricaCom, MTN, together with Huawei, launched its 5G trial in an effort to bring African businesses and consumers better technologies. During the launch Dean Yu, Huawei carrier business VP for Southern Africa, said, "5G is at the stage of large-scale deployment in 2019 globally. In the 5G era more cloud-native services will appear."

But there are some caveats, certainly for Africa. During the 5G track held on the second day of the conference, Matt Reed, practice leader, Middle East and Africa, at Ovum, argued that "5G will roll out across the continent slower than most of the world's regions". Contributing factors that will stymie the process include market dynamics such as expensive devices, the regulatory bottlenecks that could slow up or undermine the release of spectrum, and, of course, the stage at which the African market finds itself at the moment: dominated, in next-generation terms, by 3G.

Framing the current challenge of adopting currently emerging technologies, Chafic Traboulsi, head of networks for Ericsson Middle East and Africa, said that it will take Africa time to adopt current technologies like 4G and then move to 5G. "Currently in Africa we

have 60 per cent of mobile connectivity on 2G," he pointed out. "There is still lots of work to do in addressing infrastructure challenges. The slow connectivity is a result of regulatory barriers, handset costs that are beyond the means of many Africans and a large African population that is dispersed more than other continents, making coverage a challenge," he added. Looking into the future, Traboulsi estimates that in 2024, 5G will still be insignificant in Africa compared to other technologies. Africa will still mainly be relying on 3G and 4G for data.

Comparing the African market to the Middle East, Traboulsi added that the Middle East is more advanced when it comes to 5G. This is due, he suggested, to progressive regulatory attitudes. Many regulators, it seems, have understood that the advancement of a country's economy is tightly linked to the deployment of telecommunications infrastructure and they have acted on that insight by providing access to 5G spectrum in a quick, non-prohibitive way.

Arnauld Blondet, chief innovation officer at Orange for Africa and Middle East, further argued that key operators in Africa need to focus on 4G to enhance the customer journey. Blondet added that the key application in the future for Africa for 5G will be home broadband. "This will be beneficial to many households, particularly in the rural and remote areas with no access to fixed broadband," said Blondet.

5G trials in the Middle East and both Southern and North Africa are nevertheless underway. The Middle East and North Africa

Photo: Nancy Onyango

Getting the picture: interview time on the show floor.

Arnauld Blondet of Orange argued that key operators in Africa need to focus on 4G to enhance the customer journey

(MENA) region is the second-least-penetrated region in the world. The region had close to 400 million unique subscribers by mid-2018, equivalent to close to 60 per cent of its population. The increased consumer appetite for streaming and gaming across North Africa creates demands for the faster downloads that 5G networks could meet. According to a recent report, over 70 per cent of Moroccan households now have access to the internet.

North African and Middle Eastern operators such as Etisalat, Ooredoo, STC and Zain have already taken steps to develop their own 5G networks. It is estimated that 5G will account for 6 per cent of total connections in the Middle East and North Africa region by 2025.

In Morocco, Maroc Telecom has been conducting 5G trials since March 2018 in collaboration with Ericsson. Fadoua Laaroussi, program and planning director at Moroccan

operator inwi shared Morocco's 5G trial experience, noting that "inwi is also conducting 5G trials in collaboration with Huawei and is installing new equipment on its radio to expand its backhaul fibre backbone network". She added, "5G is a reality for inwi. It is a reality that we anticipated and prepared for through modernising our infrastructure. inwi has modern and agile infrastructure, capable of adapting to all technical evolutions, now and in the future."

During the conference, MTN South Africa and ZTE also showcased 5G use cases; these included how the ultra-high-speed network of more than 1.678 Gbps will support a variety of applications such as AR/VR, voice, 3D video and HD live broadcast.

But it's smartphones that are central to a user experience and thus, for its consumer-facing applications, central to 5G. The average income per capita per month in Africa is under $100 per month and the average cost of a smartphone with all the basic features is $40. And yet, according to the World Bank Group publication Connecting Africa Through Broadband (with the subheading A strategy for doubling connectivity by 2021 and reaching universal accessibility by 2030), "Mobile is the most common form of broadband connectivity in Africa."

But it's not cheap. In 2018, the median cost of an entry-level internet-enabled device in Africa was 40 per cent of monthly income, and the mean average was 62 per cent of monthly income. For the poorest 20 per cent of the population, the average cost of a device in sub-Saharan Africa was 375 per cent of monthly income in 2018. Furthermore, the affordability of devices has not significantly improved in most African countries between 2016 and 2018.

Africa is certainly uniquely positioned to benefit from 5G in terms of new jobs [and] the societal problems that it may solve

Photo: Nancy Onyango

Just a few of the estimated 15,000 attendees at this year's event.

Photo: Nancy Onyango

Making contacts on the move. The exhibition kept everyone busy.

Today a 5G handset costs in the range of $1,000; that is way beyond the means of many people – and itself is a barrier to connectivity. The Ericsson Mobility report posits the view that "smartphones continue to be at the epicentre of this development as they generate most of the mobile data traffic – more than 90 per cent today and 95 per cent projected in 2025. In 2025, 5G networks will carry nearly half of the world's mobile data traffic." Affordability notwithstanding, it predicts that "the Middle East and Africa region is expected to have the highest growth rate during the forecast period".

Back in the present day, something is being done to address handset affordability. During the event, pan-African operator Africell launched its first 3G smart feature phone, afriphone, powered by KaiOS, the leading mobile operating system for smart feature phones. The new device will be the first KaiOS-powered device in The Gambia and Sierra Leone, and will also be made available in Uganda and the Democratic Republic of Congo.

Designed with affordability and accessibility for customers in mind, afriphone features 3G connectivity and access to essential and popular apps like WhatsApp, Google Assistant, Facebook, YouTube, and Google Maps, as well as unique native content such as the Africell customer care app.

Additionally, it includes other smartphone-level features such as Wi-Fi, GPS and NFC, and offers a hybrid dual-SIM slot that supports two SIM cards with 512MB memory + 256MB RAM. It also boasts a powerful battery which enables extended hours of talk time.

Education is necessary for digital transformation across the continent

Ziad Dalloul, Africell chairman and CEO, stated, "As a digital company, Africell provides a link between yesterday and tomorrow. Our network gives everyone the freedom to be and to do what they want. People of all generations and from all walks of life can shine with the powerful tools Africell offers. We listen to the young generation, and we are committed to helping them shape the best future. Introducing this smart feature phone will help us bring valuable digital services and information to the markets we operate in at a price that people can afford."

KaiOS enables a new category of affordable smart feature phones that require limited memory, while still offering a rich user experience. KaiOS-enabled phones come with the KaiStore, the only app store for feature phones, with over 200 essential apps from global and local content providers. KaiOS is now the third-largest mobile operating system worldwide, running on over 100 million devices shipped across Europe, Africa, Asia and the Americas.

But, as one speaker pointed out, there are even more basic considerations than affordability that need to be taken into account as broadband connectivity enables greater opportunities. Education is necessary for

digital transformation across the continent. "We have got to equip our learners with the basic skills that they need, which are basic reading and writing. Unfortunately many learners can't read by the age of 10," said Debbie Schafer, provincial minister of education, Western Cape, South Africa.

A connected broadband future, in other words, will not deliver jobs and opportunities if the workforce does not have the educational tools to take advantage of it. Hence, the minister concluded, "We are incorporating competencies such as communication, creativity, collaboration and critical thinking in our teaching."

Returning to the recurring theme of the event, the 5G future is undoubtedly a promising one, with the Ericsson Mobility Report mapping over 180 service providers across the globe who have indicated that they expect to have 5G in the coming years.

To date, there have been around 50 5G commercial launches across the world. Most have focussed on large cities, creating some initial 5G coverage. A few dozen operators have already launched services for smartphones and another five are offering 5G services for fixed wireless access.

Trials have also taken place in a number of African countries. The promise of 5G, especially for mobile-centric parts of the world like Africa, looks immense. For now, however, 3G, 4G and affordability of end user devices may be more immediate concerns for most African end users and operators. ✆

A new approach to data delivery: advertisements for the internet

Free internet in exchange for ads. It's a simple idea, and, as Kostas Kastanis, head of Zero-D at Upstream, tells Ron Murphy, it's enormously attractive to South Africans who might not otherwise be able to afford data.

YOU MAY HAVE read in the last issue of Communications Africa about how mobile technology company Upstream and South African operator Vodacom have designed and branded a set of internet services – it's called Zero-D – for the South African market. More importantly, it's free – well, almost.

As Kostas Kastanis, head of Zero-D at Upstream, explains, essential internet services, such as web search, local and international news and weather reports, are offered for free. The portal also gives subscribers the option of digitally topping up their service for increased airtime or data.

And it's popular. Kastanis says, "Upstream's Zero-D free internet access service is closing in on the 100 million customer milestone in Africa. South Africa, Tunisia, the Congo and Ghana currently lead the way in Africa with more than 80 million consumers able to access the Zero-D free internet service – even when they have run out of data on their pre-paid mobile accounts."

How is this done? "The service is funded by advertising, so operators are generating extra revenue while their customers stay connected."

It could also be said that Zero-D performs a public service by enabling connectivity for the less well-off. Kastanis explains, "Connectivity reduces poverty, improves education, promotes gender equality and upgrades health services in Africa – and mobile networks are the only viable means of internet connectivity for most African consumers. Yet according to figures from the GSMA's global connectivity report, around half the population of sub-Saharan Africa live within 3G and 4G mobile internet coverage but remain unable to access the internet."

The twin issues that need to be addressed in order to close this usage gap are the cost of the handsets and the cost of mobile data connectivity. "Just 1GB of data costs the equivalent of two days' pay in Africa, compared to 1.3 hours of work in the USA and six hours of work in Brazil," Kastanis points out. But now there's an alternative.

