

For communications professionals in north, west, east & central Africa

NORTHERN AFRICAN WIRELESS COMMUNICATIONS

DECEMBER / JANUARY 2023

Volume 21 Number 3

- Forging Africa's space ambitions
- African data centres: towards net zero
- Improving mobile roaming



*Transforming
digital Africa*





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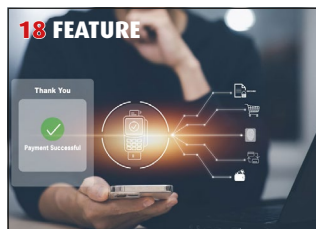
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5G to contribute \$26 billion to Africa by 2030

5G mobile networks are expected to represent, across their entire value chain, an economic contribution of \$26 billion in Africa by 2030, according to the GSMA.

The GSMA expects the number of 5G subscriptions to reach over 340 million on the continent by the end of the current decade, or 20% of total mobile service subscriptions. Together, 4G and 5G are expected to account for almost 66% of total mobile phone service subscriptions in 2030, while 2G will drop to 2% and 3G to 32%.

The report also states that 5G

will improve connectivity for homes and businesses through fixed wireless access (FWA) connections, accelerate the transformation businesses and meet the needs of young African generations in terms of connectivity, since it allows access to digital services such as live video streaming, games and metaverse applications, which require high-speed networks performance.

5G will also help stimulate technological innovation. While Africa has a vibrant tech ecosystem supported by a network of over 600 tech hubs and start-up incubators,

5G-specific characteristics such as low latency and high device density will create new opportunities to develop innovative solutions adapted to the local context.

A survey conducted by the GSMA among a representative sample of consumers in Africa showed that 37% of individuals surveyed believe that the main obstacle to the adoption of 5G mobile services in Africa will be the cost of compatible smartphones; followed by the lack of network coverage (27%); the lack of information on uses (22%); and the satisfaction of basic needs



with previous generations such as 4G and 3G (14%).

Among African businesses, the main barriers to 5G adoption are lack of awareness of the benefits of such networks (29%), lack of use cases and proven applications (29%), lack of network coverage (29%) and insufficient technical skills of staff (12%).

INTT and FCC partner on telecoms

The National Telecommunications Authority of Tunisia (INTT) has signed a Memorandum of Understanding with the USA's Federal Communications Commission (FCC) to develop the telecoms sector in their respective countries.

INTT and the FCC will collaborate in areas of mutual interest, to foster cooperation and to share technical and policy expertise and best practices, through bilateral meetings, seminars, training, and workshops. This collaboration will include issues of telecommunications policy; emerging trends, including 5G and 6G; rural connectivity and deployment of broadband infrastructure; consumer protection, complaints, awareness, and dispute resolution; emergency communications.

The collaboration between the INTT and the FCC should enable the two regulators to better regulate their telecom markets and to more easily resolve the challenges they face.

In mid-January, the US Embassy in Tunisia facilitated a 5G security workshop for Tunisian partners with the US Department of Commerce, Federal Communications Commission (FCC), and other US and international partners to share best practices. The workshop was launched with the participation of Chargée d'Affaires a.i. Natasha Franceschi and minister of Communication Technologies Nizar Ben Neji.

Fibre optic consultation launched

The Mauritanian Ministry of Digital Transformation, Innovation and Modernization of the administration has launched consultations on fibre optic infrastructures. These meetings, which saw the participation of telecommunications operators, aim to improve the quality of telecom services provided to the population.

The consultations come at a time of increasing criticism of the quality of services provided by telecommunications operators in the country. According to the government, the poor quality of telecom services is mainly due to weak infrastructure and the lack of coordination between operators.

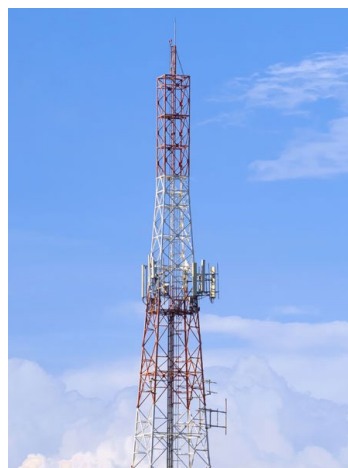
The initiative comes shortly after the Regulatory Authority published the results of a mission to monitor the quality of services offered



by electronic communications operators carried out from 1-30 November 2022. The regulator reportedly "notified the grievances to the operators Mauritel SA, Mattel SA and Chinguitel SA, informing

them of its intention to apply sanctions due to the breaches noted and giving them the opportunity to consult the file in order to present any observations, within a ten-day period."

Guinée Télécom to launch operations



The Guinea Telecommunications Company (SOTELGUI), now Guinée Télécom, will be operational before the end of January 2023, according to Ousmane Gaoual Diallo, minister of Posts, Telecommunications and the Digital Economy.

The operationalization of Guinea Telecom is the culmination of actions undertaken since 2013 by the Guinean government to relaunch the incumbent operator SOTELGUI, which had gone bankrupt. In March 2021, the African Development Bank (AfDB)

granted its support to the Guinean State within the framework of this project.

With the relaunch of Guinea Telecom, the Guinean government is acquiring a strategic tool through which the country will be able to enjoy independence in its communications, meet the growing needs of populations for quality telecom services, support the country's digital transformation, introduce more competition in the market and take greater advantage of the growing financial benefits of the sector.

Viasat and Microsoft partner for internet access

Microsoft and Viasat have announced a new partnership to help deliver internet access to 10 million people around the globe, including 5 million across Africa.

Viasat is the first satellite partner to work with Microsoft's Airband Initiative and together, they will deepen Airband's work in the Democratic Republic of Congo, Nigeria, Guatemala, Mexico, and the US, and expand the program to Senegal and Angola to deliver much needed internet connection.

This first of its kind global partnership for Airband is an important step in reaching the initiative's expanded goal of delivering internet access to a quarter of a billion people across the world, including 100 million people on Africa, by the end of 2025.