Some sophisticated technology underpins the Zero-D offering. There is deep integration with the mobile operator in delivering the top-
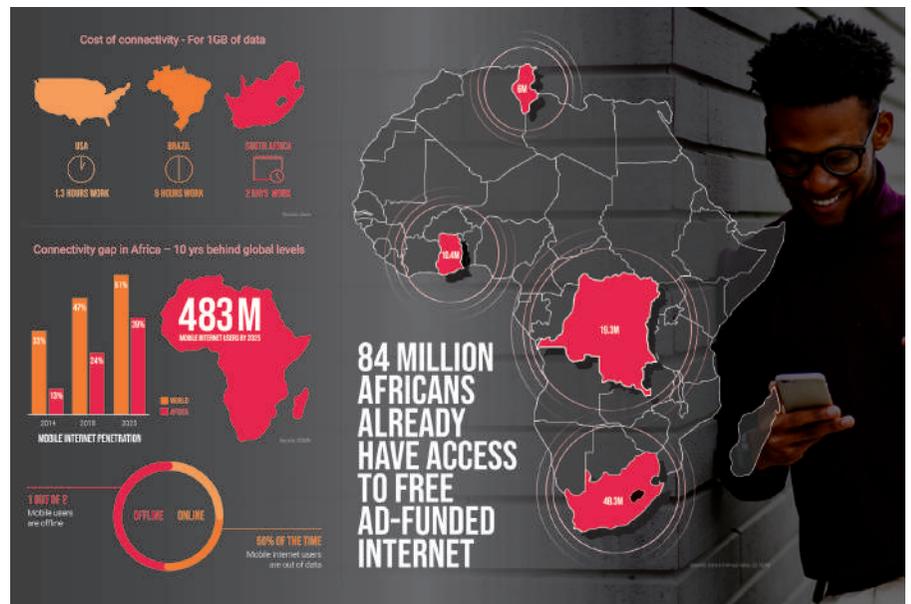
Number of potential Zero-D users in Africa.

ups, which is the core offering. "For example," Kastanis says, "when a user enters the Zero-D website, Zero-D asks Vodacom what the best data package or top-up offering would be for the specific user, it gets Vodacom's response and then renders the page. This entire process is completed within milliseconds."

He continues, "When it comes to advertising, it can be targeted or non-targeted, depending on whether the user has opted-in and accepted the respective T&Cs allowing Zero-D to use profiling information to offer more relevant advertising content."

But it's not just about the end user, of course. There are also many benefits in the Zero-D solution for Vodacom. Kastanis lists them as:
- Loyalty / differentiation, by offering an innovative, first-in-the-market service
- CSR, by offering the internet essentials for free at all times to subscribers, (especially the ones with affordability issues)

Just 1GB of data costs the equivalent of two days' pay in Africa...but now there's an alternative

- Monetisation, which breaks down into two areas:
1) **Upselling of data and top-ups:** Zero-D acts as a 'freemium' platform, where some internet content is offered for free. However, the full content requires users to become paying customers
2) **Advertising:** The concept here is that the platform has great enough reach and engagement to be relevant for brands and advertisers to use.

The service has, so far, been popular. "We have on average 700,000-800,000 sessions per day," says Kastanis.

And advertising is vital to making this business model work. As Kastanis says, "Advertising is our recipe for further monetising users, especially lower-income ones. Users have a certain pocket size and some of that will end up with the MNO. Therefore, trying to increase the ARPU by getting more and more from the same user pocket has limited potential."

But advertising can still find a market. "The same users are targets for specific brands, especially big FMCGs because they will still buy food or soap or toothpaste. There are few channels that can address the lower-income users better than Zero-D." ℂ

A closer look at the roadmap

As the most recent World Radiocommunication Conference made clear, radio spectrum – its use, its cost and above all its availability – matters. But how and why does it matter to Africa? Graham Friend, of telecoms consulting company Coleago Consulting, discusses spectrum management strategies for Africa.

WRC-19 welcomed some 3400 delegates from around 165 ITU member states.

Photo: ITU

Communications Africa (CAF): What are the main issues, in your view, that African spectrum management should address?

Graham Friend (GF): Some regulators in Africa, such as Botswana and Tanzania, have already adopted spectrum management strategies which reflect internationally recognised principles of best practice. Some African regulators' approaches to spectrum management, however, are less well aligned with their stated public policy objectives and lack clarity and transparency. These weaknesses provide poor incentives for investment and innovation by operators.

Regulators should publish a spectrum roadmap so that operators can plan their network and technology deployment strategies accordingly. All available new spectrum should be assigned in a timely manner (ideally simultaneously) and new spectrum should be assigned transparently and, where appropriate, market-based mechanisms – such as auctions – should be adopted to promote the efficient use of spectrum. However, where there are imbalances in size between operators, the regulators should consider measures such as spectrum caps to maintain and enhance competition.

In a number of African markets, existing spectrum licences are expiring and regulators should begin the renewal process at least two to three years in advance of the expiry date to avoid any disruption to consumers and to ensure that operators continue to invest. As incumbent holders of spectrum are likely to value it most highly, there should be a presumption of renewal in favour of the incumbents, although competition concerns and historic imbalances in spectrum holdings should also be addressed.

Developing and promoting a robust framework for network sharing is also an important element of spectrum management which can not only be used to address competition issues, but also to promote greater levels of coverage.

CAF: Is the importance of 5G being overstated in Africa?

GF: Even in the most developed markets, there is a huge level of uncertainty surrounding specific 5G use cases and the business case for 5G in general. This uncertainty will be even greater in Africa and the timescales longer. While 5G should not be ignored, a modern 4G / 4.5G network will support many of the use cases being discussed in relation to 5G. Unfortunately, some regulators have not made sufficient spectrum available (and especially low-frequency spectrum) to support the cost-efficient deployment of 4G networks – South Africa being a case in point.

Regulators should therefore follow international 5G developments carefully and formulate their medium-and-long-term plans for 5G spectrum awards – but the immediate priority is to ensure that operators can deploy 4G effectively.

CAF: Is there still a drive to ensure that the connectivity needs of rural communities are met?

GF: The socio-economic benefits of widespread mobile broadband access are well documented and yet, in many markets, significant sections of the population have little or no coverage. This is true in developed markets, but in Africa, the challenge of increasing mobile broadband coverage is even greater. As operators in Africa are typically 'spectrum

Spectrum pricing is one of the most important decisions facing regulators but also one of the most difficult

poor' compared to their peers in Europe, for example, there is likely to be a need for additional spectrum to meet capacity requirements in commercially attractive urban areas. Making additional new spectrum available provides regulators with an ideal opportunity to broaden mobile coverage. Linking coverage obligations to the award of new spectrum will not only address capacity issues in urban areas but also the need for improved connectivity in rural communities.

CAF: You were involved in the award of the 700MHz band in Tanzania. What lessons could Tanzania's experience offer other countries considering an auction process?

GF: Coleago supported the Tanzania Communications Regulatory Authority (TCRA) in the award of 700 MHz spectrum. Coleago provided end-to-end support – from engaging with political stakeholders to understand policy priorities, developing licence conditions (especially demanding coverage obligations) and from spectrum packaging recommendations to the design and implementation of the auction. The TCRA's primary focus was on expanding coverage, but, recognising the significant cost that additional coverage imposed on the operators, the auction reserve price was set very conservatively.

Throughout the process, Coleago focused on ensuring transparency and clarity and adopted the simplest possible auction format to help operators develop their spectrum valuations and bid confidently. While the expectations of government were managed effectively in relation to the expected auction proceeds, a vital lesson for other regulators would be to ensure that the benefits of assigning all available spectrum simultaneously are effectively communicated to government.

Photo: ITU

Something to celebrate as WRC-19 comes to a close, but more challenges await WRC-23.

the renewal process as opportunities to maximise revenues for government – almost to the exclusion of all other policy goals.

Spectrum pricing is therefore one of the most important decisions facing regulators but also one of the most difficult. Regulators do not know what value operators place on spectrum, and so setting high prices which are above operators' valuations can result in complete or partial auction failure – as we have seen in Nigeria, Ghana, Mozambique and Senegal.

Regulators should therefore take into account the impact of coverage obligations on spectrum values and set prices accordingly, and focus on developing a price which is affordable for the weakest players in the market to ensure they too can participate in the award process.

CAF: What do you think the African message to WRC-19 was?

GF: Affordability remains one of the greatest barriers to mobile broadband adoption in Africa and so African consumers need end user devices which are as affordable as possible. Low prices come from scale in manufacture and so a key message from Africa to WRC-19 would have been to focus on ensuring the greatest levels of harmonisation to drive down the costs of equipment. ✆

Graham Friend is a specialist in financial modelling, strategic business planning and valuation and is a leading expert on spectrum auctions and spectrum valuation. Graham has been consulting for more than 20 years and has been in the telecoms sector for over 15 years. http://www.coleago.com

There is a huge level of uncertainty surrounding specific 5G use cases and the business case for 5G in general

CAF: Are concerns about spectrum pricing relevant to Africa?

GF: The GSMA has commissioned a number of recent studies which have explored the relationship between, on the one hand, spectrum pricing and on the other, consumer pricing and levels of network deployment.

The studies suggest that high spectrum prices may be detrimental to consumers and network investment. Some regulators are tempted to see new spectrum awards and

WRC-19: Radio news round-up

AT THE WORLD Radiocommunication Conference 2019 (WRC-19) agreements signed by some 3400 delegates from around 165 ITU member states were enshrined in the Final Acts of the Radio Regulations, the international treaty governing the global use of radio-frequency spectrum and satellite orbits.

So what were some of the essential outcomes of WRC-19? Most importantly perhaps, additional bands for IMT (the term used by the ITU community to designate broadband mobile systems) were identified, facilitating the development of fifth generation mobile networks.