Microsoft and Viasat will combine expertise and assets to help enable telehealth, distance learning and education, precision agriculture, clean power and other services to reach new areas through the transformational provision of power and connectivity. The companies will collaborate to provide and pilot technologies including, but not limited to, GEO and LEO satellites and fixed wireless.



"While the African opportunity is immense, one of the challenges facing the continent is infrastructure expansion which would enable the acceleration of digital transformation and facilitate a connected African continent," said Kunle Awosika, managing director, Africa Transformation Office. "Critical infrastructure enablers are needed to accelerate digital transformation and the adoption of digital technologies. The Airband Initiative is vital in helping to accelerate broadband access for rural communities."

Universal, affordable internet access is part of the United Nations' Sustainable Development Goals (SDGs), and by focusing a large portion of this new partnership on Africa, Microsoft and Viasat are working to deliver connectivity

and digital literacy for better education, healthcare, and economic opportunity in critical markets.

"Connecting the world is an expansive and challenging goal, and we believe it is equally important that it is done in a way that is sustainable, responsible, and inclusive," said Mark Dankberg, CEO and chairman, Viasat. "Viasat's mission is to keep space safe and accessible for everyone by responsibly using it as a shared resource to benefit humanity. The partnership with Microsoft is another important step in bringing affordable internet service across Africa, Latin America, and the US, as both companies continue breaking down barriers to bridge the digital divide and make significant progress towards digital equity and inclusion."

Telecom Egypt activates first eco-friendly wireless network tower

Telecom Egypt, in cooperation with Huawei Technologies, has announced the activation of the first eco-friendly wireless network tower made of Fiber Reinforced Polymer (FRP).

Through this cooperation, Telecom Egypt becomes the first operator in Africa to install this green tower. The material used for building the tower emits less CO2 than steel, the alternative. Highly resistant to wind and high temperatures, the tower is approximately 18m high, with a special camouflage fence made of environmentally friendly materials. It supports wireless network antennas and radio units featuring the latest energy-saving technologies and partially powered by solar cells.

Managing director and CEO of Telecom Egypt, Adel Hamed, said that the implementation of this type of

mobile site in Egypt is unprecedented. It underscores the efforts of all those in charge of the project, and their ability to implement the entire site in a timely and systematic manner, as per the highest international green quality standards.

Hamed explained that Telecom Egypt's green sites also feature the latest radio access network technologies, such as radio units optimized to offer top performance with 40% less energy consumption than traditional sites.

These new technologies also contribute to improving the signal quality by about 20%, compared to regular antennas, which means that fewer base stations need to be installed, resulting in a lower environmental footprint and an additional step towards environmental sustainability.

Jim Liu, CEO of Huawei Egypt, confirmed that the company is focused on developing ICT infrastructure in Egypt. Liu added that Huawei is keen to provide suites of innovative technologies to save energy to build a sustainable low-carbon future. He also highlighted recent studies that show that FRP poles produce 43% less carbon dioxide emissions, compared to steel, and reduce end-to-end energy consumption by nearly half during manufacturing and shipping.

Energy solutions for green sites depend on passive cooling, which eliminates the need for air conditioning, and thus leads to a 47% reduction in energy consumption compared to sites with equipment rooms. The site is fitted with solar panels providing about 2KW of energy, leading to an additional 20% reduction in carbon dioxide emissions.

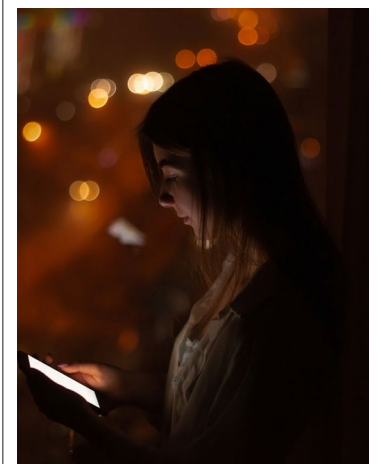
Mobile coverage near universal for Mauritius, Morocco, and Botswana

Out of 34 countries surveyed from 2019 to 2021, Afrobarometer has identified Mauritius, Morocco, and Botswana as the three markets that show near universal mobile phone coverage, 99%.

Eight other countries have a telecom coverage rate of 95% or more. This indicator reflects a high probability of people accessing high-speed data services, as well as mobile financial services and other value-added services, allowing them to enjoy the many related benefits.

Overall, the total average telecom coverage across the 34 countries surveyed by Afrobarometer is 87%. With 61% of African countries (33 out of 54) displaying a telecom coverage rate equal to or greater than 70%, there are still 21 countries (39%) where investments are needed to improve people's access to telecoms.

But telecom coverage alone does not guarantee digital inclusion. African countries must also respond to the challenge of access to appropriate telephones which still hinders access to the Internet. As per Afrobarometer, more than eight in 10 citizens (84%) personally own a mobile phone. However, while phone ownership is relatively high, less than half (45%) of adult Africans have internet access on their phone, including only 20% of Malawians and Nigeriens and 16% of Ethiopians.



Airtel Nigeria and UNICEF to connect 620 primary schools to digital learning

Airtel Nigeria and the United Nations Children's Fund (UNICEF) have signed a memorandum of understanding to connect 620 primary schools in Nigeria to digital learning by the end of February 2023.

The 'Reimagine Education' initiative aims to provide more than 300,000 school children with the Internet and devices to access a study program for free via dedicated platforms.

The partnership is scheduled to last five years. During the first year, Airtel and UNICEF will

be responsible for providing all necessary resources for digital learning to the 620 schools.

On 1 November 2021, UNICEF and Airtel Africa agreed to collaborate on the 'Reimagine Education' project in thirteen telecom operator markets, namely Chad, Congo, Democratic Republic of Congo, Gabon, Kenya, Madagascar, Malawi, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia. Airtel agreed to invest US\$57 million in this initiative.

For Airtel Africa, this new partnership is in line with the 'Our Community' pillar of its new

sustainable development strategy unveiled in October 2021, and which prioritizes access to education. In Nigeria, the free internet connectivity that Airtel will provide under this project is worth US\$1.3 million.