In addition:
- Regulatory procedures were established for non-geostationary satellite constellations in the fixed-satellite service, opening the skies to many next-generation communication capabilities.
- Regulatory changes were introduced to facilitate rational, efficient and economical use of radio frequencies and associated orbits.
- Additional frequency bands were identified for High Altitude Platform Systems – radios on aerial platforms hovering in the stratosphere which could improve broadband access in rural and remote areas.
- Protection of frequency assignments was offered for broadcasting-satellite service (BSS), providing a priority mechanism for developing countries to regain access to spectrum orbit resources.

Train radio applications, Earth exploration-satellite services, Intelligent Transport Systems, the Global Maritime Distress and Safety System, Earth stations in motion (to connect people in planes, ships, and trains to communication links with geostationary satellites) and the growth in demand for wireless access systems were also addressed.

Photo: LiveU

Television goes cellular (part one)

Taking technology to the track: live streaming of horse racing in South Africa.

What's the best way to stream live video? Phil Desmond discusses alternatives to satellite, fibre or microwave with an innovator in the market.

LIVE VIDEO STREAMING company LiveU has been seen in our news pages recently, using its alternative to traditional satellite, fibre and microwave technology for live coverage of South Africa's popular horse racing industry.

LiveU is certainly an interesting approach to live, and store and forward, broadcast and streaming video. As Ronen Artman, LiveU VP of marketing, explains: "Our underlying technology ensures network stability by bonding together multiple cellular networks of varying bandwidths to create one single, reliable high-bandwidth connection to transmit live video content."

In other words this system offers steady SD, HD, and even 4K live broadcast using what the company calls its Reliable Transport protocol. This enables low-delay, live video streaming over non-guaranteed IP networks and, as its name suggests, ensures reliable transport over the most unreliable of networks.

This has made the technology a strong player (it's been around for over ten years) – and not just in newsgathering. "We're experiencing rapid growth across the sports sector and general entertainment too, replacing more traditional satellite and fibre," Artman says.

On a more technical level, he explains, "Using HEVC (encoding), we can deliver the highest video quality and bitrate, fastest file transfer, and lowest delay. With our HEVC units, broadcasters can provide the same video quality as H.264 while using about half the bandwidth or offering greatly improved video quality wherever original H.264 bitrate is maintained."

But that's not all. Small and lightweight mobile units and easy setup mean that field crews can go live as soon as they as they arrive at a location. There's even a smartphone app, Lu-Smart, while LiveU's next-generation IP video distribution platform, Matrix, provides a content curation service, enabling newsroom managers to quickly and easily give hundreds of affiliates access to live feeds from LiveU units in the field and other sources – without any interruption, additional resources, or expensive fees. Sports producers can also live stream events easily and cost-effectively to multiple destinations and TV stations.

There's even remote at-home production, which allows broadcasters to reduce costs by producing live shows from a centralized studio control room instead of on-site production and satellite trucks.

Importantly, while the LiveU system allows users to acquire, manage and distribute high-quality remote live broadcasts over IP, the solutions include multiple links – 4G LTE/LTE-Advanced, HSPA+, UMTS, CDMA EVDO Rev 0/A/B, and internal Wi-Fi 802.11 a,b,g & n support, and IP satellite (KA/BGAN) – which are optimised for maximum video quality based on the available network conditions. LiveU solutions are also 5G-ready.

LiveU can deliver up to 20Mbps for an efficient 4K transmission

As for bandwidth, this is network dependent. "LiveU can deliver up to 20Mbps for an efficient 4K transmission," says Artman. He adds, "For specific scenarios, like remote areas, customers can combine LiveU's HEVC bonding technology with Ka-band satellite connectivity services in a cost-effective hybrid solution. With automatic least-cost routing, satellite is only used when needed."

It may all sound complex, but LiveU is simple to operate – both for field crews and operators in the control room. Field crews can acquire content in different locations and stream back to the control room for live broadcast, or the cloud for live online content delivery. LiveU's Video Return server enables reporters to see what's currently on-air and receive teleprompting information during live sessions. Reporters can also know instantly when they're live on air via a red-light indicator connected to a LiveU unit.

It's not just sports

SOME NON-SPORTING examples of LiveU uses in South Africa include retailer SPAR, which has started to incorporate live streaming into its national conference, helping to get its message to as many people as possible without having to fly everyone to one venue. Similarly using LiveU Solo for the World Drowning Prevention Conference 2019 meant that all attendees, and those that could not attend but were interested in the conference, could watch and feedback on all presentations.

A very different example is Govtech 2019 (Tech for Government). LiveU was asked to provide a reliable stream to Amazon services for distribution to the Govtech website. Internally this could not be provided by the ICC (the Durban International Conference Centre), so the aggregated modem solution of the Solo gave a reliable and robust livestream.

Artman adds, "For operators, all live streams can be managed and controlled by LiveU Central, our cloud-based management platform: there's full control and monitoring of the entire ecosystem and content via any browser-supported computer or tablet, so you can work in a studio or on site."

On a more content-specific note, the system can allow users to cover the main event, news around the event and fan engagement stories – and has done so, at the winter and summer Olympic Games (since Beijing 2008), the FIFA World Cup, the Super Bowl, UEFA Euro and the recent Rugby World Cup.

It's not just about sport. The system's use initially grew across the news sector. "Now it's used for many applications including corporate, education, public safety, worship, advertising, non-profit organizations, music and other online streaming platforms," says Artman.

Nor is South Africa its only African market. As he says, "We're active in Zimbabwe, Botswana, Mozambique, Tanzania, Angola, Kenya, Nigeria, Ghana, Ivory Coast, Senegal, Zambia, Cameroon and Guinea Conakry as well as several countries in North Africa."

The IP distribution approach mentioned earlier has, Artman thinks, "huge potential" – and now artificial intelligence is getting in on the act through LiveU AI, a story-centric AI service for global newsgathering.

The complete service, powered by web hosting company newsbridge, offers a comprehensive set of contribution and AI-based video indexing tools for enriching, searching and accessing live or file-based content. This means, as Artman notes: "Operating within LiveU Central, LiveU AI will enable editors to search and find their required footage faster, easing their daily workload and making real-time production much more efficient." ✆

Television goes cellular (part two)

Ron Murphy finds out how a leading Nigerian entertainment company is leveraging mobile phone use for its VoD offering.

IROKO IS ONE of Nigeria's largest internet and entertainment companies. It uses video on demand – an internet-based model that, says CEO Jason Njoku, "allows for scalable, global distribution of amazing content".

And mobile phones often make it happen "Mobile is first, second and third in our market," says Njoku. It's an entire infrastructure for the continent and is how the vast majority of our subscribers watch IROKOtv".

If mobile phones are the medium, Nollywood, "the most popular form of entertainment across Africa", is the message. "It is everywhere – there's never not a film being produced," says Njoku. He continues: "IROKOtv has worked with a number of film production houses, although we actually incubated our own one – ROK – which then developed into a TV channel as well as a studio, which was acquired by Canal+ earlier this year."

The past ten years have seen vast growth in entertainment choice and platforms, making it easier to deliver programming to specific, targeted viewer groups. Is this a reason for IROKOtv's success?

"Yes," says Njoku. "People expect amazing content, available anytime, anywhere – and, certainly in Africa, on their mobile devices. Of course, we still face some logistical issues around payments and, for some countries on the continent – Nigeria included – the cost of data can be quite expensive."

As that comment implies, there are many challenges for the on-demand model, but, Njoku insists, "We have focussed on building the best mobile app, and ensuring our paying customers have access to the best content out there. This means we invest in movies and TV series – and, through ROK, we have also nurtured young, fresh talent, which means we are building a pipeline for the future."

So can one assume that OTT and internet-

Photo: IROKO

Njoku: "Mobile is first, second and third in our market"

based programming are the future – especially for younger viewers? "Absolutely," says Njoku. "But," he adds, "we also cannot forget the power of TV, which still commands significant audience numbers. This is something we found with ROK; we built three TV stations in Africa and one in the UK [ROK on Sky] before we exited ROK – the popularity of which exceeded our own expectations." ✆

> We invest in movies and TV series – and, through ROK, we have also nurtured young, fresh talent

How connectivity is changing Kenya – and Kenyans

Increased growth in mobile connectivity has led to a dramatic switch in Kenya from voice calls to messaging platforms. And, says Mwangi Mumero, that's not the only way in which Kenyan use of mobile devices is changing.

THE KENYAN MOBILE communications user base continues to grow. Data from the Communications Authority (CA), Kenya's regulatory body, indicates that the number of active SIM cards in the country stands at 52.2 million, up from 51 million at the end of March 2019.

Kenya has an estimated population of 47 million and many of them subscribe to mobile services: Kenya has a 91 per cent penetration of mobile subscriptions compared to Africa's overall 80 per cent.

However, usage is no longer mainly voice. Use of text messages rose by 11.2 per cent to 17 billion between April and June 2019, according to CA statistics.

But even in texting Kenyans are not sticking to traditional modes of communication, many of them moving away from SMS to messaging platforms such as WhatsApp. And that's not all. Fintechs and the rolling out of 4G technologies are expected to be drivers of growth in mobile services across Kenya, according to the report. Meanwhile, more young people are purchasing and using smartphones in their daily activities, leisure and work.

Not surprisingly, therefore, data consumption has been on the rise across all networks – led mainly by young people. According to data from PricewaterhouseCoopers (PwC), at least 269 million gigabytes (GBs) were consumed by Kenyans in 2018, and projections show that consumption will hit the 984 million GB level in 2022.

The biggest consumers of data bundles are streaming of music and videos, playing of video games, and, inevitably, networking among friends. Social networks such Facebook, Twitter and Instagram are avenues through which Kenyan youth spend millions of dollars in the form of data bundles.