"With this program and partnership, we are bringing both world-class education and digital inclusion to thousands of underprivileged children and our goal is to connect, empower and transform as many children and young people as possible. Education is power, and connectivity provides the leverage to become unstoppable.



At Airtel, we are confident that this investment will not only transform lives, but create a wonderful future for millions of Nigerian children and young people," said Surendran Chemmenkotil, managing director of Airtel Nigeria.

Djibouti to gain spaceport

The Republic of Djibouti has signed a Memorandum of Understanding with Hong Kong Aerospace Technology Group Limited and Touchroad International Holdings Group to develop an international commercial spaceport in the northern Obock Region of Djibouti.

This is a preliminary agreement between the parties to build a spaceport which is expected to comprise seven satellite launch pads and three rocket testing pads. The project is estimated to cost around US\$1 billion and is expected to take five years to complete.

In 2022 Djibouti announced that the country's space programme is working on launching two satellites, Djibouti 1A and Djibouti 1B. These projects will facilitate human capacity development as well, by sending ten engineers to the University Space Centre of Montpellier to learn about small satellite development.



MTN Uganda targets cloud-native 5G capable core network

MTN Uganda has announced a five-year strategic partnership with Huawei Technologies to transform and modernize its network towards a cloud-native 5G-capable core network. The 'MUNA project' is part of the greater MTN Group MUNIC strategy that will see MTN Uganda's network evolve into an all-cloud core network.

"Through this project, we are modernizing our core network to get ready for 5G in the near future in Uganda. However, this modernization will also help us immediately in delivering a better quality of our voice network," said Ali Monzer, chief technical and information officer at MTN Uganda.

The initiative will enable MTN Uganda to have a future-oriented network with greater service agility, innovation for both consumer and industrial verticals, differentiation, improved operation efficiency and better customer

experiences with higher data speeds and reduced latency.

"As MTN Uganda, we have always been the front runner of evolving technology in this country," said MTN Uganda Chief Executive Officer, Sylvia Mulinge. "In 2020, we were the first operator in East Africa to do a successful 5G network demonstration. While that was a non-commercial exhibition, this modernization of our network comes in as a precursor of the 5G capabilities which Uganda is going to experience soon."

The project implementation will take on a phased approach overseen by Huawei technologies for the five years. This is expected to culminate into a unification of the different existing legacy core network elements into a single vendor and simplified easy-to-manage cloud-native core network.

"I welcome the collaboration between MTN Uganda and Huawei Technologies.

We are soon launching the transition to 5G. This will not only help MTN, but other telecom companies as well to have improved Quality of Service. In this journey of digital transformation, we are running as a country, to keep pace with the rest of the world," said Hon. Dr Chris Baryomunsi, minister for ICT & National Guidance, Uganda. "This intervention is in line with the country's vision 2040 that aims at transformation of our society."

"We, at Huawei Technologies are proud to cement our 20-year strategic partnership with MTN Uganda with yet another future-oriented cloud-native 5G Core network initiative," said Gavin Gaofei, managing director at Huawei Uganda. "We are even more excited about the potential of the solution towards stripping away complexities and creating simplicity to maximize business value and best-in-class customer experiences for Uganda."

Ethio Telecom restores connectivity for 27 towns

Ethio Telecom has restored telecommunications services in 27 towns in the Tigray region, including the capital Mekele. This follows the company's repair of 981km of optical fibre out of the 1,800km damaged during the conflict that has plagued the region for two years.

Maintenance works are continuing to restore telecom services to areas of Tigray that still lack access to such services.

The partial restoration of telecom services in Tigray came a few weeks after the signing of a ceasefire agreement which put an end to the conflict which had opposed since November 2020 the regular army of Ethiopia and the forces of the Tigray People's Liberation Front (TPLF). The agreement provides for the restoration of basic services which have been cut in the region since the beginning of the war. While the government is committed

to respecting the terms of the agreement to guarantee a lasting peace, no timetable has yet been put in place for this.

The restoration of telecom services in the Tigray region has enabled thousands of people to connect there for the first time in more than two years. This should also help to further expand the Ethiopian telecom market in full liberalization and accelerate the government's digital transformation ambitions.

Africa's Digital Backbone



Poa Internet and USTDA collaborate on study to expand connectivity in Kenya

The US Trade and Development Agency (USTDA) has awarded a grant to Nairobi-based internet service provider Poa Internet Kenya Ltd. for a feasibility study to help expand affordable internet connectivity to one million households in low-income urban areas outside of Kenya.

"Poa Internet's use of fixed wireless technology is particularly well suited to urban areas. It is also a segment in which U.S. companies are particularly competitive. Our partnership will help increase access to affordable internet and contribute to the vibrant economy of Africa's cities," said Enoch T Ebong, director, USTDA.

The study will include a market assessment of 14 African countries and recommend three target markets



for Poa Internet's expansion outside of Kenya. It will also provide a detailed analysis for these markets, including a supply and demand assessment, regulatory and legal analysis, an environmental and social impact assessment, and go-to-market recommendations.

"Poa Internet has been facilitating access to unlimited affordable broadband to underserved lower-

income urban communities across Kenya," said Andy Halsall, CEO, Poa Internet. "We are delighted to form this partnership with USTDA as we continue with our journey to bring affordable internet access to Africa. This grant from USTDA will support our geographic expansion and goals of advancing inclusive, secure, and sustainable connectivity to lower-income urban communities."

Cameroon to gain from heavy investment

MTN Cameroon, Orange Cameroun and Nexttel (Viettel) have committed to a cumulative investment of 156 billion francs CFA in 2023, according to Justine Difo née Tchunkam, chair of the Telecommunications Regulatory Board (TRB).

The funds will be used to extend network coverage and improve the quality of electronic communication services.

In December 2022, the three MNOs (under the Cameroon Association of Telephone Mobile Operators (CATMO), and Camtel reached a multi-party framework agreement with the objective to improve the quality of electronic

communication services and network performance.

The MNOs have committed to deploy new infrastructure to handle the growing number of subscribers and agreed to align their services with the ITU's E-800 recommendation.

"I think what our consumers should be expecting should be an improvement in the future as we look to find lasting solutions to the challenges that are impacting the quality of services today," said MTN Cameroon CEO and incumbent chair of CATMO, Mitwa Ng'ambi.

CATMO has registered at least 1,800 optic fibre cuts and 1,000

power cuts in 2022 alone, over twice the figure recorded in 2021, which has a serious bearing on the quality of service delivered.

Minister of Posts and Telecommunications Minette Libom Li Likeng said that the TRB has suffered from a lack of requisite equipment to assess the quality of services, making it difficult to evaluate the responsibility of operators acting in bad faith.

"As from 2023, we will publish the quality of service of each operator, their applicable prices, and users will be able to choose the operator which best responds to their needs," said Likeng.

Ethiopia seeks third MNO

The Ethiopian Communications Authority (ECA) has begun the process to identify and licence the country's third telecommunications service operator.

The process is part of the government's plan to liberalise the country's telecommunications market through the introduction of competition and private sector participation.

"This is a continuation of the first successful transaction that ensured the entry of a private sector operator in the telecommunication sector in Ethiopia, which shows the government and ECA's firm commitment to introduce competition and create a high level playing field in the sector," said ECA director general Balcha Reba.

TOGOCOM deploys 1,000th site

TOGOCOM has deployed its 1000th site in Kégué. This 1000th site is the realization of the commitment and work of all TOGOCOM teams who have been working for three years on the digitalization of Togo.

The launch of the 1000th site in Kégué, opens a new series of deployments and reaffirms TOGOCOM's commitment to offer the best of fixed and mobile technology to the entire Togolese population.

Uganda gains US\$140 million loan to finance Uganda Digital Acceleration Project

Uganda's Parliament has approved a US\$140 million loan with funds earmarked for a major digital project to improve internet connectivity in the East Africa nation. Parliament approved the loan, equivalent to 523 billion Ugandan shillings, to finance the Uganda Digital Acceleration Project (UDAP).

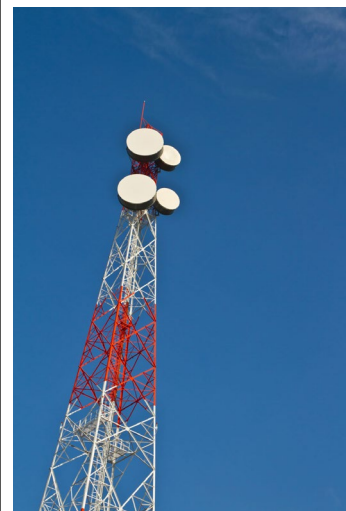
If implemented, the project will go a long way in improving connectivity in the country.

"The project is intended to

ensure that high bandwidth data connectivity is available in all major towns of Uganda at a reasonable rate; and electronic government infrastructure aimed at reducing the cost of doing business in government, improving communications between government agencies and reducing the need for officials to commute for meetings and thereby increasing efficiency," said John Bosco Ikojo, the chairperson of the Committee on National Economy.

The approved loan comes with an up to \$60 million grant element and will be sourced from the International Development Authority of the World Bank.

The key areas that the UDAP project will cover include establishing national fibre backbone infrastructure, establishing a government data centre and a district information centre, and connecting all government ministries to a single wide area network and government e-platform.



Africell gains 5G spectrum for Sierra Leone - commercial launch planned for 2023

Africell has been given Sierra Leone's first 5G spectrum allocation in a big step towards the launch of 5G services in the country. By allocating 5G spectrum to Africell, Sierra Leone has taken the lead on a continent where, to date, 5G frequencies have been assigned to operators in only seven countries.

The decision by the regulator in Sierra Leone to grant Africell 5G-level frequencies means that the company can now develop 5G connectivity with a view to launching it commercially within a year.

Africell has already pioneered 4G coverage and mobile money services in our operating markets. Receiving 5G spectrum in Sierra Leone is a big milestone. The company can now activate a long-term 5G strategy based on making 5G useful and accessible while prioritising trusted and secure network technology.

"The gradual roll-out of 5G in

Africa compared to other regions reflects obstacles including a lack of affordable 5G-enabled devices, the high cost of base stations and backhaul technology, and unreliable power. Digital literacy is also a challenge. According to the GSMA, 60% of adults in Africa lack a connection to the internet; and of those connections, 4G service accounts for only 25%. In this context, advancing 5G requires investment in infrastructure and education, as well as creative thinking about how to put 5G-enabled devices into the hands of more people – including those with lower incomes," said Ziad Dalloul, CEO and chairman, Africell. "For emerging economies like Sierra Leone, 5G can unlock vital additional productivity in sectors which drive economic growth and social development such as agriculture, mining, and healthcare. By allocating this spectrum, we are

inviting Africell to start preparing for a wider rollout of 5G in Sierra Leone which will help to transform these sectors."

"The expansion of 5G telecommunication in Africa depends on governments, investors and operators working together to resolve the most critical challenges. Fast and flexible financing is an essential condition if operators are to invest at scale in the required technologies, and governments need to continue streamlining regulations and approval systems to allow for efficient roll-out," said Daniel Kaitibi, director of PURA, Sierra Leone's telecommunications regulator. "5G capabilities have the potential to bridge the digital divide, build resilience and transform Africa's fledgling digital economy. The granting of the 5G spectrum to Africell for trial is an important step for Sierra Leone's digital ecosystem."

MTN Cameroon to gain solar-based solution

Telia Cameroon will rely on Canadian Clear Blue Technologies International's Nano-Grid smart off-grid power solution to provide its solutions to MTN Cameroon. The solution will be based on solar energy.

The partnership between Telia Cameroon and Clear Blue includes the deployment of a pilot system which is expected to be delivered in the fourth quarter of 2022. If successful, this will be followed by

an initial deployment of 50 off-grid power systems from beginning of 2023. The sites have an estimated contractual value of CAD\$1 million over five years for Clear Blue.