At least 8.3 million Kenyans are active in social media, with an average user spending three hours per day on various platforms. The most used platforms are WhatsApp (74 per cent), Facebook (70 per cent) and Twitter (50 per cent), based on users' own claimed activity. In fact, KOT – Kenyans on Twitter – are known for their vigorous defence of their motherland and its interests.

Meanwhile, according to information from Nendo, a digital strategy and research firm that tracks consumer insights, other Kenyans use internet connectivity and mobile data bundles to access news, information and entertainment; football and gambling sites such as SportPesa are particularly popular.

One fascinating statistic comes from research carried out by web browser developer Opera. It revealed that women use more bundles than their male counterparts. Female respondents spent over US$100 monthly; men spend US$30 or less.

The survey, among 1500 women aged 14-44 years, revealed that women were tech-savvy, using the internet to empower themselves by engaging in life-improving online information on such topics as health, economics, education, property rights and public services.

"The internet has become an important vehicle to research, seek opportunities and carry out online commerce, either on a phone or a laptop. My generation is benefiting immensely from the internet and we use lots of data bundles weekly to access various sites," observed Monica Nyambura, a 22-year-old Bachelor of Business Administration graduate who has been using the internet to seek jobs, do online writing and connect with friends on social sites.

Mobile data usage per user grew by 56.3 per cent year-on-year to 421 megabytes. Kenyan service providers have raked in US$430 million by selling mobile and fixed data in the financial year ending March 2018.

The PwC media outlook report 2018/2022 indicates that internet advertising will hit US$38 billion globally per year, as companies chase the rising number of users accessing sites through their mobile devices.

New online start-ups and gambling firms have also tried to grab a piece of the pie, along with online companies such as Jumia and Masoko selling merchandise, mostly electronics, clothes and shoes.

Football and gambling sites such as SportPesa are particularly popular

Smartphone use is growing in Kenya.

Photo: Adobe Stock

Network optimisation:
evolving – and growing in importance

CBNL, known in many countries for its licensed point-to-multipoint microwave platform VectaStar, is currently offering a free network modelling, optimisation and dimensioning service to customers in Africa. CBNL's Paul Wright tells Vaughan O'Grady why and explains how such services have changed since 2G.

CBNL, THE NAME behind licensed point-to-multipoint microwave platform VectaStar, is currently offering a free network optimisation service to operators in the African region. CBNL's Lifecycle Modelling Tool (LCT) allows users to digitally visualise the current capacity of a network and automate workflows associated with upgrading an existing network or planning a new one. The offer applies to both backhaul and access networks.

This isn't necessarily an act of generosity; the tool is a bespoke system designed to provide a single method for planning, describing, documenting and auditing networks operated using CBNL's VectaStar network.

As for the customer profile, Paul Wright, VP customer solutions & services, CBNL, says, "Our customers are network operators, who use our high-capacity connectivity to extend the reach of their networks. Using high-frequency millimetre wave radio spectrum as part of a fixed wireless access (FWA) deployment, our customers are able to provide connectivity to a range of business and residential end-user customers and in turn deploy their own IT and telecoms services over this access network."

In fact one single hub deployment is able to connect up to 63 end users. The real benefit of a millimetre wave FWA is that it provides network operators with powerful, low-latency and high-capacity access to areas where it has perhaps not been economical to deploy fibre or where an alternative technology is preferred.

CBNL is able to provide wide area connectivity from a single access hub using a point to multipoint topology that yields total cost of ownership savings of up to 50 per cent over other ways of reaching these customers.

Which brings us to LCT. "The current offer is

Networks and operators have to become more efficient to be able to supply demand and stay profitable
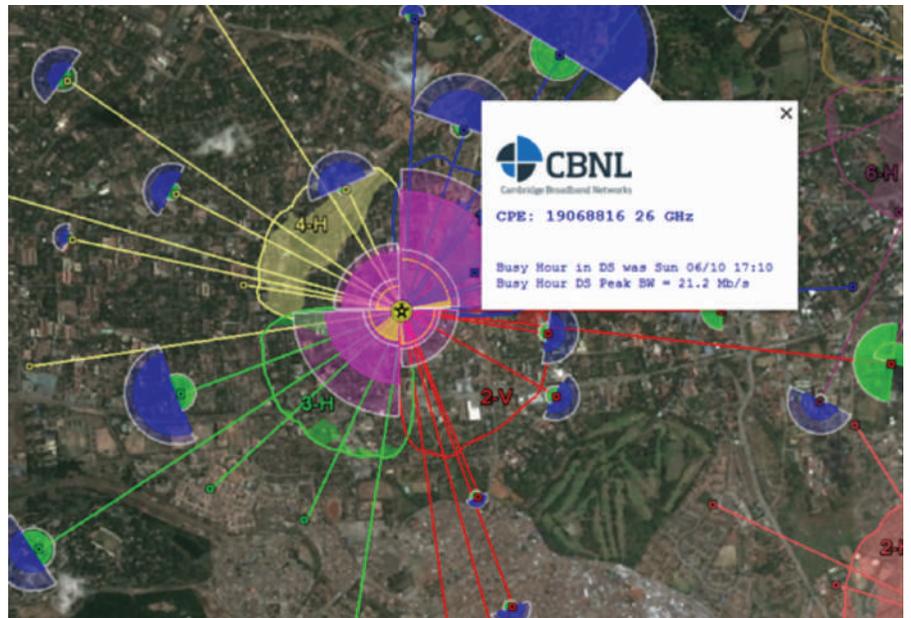
A PMP Hub site connected to a number of 3/4G cell sites.

for existing CBNL customers whereby we would audit the performance of the current deployment and optimise it free of charge, but also for new customers considering a deployment and wanting to understand its feasibility and design features."

Of course, 3, 4 and 5G have made new demands on modelling, optimisation and dimensioning, and not just LCT. In the days of 2G, everything was measured in E1s (2 Mb/s legacy carrier). With the advent of 3G, all mobile networks migrated to Ethernet/IP backhaul. This technology transformation brings with it a whole new set of problems and necessary skills.

Wright explains, "With IP, data connections are 'bursty' and networks rely on 'statistical multiplexing' to smooth out the individual data bursts from each user. Understanding this requires a whole new set of skills and tools as the 'old rules' no longer apply. We've been working with customers on 3G/4G/5G to help them analyse the performance of their networks and work out how to predict where capacity bottlenecks will occur."

Another level of complexity is added by Quality of Service. With 2G, all services were equal, but in the IP world, different services have different rankings or Quality of Service

markings. "This makes designing networks more challenging as incorrect QoS settings can affect performance even when there appears to be excess capacity," says Wright.

Returning to the CBNL offer, the tool involved includes designs for enterprise, residential and smart city deployments. How do these three use cases differ in their needs and demands?

At one level, it seems, they all have the same aim: to deliver large amounts of bandwidth cheaply and effectively to different sites. However, each network type has differing user requirements. For example, smart cities will often deploy many high-resolution video cameras for traffic surveillance at a consistent rate. Mobile networks have a smaller number of key sites which can vary vastly in load throughout the day, as the population migrates to and from work. Residential networks offer different challenges as everyone tends to want to use the network over the same busy period (5-7pm) when they get home and want to watch Netflix or YouTube. "Understanding how these differing user demands behave and how best to design a network to support them is our key differentiator," says Wright.

Another part of the LCT offering is identifying underperforming sites. As Wright says, "If the

customer has an existing network, then we can analyse all the performance data from that network and help the customer to visualise the performance."

In the image shown on the previous page – a PMP Hub site connected to a number of 3/4G cell sites – each cell site is represented by two semi-circles whose size is proportional to the cell site load. In this example, of an African city, we can see that the user load is not evenly spread across the cell sites. Some of the sites carry very little traffic and others are quite busy. "This suggests," says Wright, "that the original network engineering of the RAN didn't correctly match the user demographics as an under-utilised cell site is an expensive asset not earning revenue. Likewise, heavily loaded cell sites may provide a poor user experience. We provide these analyses to our customers to help them better understand how their network is running, so they can maximise the return on their investment."

Automating the RF process, generating network roll-out documentation and streamlining network audits are key features of the CBNL tool. That's certainly a change from two decades ago.

Wright explains, "When we started working with network operators nearly 20 years ago we noticed that a lot of the processes were very manual, with lots of different data sets and lists all over the place. We also noticed that a lot of implementation mistakes were made due to

A redundant pair of 28 GHz VectaStar Access Point Radios deployed in Nairobi, Kenya providing backhaul to a 3/4G mobile network.

Photo: CBNL

poor data management practices."

He continues, "As we deal first-hand with operators, from initial network design through to supporting and optimising mature networks, we were exposed to the whole life cycle of a network evolution and all the associated processes. We realised, quite early on, that by adding in operational functionality to our planning tool, we could reduce the time and opportunity for manual errors to occur in the network build process. We have been working with customers continually on this, taking their feedback and adding in new functionality to make their jobs simpler and thus make them more efficient."

There's no doubt that network optimisation

will evolve and growing in importance. Every operator has to 'sweat' its assets to stay competitive. There is an irreversible trend of more data for less money; networks and operators have to become more efficient to be able to supply demand and stay profitable.

Optimisation can help them to do this. Wright explains, "We recently worked with a Nigerian customer of 10 years on a wholescale optimisation of one of their networks and were able to double their available capacity without the addition of any new hardware – just by optimising the operation of their network which had grown organically over the last 10 years." ℭ

Jumia Kenya has reported that 70 per cent of its traffic comes from mobile phones, while 50 per cent of the payments are done via mobile money services such as M-Pesa.

The CA reports that by September 2018 the total number of active internet and data subscriptions in the country stood at 42.2 million, and that mobile data subscriptions constitute 99.2 per cent of total data and internet subscriptions.

"Digital connectivity plays an important role in transforming and improving lives, as it opens the door to employment, financial opportunities and unprecedented knowledge for billions of people across the globe," notes the CA report.

Improved coverage is helping; according to Jumia Mobile Report 2019, 3G network coverage across the country increased from 67 per cent in 2014 to 85 per cent in 2017, and the 4G network now reaches a

Will new attitudes to mobile communication change the face of Kenyan business?

Photo: Adobe Stock

third of the population.

Mobile data baskets have also become more affordable, with a 500 MB allowance costing 1.3 per cent of monthly GDP per capita compared to 3.7 per cent in 2014. Improved use of the internet has also been boosted by content generators using the Kiswahili language, easily understood by millions of East Africans.

The high rate of smartphone use has boosted internet penetration across the country. By 2017, according to Jumia Report,

41 million Kenyans owned a smartphone – that's almost 90.1 per cent of the adult population.

Another area where Kenyans have been active in using their mobile devices is in access to mobile loans. A survey by Financial Sector Deepening Kenyan (FSD-Kenya), in partnership with the Central Bank of Kenya (CBK) and the Kenya National Bureau of Statistics, indicated that 35 per cent of these Kenyans have tried at least one digital loan.

Today over six million Kenyans

have the technology to access microloans within seconds and can build a credit history which will allow them to get bigger loans in future.

The representative survey of 3,000 Kenyans revealed that those seeking digital loans are younger customers, mostly male (55 per cent), urban (55 per cent) and relatively highly educated.

Business financing as well as day-to-day consumption take the lion's share of the digital loan spending, the survey revealed. Betting – something younger Kenyans have taken seriously – is chewing up some of these digital loans.

Formal employees, casual workers and businesspeople are all taking up digital loans – which are easy to access at times of need, unlike the usual paperwork-ridden formal bank loans. According to the survey, 37 per cent borrow to advance business, 35 per cent borrow to meet day-to-day needs, and about 15 per cent borrow to buy airtime. ℭ

Lanck Telecom's algorithms can predict and stop a lot of activities before they even begin on the network.

Photo: Adobe Stock

Short-term margins or long-term protection?

Communications Africa talks to Alexey Yanson, CEO of Lanck Telecom, a major name in the termination of international voice and SMS traffic, about fraud, infrastructure and the future of traditional voice and SMS.

Photo: Lanck Telecom

Alexey Yanson, CEO Lanck Telecom: "We are now promoting a solution for both operators and enterprises."

Communications Africa (CAF): What are the challenges for voice and SMS termination in the African market?
Alexey Yanson (AY): One of the big challenges in the African market is fraud. Our solution actually helps to prevent a big part of the international revenue share of fraud. This is absolutely essential for the many operators in Africa that suffer a lot of losses, of which I would imagine a lot of them are not even aware!

Losses are, in fact, very heavy on the termination and on the origination side. The key benefit of our system is that it is very proactive and it allows all the operators to stop a big portion of the fraudulent activity before it actually starts. A big part of this is behavioural analysis; we do this online. However, our algorithms can also predict and stop a lot of activities before they even begin on the network.

We set this up for the operators. They then have the opportunity to set their own rules, adjusting how the system works based on the behaviour of their users and on their own internal policies. It is an intuitively simple interface but it covers pretty much all the possible international revenue

share fraud risks that the operator might have. It is also unique.

CAF: Why is an Intelligent Fraud Management System of the sort you offer necessary?
AY: Our Fraud Management System allows operators to clearly see what is going on in their networks. That being said, there are always new types of fraud that are showing up in the industry; that keeps our anti-fraud lab team very busy. An example is what we call Wangiri 2.0, a type of fraud targeted at enterprises rather than at operators. Fraudsters may switch bought subscriptions to PRS numbers on SMS. They might also enter the PRS numbers into forms containing fields for call-back numbers from banks or any other type of operators.

However, operators might see this as additional legitimate traffic on their networks because a lot of enterprises do not clearly identify it as fraud; they just see it as normal activity – even when their conversion rates fall. The question for operators is whether they want to enjoy that short-term rise of revenues and margins or whether they prefer to protect their enterprise customers, and reinforce the loyalty of their customers.

This is one of the challenges our team has been working on; we are now promoting a solution for both operators and enterprises.

CAF: What other problems need addressing in Africa?
AY: The view from outside is that Africa is a huge continent and every one of its countries has its own challenges. However, as a general picture, I would say that operator infrastructure is not as developed as it could be. Political instability may be stopping long-term investment; there may be other reasons. But infrastructure is important – not only to be able to provide customers with better service and monetise that service, but also to be able to protect users of the network, protect the enterprises and protect the customers.

And yet, often for reasons outside their control, some countries do not have the stable, long-term investment background that allows them to provide such services to their clients.

CAF: Are traditional mobile traffic, voice & SMS, big in Africa?
AY: They are still a big business, although the growth of the IPN and the penetration of the IoT into the
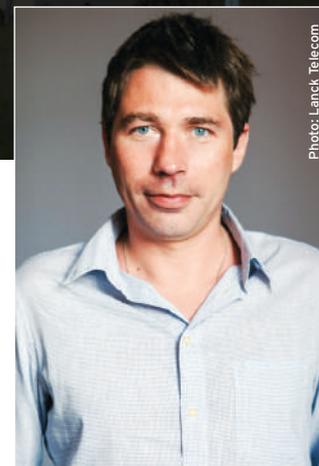
market pose a very big challenge for operators. They are losing a substantial part of their retail business in voice – but it is still a big business. One reason was mentioned earlier: the infrastructure doesn't make the IoT reliable – for example for business cards.

Another reason is that it is geographically not always possible in all areas to be able to provide mobile data or the bandwidth of data that would actually allow the use of IoT.

Thus traditional telecom is still a big business, especially taking into consideration the fact that the cost of termination to a lot of the African countries revenue-wise is still a very serious part of the voice business in the industry. ✆

Keeping the continent entertained

Consumer demand for personalisation is driving revenue growth in Africa's entertainment and media industry, according to a new report. It's also driving an ever-more diverse approach to media consumption.

Consumer spend on internet access is a major contributor to growth in South Africa.

Photo: Adobe Stock

THE RISE OF increasingly personal and personalised media interaction, fuelled by technology and evolving customer behaviour, is gaining momentum. Consumers are using an array of connected devices to organise, curate and discover their own unique worlds of media. In response, companies are designing their offerings to revolve around personal preferences, using data and usage patterns to pitch their products – not to audiences of billions but to billions of individuals.

These are some of the highlights from the 10th annual edition of the Entertainment & Media Outlook – An African Perspective, released recently by PwC, a major name in assurance, advisory and tax services, with a presence in 34 African countries. It focuses on the period 2019-2023.

The Outlook is a comprehensive source of analyses and five-year forecasts of consumer and advertising spending across five countries: South Africa, Nigeria, Ghana, Kenya and Tanzania.

The profound shifts it describes are taking place against a background of ongoing global growth in entertainment and media (E&M) revenues, says the report.

Vicki Myburgh, entertainment and media leader for PwC Southern Africa, says, "This year, the Outlook looks at the industry through the eyes of the consumer. The central theme of this growing media is personal and increasingly digital. There is an increasing shift to personalised experiences all around us in the fast-changing human behaviours involving E&M.

"Consumers around the world want to exert greater control over how they experience and enjoy media content. They are managing their own media consumption by way of smartphones and an expanding array of devices, by curating their own personal selection of channels via over-the-top (OTT) services, and by bringing more digital media content into their lives via smart homes and connected cars."

The Outlook is a comprehensive source of analyses and five-year forecasts of consumer and advertising spending across five countries (South Africa, Nigeria, Kenya, Ghana and Tanzania) and 14 segments: internet, data consumption, television, cinema, video games, e-sports, virtual reality, newspaper publishing, magazine publishing, book publishing, business-to-business, music, out-of-home (OOH) and radio.

South Africa is, not surprisingly, a strong focus of the report. By 2023 total E&M revenue

Consumers are managing their own media consumption by way of smartphones and an expanding array of devices

in South Africa is expected to reach R170.5 billion (about US$11.6 billion), up from R128.9 billion in 2018. Consumer spend on internet access is a major contributor to growth, accounting for 61 per cent of the overall rise in E&M revenue. Total internet access is forecast to increase at an 8.2 per cent CAGR over the forecast period and reach R77.7 billion in 2023.

Although the growth of internet access in the share of overall E&M revenue will reduce by 2023, its 46 per cent share of the total in that year will exceed the global average of 33 per cent, indicating that many South African consumers find access alone provides sufficiently compelling and free entertainment experiences.

And next generation mobile technology will play a part in changing entertainment trends. Charles Stuart, entertainment and media partner, PwC South Africa, says, "The advent of 5G networks will also impact the entire technology, media and telecommunications value chain over the next decade. 5G will impact virtually every industry, but E&M companies will be among the earliest to incorporate 5G into their offerings and business models. It will also enhance the customer experience further and accelerate growth for many subsectors within the E&M industry, from video games to high-definition video streaming of sporting events."

The growing segments of virtual reality (VR), augmented reality (AR) and mixed reality (MR)

will also accelerate as a result of 5G. The potential use cases from this mobile revolution will be seized upon by the most agile and innovative E&M companies to create new revenue streams stretching into, and fundamentally changing, the future, the report suggests.

As for South African consumer revenue, this is set for a 6.4 per cent CAGR between 2018 and 2023, increasing from R99.4 billion to R135.6 billion. Although print-exposed segments are proving a drag on growth, there are many pockets of positivity here, with gaming, video and music revenue all performing strongly. Although internet revenue takes a major proportion of overall revenue, it is positive to note that three other sectors – video games, e-sports and virtual reality – have stronger CAGRs than internet to 2023. Music and podcasts are also other good sources for consumer revenue, as is television.