"Clear Blue Technologies' systems have incredible value for telecommunications. To support applications in Cameroon, we need systems that are cost effective and provide reliable solar power without the need for diesel generators,"

said Jean Baptiste Manga II, CEO of Telia Cameroon.

Increasing numbers of telecom service providers are turning to renewable energy to power their network systems with soaring oil prices and insufficient electrical power, particularly in areas rural. Clear Blue has already signed similar partnership agreements with companies like Viasat, Avanti, iSat, YahClick, 9mobile.

Telecom Namibia invests in smart city fibre

Telecom Namibia has signed a partnership agreement with OMDis Town Transform Agency (OMDis) to deploy 67.6km of optical fibre in Oranjemund at a total cost of N\$12 million, as part of a project to transform the town into a smart city.

"A smart city requires connectivity between citizens, service providers and government," said said Amanda Hauuanga, deputy chair of the board of Telecom Namibia. "Telecom Namibia understands the central role connectivity plays in a smart

city ecosystem and therefore we believe we are the most appropriate partner to help OMDis transform Oranjemund into a smart city with all things digital."

This project is part of Telecom Namibia's investment plan announced earlier this year. The company plans to invest N\$2.3 billion in the modernization of its fixed and mobile network infrastructure over the next five years.

Ultimately, this project should reinforce Telecom Namibia's existing

10,676km fibre optic backbone for a national coverage of 65%; accelerate digital transformation and connect thousands of additional households.

"The partnership between OMDis and Telecom Namibia will have a positive impact on sectors such as tourism, industrial development, healthcare, agriculture, small and medium enterprise (SME) development, education and development of real estate," said Stanley Shanapinda, managing director of Telecom Namibia.

Broadband subscriptions up in Uganda

The number of broadband subscriptions in Uganda now stands at 23.7 million after 232,000 were added between April and June 2022.

The Uganda Communications Commission (UCC) said that based on a year-on-year comparison, the 12 months ended June 2022 recorded 1.9 million new broadband subscriptions, representing 8% year-on-year growth.

The UCC said the 23.7 million broadband subscriptions translates into a broadband penetration of 55 internet connections for every 100 Ugandans. This also signifies an increase in demand for smartphones. The UCC expects a significant increase in competition within broadband service delivery and anticipates a decrease in the cost of internet services.

Hormuud Telecom gains Somalia's first telecom spectrum license

Somalia's National Communications Authority (NCA) has issued Hormuud Telecom with the country's first telecom spectrum license. The company has obtained the right to use the frequency bands 700MHz, 800MHz, 900MHz, 1.8GHz, 2.1GHz, 2.3GHz, 2.6GHz, and 3.5GHz for an undisclosed amount.

"We are pleased to award Hormuud Telecom the first spectrum license. Today marks an important milestone for the sector and for our country in general. We are confident that together, with private organizations such as Hormuud, we can advance our country's digitization agenda," said Jama Hassan Khalif, Somalia's minister of Communications and Technology.

Hormuud Telecom now has new resources which should enable it to improve the coverage of its network and introduce new technologies such as 5G.

"As Somalia's largest telecommunications provider, we are aware of the immense responsibility we have in the lives of many people," said Ahmed Mohamud Yuusuf, chairman and CEO of Hormuud Telecom.

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LTT to transform PI Works' network

Libya Telecom & Technology (LTT) has entrusted the digital transformation of its network to PI Works, which will deploy its EXA solution on all the ISP's radio access networks to automate their management.

"Implementing such a solution, powered by artificial intelligence capabilities, will reduce network operating costs," said Ahmed Eshakruni, head of Networks and Quality of Service Department at LTT.

With the automation of its network, LTT will be able to improve the quality of the internet services provided. Automation should also allow the ISP to improve its service flexibility, operational efficiency and network availability while reducing operational and capital expenditures.

Senegal gains new emergency services network

The government of Senegal, through the Ministry of the Interior, has tasked Motorola Solutions to modernize the communications network of emergency services nationwide. The contract includes the deployment of Motorola's ASTRO P25 radio network system at more than 100 sites across Senegal.

"Our investment in this state-of-the-art communications network will help improve the safety of our citizens. By modernizing our technology, emergency services across the country can be sure they will receive clear communication when they need it most," said Antoine Félix Abdoulaye Diome, minister of Interior of Senegal.

The installation of the network should make it possible to rationalize communication between the police, the gendarmerie, the fire brigade, the ambulances, and other emergency services and, thus, reduce response times.

"The new network will also bring significant economic benefits to the country through numerous subcontracts and employment opportunities for Senegalese companies in charge of installing and maintaining the system," said Michael Ohayon, regional sales director for West and Central Africa at Motorola Solutions.



Talking critical

Considerations for critical broadband device procurement

Today's mission-critical user devices are still mostly built on narrowband technologies such as TETRA and provide mission-critical voice and short messaging services. These services are often available within nationwide network coverage, utilising dedicated frequency bands. The narrowband critical communications device ecosystem is well established, including infrastructure and terminal suppliers, system integrators, service providers and resellers. From a device procurement perspective, there are existing frame agreements in place. The solution costs are well known, device lifecycles are long, and there are no major changes in the product specifications. Finally, TCCA's TETRA interoperability (IOP) process allows for multi-vendor procurement.

Now, as the critical communications sector is looking to adopt broadband 4G and 5G communication technologies, there are several issues that need to be considered. In addition, from the procurement perspective, the transition to mission-critical broadband will require a series of well-planned steps. Bringing devices to market that support these new technologies, and meet various critical user requirements, will need investments by the vendors, as well as commitment from customers in terms of development support, minimum order quantities, user testing and acceptance, etc. Many current procurement models also allow device purchases from other sources. User organisations can run their own procurements, broadband devices can be leased from IT service companies, or even purchased by individual employees (BYOD - Bring Your Own Device).

Device and OS/software lifecycles of broadband devices are short compared to narrowband radios, even though vendors are doing their best to extend them. The current procurement, testing, certification, and approval processes required for mission-critical usage therefore need to be adapted accordingly. At the same time, the vendors must be able to provide information on their existing capabilities and present a roadmap that shows how they plan to meet the evolving customer needs and requirements throughout the contract period. As in any change there is room

for improving the status quo.

An essential part of creating a mission-critical device procurement specification is to fully understand the user needs. The user community will consist of multiple groups, each with its specific requirements and operational processes. Once the distinct user groups have been identified, close engagement will be necessary to fully understand their use cases and device requirements. This may be achieved via interviews, questionnaires, workshops, etc. It is likely that the diverse needs can be grouped to simplify analysis. When describing their use cases and requirements it is important that the user groups look ahead to how the new broadband technology can transform and enhance their operations. Functionality delivered by existing narrowband systems is the reference, but users should not just focus on replicating the voice and messaging functionality and reliability of their existing system. The evolution from a voice-centric to a data-dominated working environment requires considerable investment in business process redesign.

With the development of mission-critical mobile broadband solutions for PPDR based on 3GPP standards, the international critical communications community has entered a new world of needs and possibilities for their user organisations. This new world has a lot of potential to support the work of critical users to make them more efficient, but also to provide more security for the users of mission-critical services. One of the key elements in the chain of information is the device that will be used to unlock the new possibilities.

The mobile broadband world is a complex one. To be able to use the functional possibilities in the most effective way, some key elements should

be considered before device procurement can lead to a successful outcome. These include functional needs, technical conditions, end to end testing, user, and equipment management and of course security. Regardless of the procurement model these key elements should be well defined.

However, it should be noted that the more variety and freedom that lies with the users, the more risk there is that the end-to-end mission-critical functionalities cannot be guaranteed by the operator of the mission-critical network. Therefore, it is recommended to set up a robust system with standard set of device requirements and settings, as well as an approved device catalogue process to ensure a guaranteed level of quality for the end user.

The world of mission-critical smart devices is still developing and not yet fully mature. The ecosystem compared to standard smartphones is still small. It is therefore very important that PPDR organisations, manufacturers, standardisation, and testing bodies cooperate to stimulate the growth and development of the mission-critical device market. It is expected that the mission-critical device ecosystem will reach a mature level in the coming years.

This article is taken from TCCA's white paper 'Mission-Critical Broadband Device Procurement'. The aim of the white paper is to provide a holistic overview of critical broadband device-related requirements, to list the main topics and issues to be considered, as well as provide recommendations for a successful procurement, and is therefore particularly relevant to public safety organisations who are planning new device procurements.

Tim Clark,
TCCA Board member



Ethio Telecom grows revenue by 20%

Ethio Telecom has generated a total of 33.8 billion birr in revenue in the first half of the 2022/2023 financial year.

This represents an increase of 19.9% compared to revenues for the first half of the previous fiscal year. This figure also represents 96% of the objectives set by the telecom company for the period.

Mobile voice services represent 47.4% of total revenue; data and internet 28%; international business 8.4%; value-added services 6.5%; infrastructure 2.2% and the remaining 7.5% comes from other sources. The company explains that

"This result was achieved thanks to the extension of the network and the optimization work aimed at improving the experience and satisfaction of customers, by offering 50 new products and 41 local and international products and services," said Ethio Telecom in a statement.

Ethio Telecom's total subscriber base reached 70 million, representing 98.6% of the subscriber base target and an

increase of 15.1%. Mobile phone subscribers reached 67.7 million, data and internet users 31.3 million, fixed services 862,200 and fixed broadband subscribers 566,200. incumbent operator reached 27.2 million users.

For the current financial year 2022/2023, Ethio Telecom hopes to increase its subscriber base by 10.3% to reach 73.5 million and generate 75 billion birr.

"This achievement can be considered remarkable, given the challenges posed by the provision and expansion of telecommunications services and the fact that it is achieved in a competitive market. This success is only possible thanks to the commitment of the leaders and employees of our company to make Ethio Telecom a preferred operator," said Ethio Telecom in a statement.

Togo adopts new bill for innovation

In Togo, the government has adopted a bill to strengthen technological and digital innovation.

The text aims to "promote the innovation ecosystem in Togo, by establishing a mechanism for labelling start-ups and companies" in the field of Tech.

This labelling will be done, with regard to objective criteria according to the government of Victoire Tomegah-Dogbe. These criteria will be based on "creativity, innovation, the creation of a strong added value, as well as the potential for growth."

If validated by the National Assembly, the bill will aim to create an environment favourable to the modernisation of the country's economy through the development of digital activities in the public and private sectors.

Among other things, the bill should set up an incentive tax and customs regime to encourage the adoption and development of digital technology.

There will also be measures favourable to the emergence of technological start-ups under Togolese law.

AXESS Networks and Es'hailSat partner for MENA services

AXESS Networks and Es'hailSat have announced a Strategic Partnership Agreement to provide Teleport and VSAT services for multiple sectors in the Middle East and North Africa (MENA) region.