Advertising revenue in South Africa rose by 2.8 per cent year-on-year in 2018, reaching a total of R29.5 billion. Further reasonably consistent rises at a CAGR of 3.4 per cent will see the total reach R34.9 billion in 2023. South Africa enjoyed 24.2 per cent year-on-year growth in 2018 in total internet advertising revenue. Whereas globally internet advertising has already become the biggest advertising medium by revenue, in South Africa it still trails behind TV advertising. International evidence, however, suggests that internet advertising will continue to catch up rapidly. Over the forecast period, its revenue will increase at 12.4 per cent CAGR, doubling to R8.7 billion by 2023. This fast growth will see internet advertising overtake TV advertising in 2022.

Looking at specific E&M segments, the video games market in South Africa will continue to see growth over the next five years, with total revenue rising from R3.5 billion in 2018 to R5.4 billion in 2023. Social/casual gaming represented 56.6 per cent of total video games revenue in 2018 and is set to increase significantly to 68.4 per cent in 2023.

Digital music-streaming providers continue to gain traction among consumers. Consumers have an array of music-streaming providers to choose from. Digital music streaming revenue reached R325 million in 2018, up almost 57 per cent year-on-year. Streaming revenue is set to increase at a 20.1 per cent CAGR to total R815 million in 2023.

South Africa continues to be the largest TV market on the African continent. Despite a challenging macroeconomic environment and political uncertainty in recent years, the TV industry has shown growth and will expand at 3.9 per cent CAGR to R40.5 billion in 2023. TV advertising will grow at 1.8 per cent CAGR but will account for a smaller proportion of the market in 2023.

Virtual reality (VR) remains a niche category,

Ghana's E&M industry is set for the fastest growth of any of the countries considered in the report.

but the industry is slowly overcoming certain challenges such as content availability, comfort, compatibility and affordability. This sector continues to attract significant investment from major media and technology companies that are eager to seize a share of this fast-growing market.

The popularity of e-sports in South Africa is indisputable. Total e-sports revenue is forecast to reach R138 million in 2023, a 24.7 per cent CAGR rise from the R46 million recorded in 2018.

Radio continues to have a solid listener base in South Africa, with 47 per cent of listeners tuning in for more than 20 hours in a given week. All being well over the next five years, total radio revenue has the potential to edge towards the R5.0 billion-mark, totalling R4.8 billion in 2023.

The print-exposed newspapers, books and consumer magazines segments have the worst forecasts through to 2023, with revenues projected to suffer declining or constrained CAGRs of -2.3 per cent, 0.3 per cent and 1.1 per cent respectively

But it's not just about South Africa. Other major markets are also showing interesting trends. In Nigeria, for example, E&M revenue is set to rise at 19.3 per cent CAGR to reach US$10.8bn in 2023 from US$4.5bn in 2018. Nigeria's E&M revenue is dominated by internet access in 2018, and the figure will rise to 81 per cent in five years' time. Although the internet dominates much of the revenue there is still room for improvement in service. Outside of internet access, TV and video will push towards US$1bn in revenue by 2023 after adding US$172mn over the five years.

Elsewhere in West Africa, Ghana's E&M industry is set for the fastest growth of any of the countries considered in the Outlook,

The growing segments of virtual reality, augmented reality and mixed reality will accelerate as a result of 5G

forecast to rise at a 19.8 per cent CAGR to reach nearly US$3bn by 2023. This comes after the country's E&M market rose 36.3 per cent year-on-year in 2018, to reach US$1.2bn. TV and video are the largest contributors in terms of non-access revenue. Over two-thirds of Ghana's TV industry is attributable to advertising revenue, with the subscription TV market limited and struggling for growth.

Meanwhile, in the east, Kenya's E&M market is set to see growth at 10.3 per cent CAGR over the next five years, reaching nearly US$3.0bn in 2023. In 2018 the market rose by 13 per cent year-on-year to reach US$1.8bn. Internet access is integral to this revenue and growth, but not quite to the extent that it is in Nigeria. TV and video are also major contributors to overall revenue, responsible for 17 per cent of Kenya's total in 2018.

Tanzania's total E&M revenue rose 17.2 per cent year-on-year in 2018, reaching US$598mn. A CAGR of 18.3 per cent will see the market stand at US$1.4bn by 2023.

Between them, the five countries considered in the Outlook, will add US$13.1bn in revenue over the next five years, a CAGR of 11.9 per cent. This is indicative of the still-strong capacity for organic growth across the countries, with many millions of consumers seeing improvements in their discretionary incomes over the next five years that will enable them to enjoy E&M experiences.

Vicki Myburgh says, "The breakneck pace of technological progress is the catalyst for growth, as internet access revenue rises drive overall revenue forward. But away from this, trends and norms differ greatly by country, with markets firmly resisting easy characterisation.

"All of this means that companies that want to position themselves for a successful future will have to focus intently on consumers, innovate and experiment continually and be prepared to make significant investments," she concludes. ✆

Solar power
meets telecoms...

...but not necessarily in the way you'd expect. Mohsen Mohseninia, VP Market Development, EMEA, Aeris, tells Phil Desmond how IoT is helping to bring affordable solar energy to rural parts of Africa.

FENIX INTERNATIONAL, A next-generation energy company, is providing cost-effective solar energy solutions to households via an expandable, lease-to-own solar home system. But what part does telecommunications – and in particular IoT – play?

Firstly, some background. Fenix International's ReadyPay Power is an expandable, lease-to-own solar home system providing lighting, phone charging, TV and radio, financed through affordable instalments over mobile money. Fenix combines rich customer payment histories with additional data sources to create a credit score that enables those living off-grid to access both power upgrades and other life-changing loans.

Solar panels are fitted to the roof of the customer's house; they are connected to a rechargeable battery. Alongside this, customers are given cellular connectivity to help with their payment plan and equipment such as lights and fans that work with solar power.

The solution can be used in any remote area, due to a partnership with Aeris, an IoT SIM provider. As Mohsen Mohseninia, VP Market Development, EMEA, Aeris, points out, the SIMs are carrier-agnostic. Thus, he says, each one "can connect the device to the strongest network in that particular area, making connectivity possible in any location". Working with Aeris, Fenix devices have access to a range of technology including LTE-M, NB-IoT, LTE, and 2G/3G.

Mohsen Mohseninia: "Connectivity is possible in any location"

Mohseninia adds, "Fenix is now providing clean energy to over 500,000 households that are off the grid in Africa."

Financing is enabled by mobile money. Customers make a deposit that enables them to take home their kit and self-install the system at their house. They then begin to repay their loan for the device – usually over 12 to 30 months – with repayments starting from as little as US$0.14 per day. As the customer repays the loan, the Fenix system locks and unlocks automatically – using Aeris SIM cards over the GSM network to ensure this is achieved in real time – allowing the power system to serve as collateral for the loan. That means no customer will ever be in debt to Fenix.

Mohseninia says, "Once a customer has repaid the entire loan, they then have access to free, clean, and safe power for the life of the system. That means access to energy for years to come without the threat of having to consistently pay bills that they cannot afford."

There's a data-related benefit too. Having this constant connection, Fenix gains data in real time and is therefore able to service clients better. "For example, Fenix is able to manage devices remotely without the need

for having a call-out team on stand-by," Mohseninia says. He adds, "Because upkeep, payment and reporting are done remotely in real time, there is no need for costly call-outs or additional services charges."

IoT can forestall or quickly identify a number of issues, keeping costs down at the same time. For instance, Fenix is able to manage lockout on any device remotely – meaning there is no need to travel across Africa – so no customer is without electricity for long. Additionally, further maintenance of devices, such as needing to update firmware or fixing a bug, can be actioned from headquarters instantly. Mohseninia adds, "Real-time data insights also mean that Fenix can access current key account information on the LCD display and receive granular device reports from the field, all of which are as accurate as if there was a service person with the customer."

The result? "With the real-time analytics in place, this also provides customers with the certainty that they will not pay for energy that is unused, nor will they rack up debt if the device continues running without them paying their monthly contribution."

And all the benefits for consumers apply to businesses. For example, the solution is suitable for start-up businesses in rural Africa that have small margins but need energy to survive. "Setting up a plan enables them to get instant access to solar energy so they can start trading quickly. In this instance, the business owner could set up a monthly repayment with Fenix and know that, in the long term, this sets up the business for free energy." ✆

Because upkeep, payment and reporting are done remotely in real-time, there is no need for costly call-outs

Infinera presents new hardened TSN solution for 5G and fibre deep applications

NETWORKING SOLUTIONS PROVIDER Infinera has announced the availability of the Infinera EMXP-XH800, an X-haul-optimised packet optical switch purpose-built for Time-Sensitive Networking (TSN). Part of Infinera's XTM Series, the EMXP-XH800 is Metro Ethernet Forum (MEF)-compliant and builds on the company's innovation, delivering ultra-low-power, low-latency, and high-density packet optical solutions designed to help network operators cost-effectively deploy challenging 5G and fibre deep applications.

The EMXP-XH800 enables mobile operators and wholesale providers to cost-effectively deliver Common Public Radio Interface (CPRI), eCPRI, and Ethernet-based X-haul transport services for 4G/5G with lower latency and industry-leading synchronisation, including a broad range of Ethernet service and resiliency options. The EMXP-XH800 extends the benefits of the XTM Series' widely deployed

EMXP range for all Ethernet aggregation and backhaul applications, increasing switching capacity, improving the EMXP's already impressive synchronisation performance, and adding capabilities such as TSN to support current and new requirements as more networks evolve to 5G.

"In many regions, commercial 5G launches have begun, but the move from initial deployments to mass-market 5G is a significant step that has major ramifications for the transport network," said Sterling Perrin, principal analyst, optical networking & transport at analysis company Heavy Reading. "As operators move to advanced 5G services, packet transport networks will be essential for lowering costs and boosting efficiencies. Heavy Reading research already shows strong operator interest in Time-Sensitive Networking for fronthaul. We expect this interest to increase."