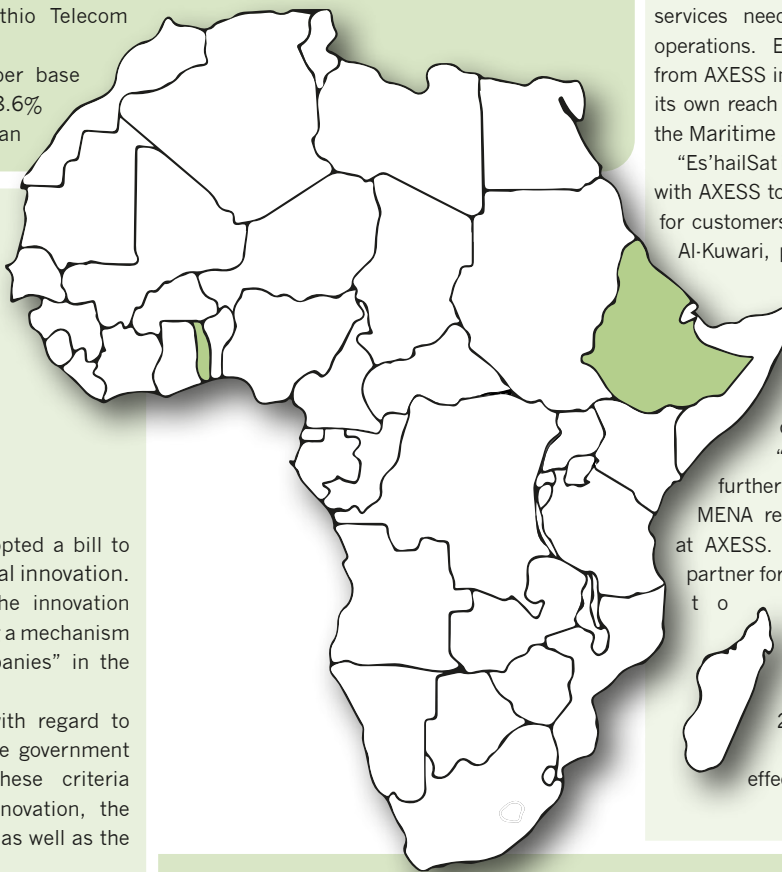
The common goal of both partners is to expand their business, widen their customer base and upgrade service quality. This multi-year, multi-service agreement will see Es'hailSat catering to AXESS' VSAT networking requirements along with professional and high-quality services.

The partnership is a win-win situation: while AXESS will provide satellite communications services and acquire new business in Qatar and in the region, Es'hailSat will contribute with local services needed for the extension of AXESS' operations. Es'hailSat will furthermore benefit from AXESS infrastructure and services to expand its own reach beyond the region and in particular the Maritime sector.

"Es'hailSat is happy to enter into this partnership with AXESS to provide Teleport and VSAT services for customers across the region" said Ali Ahmed Al-Kuwari, president and CEO, Es'hailSat. "We believe that the highly robust and reliable data services offered by us at Es'hailSat provide the strong network base that AXESS needs to build services for customers in the region."

"Qatar is the perfect location for further engagement in the Gulf and MENA region", says Mauricio Segovia, CEO at AXESS. "In Es'hailSat, we found the ideal partner for our operations, and we look forward to joining forces. Our engineering and sales teams are ready to support the operations with our broad end-to-end managed solutions and with 24/7 NOC support."

The multi-year agreement came into effect in December 2022.



Yahsat reports 48.2% revenue growth and 39% net income growth in Africa

Al Yah Satellite Communications Company has reported that it generated US\$12.374 million in revenue from Africa in the nine months that ended on 30 September 2022. This revenue figure is a 48.2% increase from last year's period.

In addition, Yahsat recorded net finance costs of US\$1 million, which was a reduction of 90% as compared to the previous years. This positive change was a result of refinancing the June 2021

debt. The company also recorded a normalised net income of US\$76 million, up to 39% year on year, with a 24% margin.

Ali Al Hashemi, group CEO, said that the company recorded its highest-ever first-half revenue, which ensured that it is on track with their short and long-term goals. The CEO reaffirmed the company's plan to maintain attractive dividends and continue work on their next generation satellite.

MTN Mobile Money adds personal loan offering

MTN's Mobile Money financial services platform has added a personal loan offering and announced partnerships with Zapper and QuickBus.

MTN said MoMo Personal Loans, in partnership with credit provider Lndr (PTY) LTD, "offers a seamless application and loan approval process." A portion of the funds "can then be safely, quickly and easily disbursed into the MoMo wallet so that VAS or cash-out funds can be purchased, and the balance of the loan fund can be paid into the customer's bank account."

Customers must log in and apply for a personal loan and check if they are eligible. If so, the qualifying applicant will be required to upload the required documents and then wait for SMS confirmation of the assessment outcome, which will be shared within 24-48 hours.

MTN said personal loans range from R2,000 to R180,000, with R1,000 of the approved funds being disbursed into the customer's MoMo wallet.

"The MoMo Zapper feature allows customers to make instant virtual payments to Zapper-enabled merchants across SA using the QR scan feature on the MoMo app. Through the QuickBus feature, customers can compare and purchase bus tickets across 25 different operators providing inter-provincial and cross-border travel," said MTN.

"Financial inclusion is critical in building a more equitable society and MoMo offers the very best of digital financial services to emerging markets, and it's just set to grow," said Felix Kamenga, MTN SA chief officer for Mobile Financial Services. "We want to unlock

economic growth through financial and digital solutions for consumers and businesses of all sizes. As we grow our service offering, we aim to create a marketplace that supports cashless and digital economies through affordable, inclusive, understandable, and comprehensive financial services."

"Our new QuickBus partnership means that customers not only have a convenient compare-book-and-pay payment option for bus ticket purchases at the click of a button, but it also opens them up to exclusive discounted rates on trips offered by operators," said Kamenga.



MTN faces US\$773 million tax bill from Ghana

MTN Group has received a US\$773 million back tax bill by the Ghana government which has accused the operator of under-declaring revenue, a claim MTN will fight back against.

The Ghana Revenue Authority sent the bill after auditing the operator's finances between 2014-2018, suggesting MTN under-declared revenue by about 30% in that period, according to Reuters.

MTN said that it disagreed with the "accuracy and basis" of the assessment and will appeal against it. "MTN Ghana believes that the taxes due have been paid during the period under assessment and has resolved to defend MTN Ghana's position on the Assessment," said the company in a statement.

Nigeria sets annual telco budget at 559 billion naira

The Nigerian Communications Commission (NCC) has set its financial year 2023 budget at 559 billion naira. Approved by the Senate, this financial allocation should help stimulate the continued growth of the telecommunications sector.

Of the total amount of N559 billion, N86.7 billion is for recurrent expenditure, N5.2 billion for capital expenditure, N35 billion for special projects and N16 billion for the benefits fund universal service (USPF). The remaining N416 billion will be transferred to the Federal Government on 31 December 2023.