Gutermann unveils NB-IoT-based water leak detection solution

GUTERMANN, A LEADER in intelligent water loss technologies, has launched Zonescan NB-IoT – the water leak detecting noise logger based on Narrowband Internet of Things ("NB-IoT") for permanent monitoring of water distribution mains.

Coinciding with the first World Water Loss Day on 4 December, Gutermann unveiled the product at the North America Water Loss exhibition. Successful pilot projects with the Zonescan NB-IoT have been concluded in France, the UK and in Australia.

NB-IoT is a new cellular communication standard optimised for machine-to-machine data communication in smart cities. NB-IoT significantly outperforms conventional 3G and 4G technology, as it consumes 5-10x less power and has significantly improved underground coverage. Telecom operators worldwide have announced plans for complete NB-IoT coverage.

The Zonescan NB-IoT logger is

Zonescan NB-IoT

Gutermann's first cellular logger and complements the company's RF-based Zonescan Alpha system, which is used in over 300 cities around the world.

Zonescan NB-IoT is a correlating system, which means that the cloud-based Zonescan NB-IoT software automatically compares the data of all neighbouring sensors every day to identify even quiet leaks. A correlation indicator provides information about the area in which the leak has been identified, neatly displayed on a Google Maps-enabled user interface.

Orange and itel launch Sanza 4G version to generalise mobile internet access

ORANGE IS PARTNERING with itel and KaiOS Technologies, maker of the operating system for smart feature phone KaiOS, to launch a new 4G version of the Sanza Phone, "Sanza XL".

This mobile phone with voice recognition functionalities is on offer for around US$28 in Botswana, Cameroon, Côte d'Ivoire, Egypt, Jordan, Mali and Senegal.

Orange Group, with its presence in 19 countries in Africa and Middle East, has planned for the launch of Sanza XL in other countries in 2020.

The Sanza XL has a bigger screen than the Sanza at 2.8', an improved 2 megapixel camera, and 4 GB of internal memory for more storage and high-speed 4G access, while retaining battery life of up to seven days depending on usage.

The device enables access to over 200 essential applications, including: WhatsApp to send voice messages in any language, Boomplay, YouTube, Facebook and the Google Assistant to control certain device functions with your voice.

Orange applications that are available on the phone include My

Sanza XL launched in seven countries.

Orange, Orange Money and Livescreen to enable users to keep up-to-date on their favourite topics.

Orange Money, its mobile-based money transfer and financial services offer, is available in 17 countries and has 45 million customers.

Orange, a multi-service operator and partner of the digital transformation, provides its expertise to support the development of new digital services.

Workonline rolls out Remote Cloud Connect services

WORKONLINE COMMUNICATIONS, A pan-African network service provider, has launched Remote Cloud Connect, facilitating access to cloud services for Workonline customers over a dedicated Ethernet Virtual Private Line (EVPL) service.

This low-latency cloud solution enables customers to connect to cloud services such as AWS Direct Connect, Microsoft Azure Express Route, Google Cloud, Oracle and IBM cloud platforms more securely and transparently from any country where Workonline has a presence.

Benjamin Deveaux, head of business development at Workonline Communications, says that the aim is to empower customers by enabling them to connect to the cloud through their use of the high performance Workonline backbone. "As a wholesale provider of IP transit services across Africa, we are continuously innovating to provide our ISP clients with more stable and reliable Internet services in Africa. By leveraging global cloud exchange platforms like Teraco's Africa Cloud Exchange we can offer our ISP customers a more secure remote connection to a cloud provider of their choice. Through Remote Cloud Connect, clients will benefit from a low-cost, high-performance connection with excellent local support," he explains.

In line with the predicted growth of cloud across the continent, research company Xalam Analytics recently published its report 'The rise of the African cloud', and says that for African markets, cloud, virtualisation and the broader evolution towards serverless computing are the most disruptive technology developments since the advent of the mobile payment revolution. Few other segments in the African ICT space are as likely to generate an incremental US$2bn in top line revenue over the next five years, and at least as much in adjacent enabling ecosystem revenue.

Deveaux says that Workonline sees potential across East and West Africa within the remote connectivity to cloud services space in particular.

Samsung and IBM bring 5G and AI-powered mobile solutions

SAMSUNG ELECTRONICS HAS announced a new joint platform leveraging IBM Cloud and AI capabilities, and Samsung's mobile offerings. The collaboration between the two companies brings together IBM's capabilities with the Samsung Galaxy ecosystem, including Galaxy Tabs, Galaxy smartphones, and Galaxy Watches, for enterprise customers.

"The mobile industry is undergoing a dramatic transformation and opening up new ways of business by bringing innovative technologies like 5G, AI and IoT to enterprises," said DJ Koh, president and CEO of IT and Mobile Communications Division, Samsung Electronics. "We believe open collaboration is central to unlocking these opportunities and look forward to driving digital transformation for our enterprise clients in the 5G era with IBM and Samsung's mobile devices and connected services."
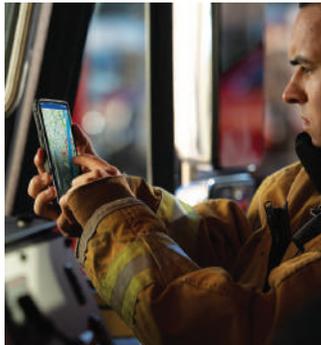
Photo: IBM

Built on the IBM Cloud, the new platform help improve the work environments for police officers.

The collaboration is expected to help improve the work environments for police officers, firefighters and other first responders.

Built on the IBM Cloud, the new platform will now position clients to track a worker's vital signs, including heart rate and physical activity, to determine if that person meets their definition of distress and dispatch help.

Tizeti launches high-speed 4G LTE in Nigeria

TIZETI, WEST AFRICA'S solar-based internet service provider, has launched its 4G LTE network in Nigeria, with plans to extend to leading cities in Nigeria and West Africa in 2020. Announcing the rollout of high-speed 4G services to Rivers, Ogun and Edo States, in a first phase launch, Kendall Ananyi, Tizeti's CEO, promises its 4G connectivity will empower more Nigerians in Nigeria's South-South and South-West states, stimulate economic activities and provide unlimited access to affordable and reliable broadband services.

This launch follows the build of brand-new, solar-powered, 4G-capable towers in Port Harcourt, Rivers State, where Tizeti will offer its first 4G and ISP services, to be followed by new towers in Ogun and Edo.

Ananyi believes that this new solution will boost internet penetration in the new states and contribute to accelerating digital transformation across Nigeria. He says, "Access to affordable and reliable unlimited internet connectivity has been an intractable problem for a lot of Nigerian businesses and residential customers, especially for people in Edo, Rivers and Ogun States. To address this and provide a sustainable and cost-effective solution, we leverage our solar-powered, always-on towers and robust internet bandwidth from MainOne to create a low CAPEX and OPEX network of owned and operated towers. This allows us to offer customers unlimited internet at 30 to 50 per cent the cost of traditional mobile data plans."

The launch of its 4G network provides Tizeti the opportunity to drive the growth in demand for e-commerce, music, interactive games and video consumption in Nigeria, especially from popular social media apps that have integrated video calling and video stories.

Nominet's spectrum management expertise to advance TIP's OpenCellular platform

NOMINET, A LEADING name in internet registry solutions, cyber security services and dynamic spectrum management, has announced that it is working with the Telecom Infra Project (TIP), whose aim is to help the industry build the networks of the future, to help develop OpenCellular, the open source wireless access platform.

OpenCellular aims to improve connectivity in remote areas of the world by reducing the cost of putting the necessary infrastructure in place. OpenCellular will benefit from Nominet's expertise in TV White Space, dynamic spectrum access and its WaveDB platform – which can support different frequency bands and regulatory domains.

As spectrum sharing is key to enabling delivery of cellular services in remote areas, Nominet will play an important role in the project group by contributing to the development and subsequent implementation of open source software components of the wireless architecture.

The OpenCellular project aims to ensure cellular connectivity is more

affordable and therefore adopted more broadly. The open source platform is designed to support a range of communication options, from a network in a box to an access point supporting everything from 2G to LTE.

Kashif Ali, czhair of TIP's OpenCellular Project Group says, "We're excited to welcome Nominet to the OpenCellular project group and look forward to their contributions as a TIP member. Their work will help us fulfil OpenCelluar's mission of enabling better rural connectivity, which has the potential to dramatically improve the lives and economic opportunities of people living in rural regions."

Pasquale Cataldi, VP Wireless Technology at Nominet, says, "We are looking forward to applying our experience in TVWS and spectrum management for OpenCellular, with the end goal to ultimately get more people connected."

He adds, "Multiple options for connectivity is a good thing, and spectrum sharing will enable more open use of that."

CES 2020 Innovation Award Honoree for Valens in-vehicle ultra-high-speed connectivity chipsets

SEMICONDUCTOR PRODUCTS PROVIDER Valen has announced that its in-vehicle ultra-high-speed connectivity chipsets have been chosen as a CES 2020 Innovation Awards Honoree. Valens' latest chipset – the VA608A – brings the industry's most advanced automotive connectivity technology for smart and connected vehicles, providing resilient ultra-high-speed, long-distance data transmission for connected and autonomous vehicles.

"We are honored to have our technology chosen as an Innovation Awards Honoree," said Daniel Adler, vice-president and head of Automotive Business Unit at Valens. "We are continuously engaged with the automotive OEMs and Tier-1 leaders to understand the challenges of the market today, and to make sure we can address these with our solutions. Innovation is one of Valens' core values, and we are proud to have introduced the industry's highest-performing, next-generation automotive chipsets, enabling unprecedented ultra-high-speed connectivity."

Valens Automotive technology enables the tunneling of simultaneous streams of high-throughput data to support the many cameras, sensors, LiDARs, and displays that take our vehicles to the next level of in-vehicle connectivity. Valens' chipsets provide a single, holistic, cost-effective approach to address the challenges of connectivity. Valens' superior physical layer (PHY) significantly reduces software complexity, with proper mechanisms to ensure high resilience, such as error correction (RTS), adaptive modulation, and real-time noise cancellers.

Valens' technology has been recognized by the MIPI Alliance as the most resilient technology for in-vehicle ultra-high-speed connectivity. Valens is leading the market with innovative connectivity concepts for overall lower total system costs, more bandwidth and support for increased number of applications. The CES Innovation Awards judges are experts in their fields.

Temenos delivers core banking platform for Ghana's second bank

CONSOLIDATED BANK GHANA Limited (CBG) has gone live with T24 Transact from banking software solutions company Temenos to power its operations for retail and corporate banking. Temenos' cloud-native, cloud-agnostic platform will empower CBG to rapidly and cost-effectively deliver digital banking services and customer experience.

CBG formed in August 2018 from the selected assets and liabilities of five insolvent Ghanaian banks: Sovereign, BEIGE, Royal, Construction and uniBank, with the subsequent inclusion of Heritage and Premium Bank. Each erstwhile bank operated independently on the Temenos core banking software. CBG therefore selected Temenos to seamlessly migrate the disparate systems onto a single comprehensive platform. The migration means CBG can consistently deliver customer experiences and transformative digital banking services to any customer, regardless of their location.

Temenos' architecture is set to deliver the agile scalability needed for CBG to realise its growth aspirations and support financial inclusion in Ghana. These capabilities will be fundamental in supporting CBG's core business objectives, which include deposit mobilisation, strategic asset growth, non-funded income, and cost containment.

The formation of CBG is as a result of the regulator-driven consolidation sweeping the Ghanaian banking market. In September 2017, the central bank issued a directive that raised the minimum capital requirements for all universal banks in Ghana from US$22.8mn to US$73.4mn. As a result, the number of banks in Ghana has fallen from more than 34 to 23. This banking sector cleanup has seen larger banks, like CBG, emerge with the capacity and resource to foster financial inclusion.

Nokia and Globalstar to roll out intelligent newtwork applications

GLOBALSTAR AND NOKIA have developed a solution that allows enterprises to deploy intelligent network applications in a dedicated spectrum band. The solution is based on Nokia's industrial-grade private wireless Digital Automation Cloud platform together with Globalstar's 3GPP Band 53 spectrum.

The solution was showcased at the Globalstar stand at AfricaCom, at the Cape Town International Convention Centre on 12 – 14 November 2019.

"Providing private LTE/4.9G solutions to organizations and countries require spectrum, and this is where we come in," says Barbee Ponder, Globalstar general counsel and vice-president of Regulatory Affairs. "We have globally-harmonised spectrum that we utilise for our Mobile Satellite Services (MSS), and we are currently obtaining administration-specific authorizations globally to provide terrestrial LTE services in this band – which happens to be a perfect fit for Nokia's private LTE/4.9G offering."

Both companies successfully collaborated on the 3rd Generation Partnership Project (3GPP) process to standardise this specific band of spectrum, which has been designated as Band 53.

Their strategic alliance further expands the opportunities for both Globalstar and Nokia in terms of development, innovation and application across countries, industries, and use cases.

Nokia is already offering Band 53 access points and user end devices (UED's) such as modems, ruggedised handsets and tablets.

G-Core Labs introduces cloud media platform for video broadcasting worldwide

EDGE AND CLOUD solutions provider G-Core Labs has presented a unique media platform for video broadcasting and streaming that allows the deliver of video content to any device in Full HD, 4K and other formats worldwide. There is no need for individual servers for transcoding, content delivery network or technical experts to arrange a broadcast.

Cloud media platform by G-Core Labs enables TV and radio broadcasts, marketing videos, sporting events, poker tournaments, music concerts or personal video blogs to be broadcasted without delays and buffering in full HD, 4K, 3D and 360º worldwide.

The platform combines all the necessary tools for live broadcasting and video on demand: transcoding, cross-platform HTML5 player, cloud storage and content delivery network. The functionality can be managed from a convenient control panel or via the API. It is possible to monetise content via ads bypassing blocking.

The new service from G-Core Labs bases its operation on a powerful infrastructure: transcoding servers are located in the USA, Europe, Russia and the CIS countries. Once converted in real time, video streams are delivered via the company's own content delivery network to any device in any country.

"From technical point of view, our media platform is built on the best infrastructure in North America and Europe. In addition, we have one of the most modern and fastest-growing content delivery networks in the world. The key innovation of the service is a unified control panel for managing streaming, CDN, cloud storage and detailed analytics on statistics by views," said Andre Reitenbach, managing director of G-Core Labs.

With the new media platform by G-Core Labs anyone can download a video, connect a player for free, protect, deliver and monetise any content.

"Also, our service provides a scheduled broadcasting mode where the user uploads the videos and creates his own TV channel or pseudo live broadcast," said Andre Reitenbach, managing director of G-Core Labs.

Growth in cryptocurrency transactions in South Africa calls for stronger security measures

ACKNOWLEDGING NATIONAL CYBERSECURITY Awareness Month, which took place in October 2019, peer-to-peer (P2P) bitcoin marketplace and digital wallet provider, Paxful, have underscored the escalating need for security awareness amongst users when trading in digital currency.

Virtual currency-related crime is on the rise in South Africa, with hackers using peoples' phones to mine cryptocurrencies according to cybersecurity experts.

As the popularity of crypto assets such as bitcoin grows, various South African authorities including the South African Reserve Bank (SARB) have started the process for reviewing the impact of the crypto sector on consumers and the impact on personal financial security.

With three million wallets globally, and South Africa being one of its top markets, Paxful processes over 50,000 trades a day.

The fluctuating price of the

Photo: Adobe Stock

The popularity of crypto assets such as bitcoin is growing.

world's most prominent digital currency has not deterred South Africans either as Paxful has noticed a massive 2800 per cent increase in trades from South Africa this month compared to October 2018.

Johannesburg, Pretoria, and Cape Town are the three cities within the country that lead in number of users. Paxful has noted that the number of trades across the African continent has grown by 64 per cent when comparing the same time period.

AI, telematics, big data analytics are creating opportunities for greater autonomy in CVs, reveals Frost & Sullivan

COMMERCIAL VEHICLE ORIGINAL equipment manufacturers (CV OEMs) and Tier-1 suppliers are expected to increase investments in disruptive technologies with demonstrated ability to decrease supply chain complexity and increase efficiency. Transportation, which is at the core of supply chain logistics, is undergoing a transformation with the help of technologies such as Artificial Intelligence (AI), Internet of Things (IoT) and telematics, data analytics, and blockchain. The growing need to bring these technologies to the market quickly to grab the first-mover advantage is resulting in a series of collaborations and M&As with technology providers.

"The rapidly rising use of telematics and IoT in CVs is generating vast data sets, which need to be utilized effectively through Big Data analytics," said Vineeth Purushotham, research analyst, Mobility. "Meanwhile, this convergence of technologies is prompting OEMs to develop innovative business models such as digital freight brokerage services and truck-as-a-service. There will also be greater OEM focus on truck leasing, financing, used truck sales, and tractor-trailer integration."

Frost & Sullivan's "Global Supply Chain Logistics Trends and Challenges and Their Implications on CVs, 2018–2025" report analyses the trends and challenges in the supply chain logistics industry and their implications on CVs. It presents the vital mega trends that will influence the global freight transportation industry as well as the new business models. It examines the major technology companies and start-ups entering and investing in the industry and studies the implications of crucial technological disruptions on stakeholders.

"Urban restrictions and emission regulations across the globe are enabling last-mile delivery innovations that will increase the uptake of electric CVs," noted Purushotham. "Medium- and heavy-duty CV OEMs such as Volvo, Scania, and Daimler are investing heavily in innovations in electric/fuel cell powertrains. Light CV manufacturers, on the other hand, are collaborating and partnering with technology companies and logistics providers on urban delivery innovations."

Digitisation of the supply chain is helping OEMs tackle key issues of complexity and increased service requirements. For enhanced customer value and growth opportunities, CV OEMs and logistics service providers will look to develop a connected supply chain ecosystem.

Talia further strengthens presence in Africa

TALIA, A COMMUNICATIONS solutions provider serving the Middle East, Africa, Europe and the Americas, has announced the successful completion of beta testing of its Ka-band High Throughput Satellites (HTS) services in additional African countries including Cameroon, DRC, Gambia, Ghana and Congo.

In addition to the completion of beta testing in multiple West and Central African countries, Talia announced that it has signed up three additional local resellers to provide fast and reliable Ka-band services to a diverse customer base throughout Africa.

Talia is exploring opportunities for collaboration with several other governments and resellers across Central, East and West Africa.

Digital tool to help African youth learn coding

THE AFRICAN DEVELOPMENT Bank (AfDB) and technology firm Microsoft have launched the digital training platform 'Coding for Employment', an online tool to provide African youth with digital skills across the continent.

The platform, launched at the 2019 African Economic Conference in Sharm El Sheikh, Egypt, aims to promote a continuous learning culture among young people and build their capacity to shape the continent's future.

Hendrina Doroba, the bank's acting director for Human Capital, Youth & Skills Development, said, "The youth employment and skills development challenge is a complex issue that requires systemic thinking and bold partnerships ... to address the existing skills gap and link youth to decent and

Photo: Adobe Stock

The Coding for Employment Programme is part of the bank's strategic agenda to create 25mn jobs by 2025.

sustainable employment."

The platform teaches technical courses such as web development, design, data science and digital marketing and will be constantly adapted to respond to market demand. It is accessible on mobile devices, even in low internet connectivity settings and has an easy-to-navigate, secure and private interface.

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