The 2023 budget is less than the 633.3 billion naira that was allocated to the telecommunications regulatory authority for the financial year 2022.

The new budget should make it possible to accelerate the development of the information and communication technology (ICT) sector and increase its contribution to the national economy. According to figures from the National Bureau of Statistics (NBS), the ICT sector contributed 15.35% to Nigeria's real gross domestic product (GDP) in the third quarter of 2022.

The 2023 budget includes plans for the deployment of 5G, which will provide greater network flexibility and result in a better quality of service and experience for consumers.

Guinea unveils 2023-2025 development plan

The Regulatory Authority for Posts and Telecommunications of Guinea (ARPT) has unveiled its new strategic development plan (PSD) for the period 2023-2025. This plan should serve as the main benchmark and roadmap for both annual planning needs and for the performance evaluation of the institution's management teams over the next three years.

According to Sékou Oumar Barry, CEO of the ARPT, the regulator called on an international company to design the three-year plan. This plan is based on four pillars, namely governance, rules and regulations, protection

of consumers and citizens, and innovation. Added to this are 9 strategic objectives, 17 programs, 43 projects, a detailed action plan, a governance and monitoring and evaluation system.

"Other avenues are emerging for 2023, in partnership with all the players. Today, the Republic of Guinea, under the enlightened leadership of the National Council of the Rally for Development (CNRD), is determined to continue to make the ARPT an important lever for its economic and sustainable development on the national and international scene," said Barry.

UCC extends USE deadline for Airtel Uganda

The Uganda Communications Commission (UCC) has agreed to extend the deadline for listing part of the capital of telecoms operator Airtel Uganda on the Uganda Stock Exchange (USE) by one year due to unfavourable market conditions.

"Although it's a licensing requirement, you don't want a company to go public when the market isn't ready, or their shares will be undersubscribed," said Rebecca Mukite, relationship manager, public and international schools of the UCC.

The opening of the capital of Airtel Uganda to the stock market is in line with the new regulatory framework on telecoms introduced by the Ugandan government in 2018. It provides that each telecom operator will have to introduce 20% of its capital on the National Stock Exchange no later than two years after obtaining its operating license. Airtel, which obtained its

national telecoms license in December 2020 for US\$74.6 million would have had until 15 December 2022 to comply.

The UCC's intervention should allow Airtel Uganda to better prepare for the introduction of 20% of its capital on the USE in accordance with the regulations in force.



Orange Côte d'Ivoire enters stock exchange

Following the successful sale by Côte d'Ivoire of 9.95% of its 14.95% stake in Orange Côte d'Ivoire on the regional stock exchange (BRVM), the MNO has officially entered the stock exchange. The listing ceremony under the symbol ORAC was held on 30 December.

In total, the Ivorian state put up for sale 14,990,207 shares through its 9.95% share and mobilized a total sum of 140.9 billion CFA francs.

Institutional investors participated up to



60% of the total amount raised, nearly 84 billion CFA francs. More than 51 billion CFA francs, or 36% of the amount raised, was contributed by individuals, including private sector employees. The other investors subscribed for approximately 3.4 billion CFA francs, or 2% of the amount raised. Undertakings for collective investment in transferable securities (UCITS) participated in just over 1.7 billion CFA francs, or 1% of the amount, while subscriptions by management and intermediation companies acting for themselves represent 0.04%.

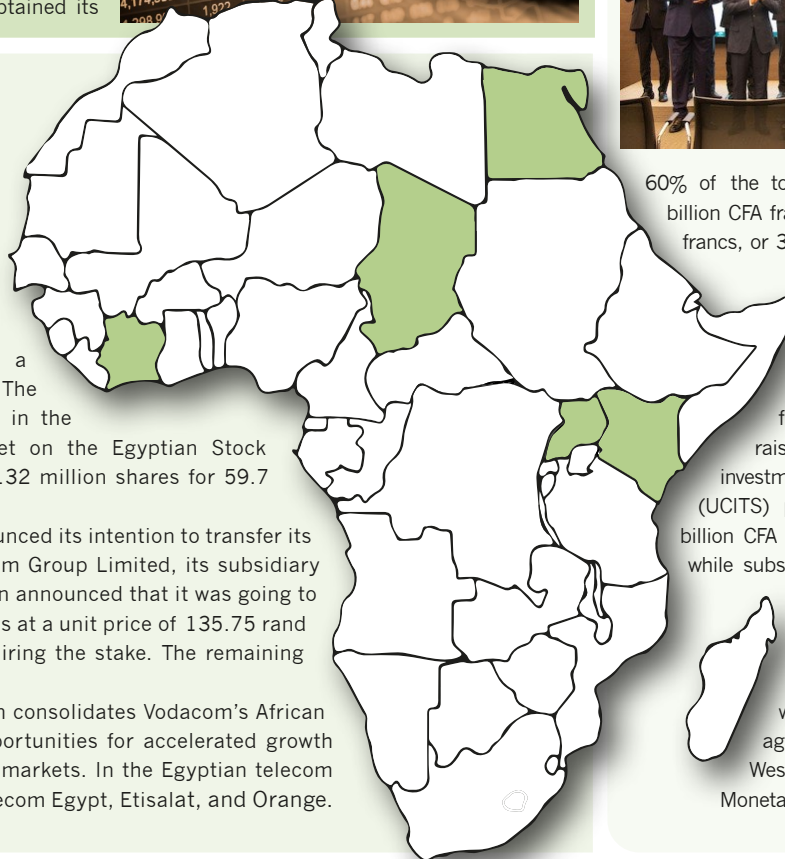
94% of the amount raised was subscribed in Côte d'Ivoire against 6% for the rest of the West African Economic and Monetary Union (UEMOA).

Vodacom Group acquires 55% stake in Vodafone Egypt

Vodacom Group has acquired a 55% stake in Vodafone Egypt. The transaction, which was carried out in the form of an over-the-counter market on the Egyptian Stock Exchange, saw Vodacom buy back 132 million shares for 59.7 billion Egyptian pounds.

In November 2021 Vodafone announced its intention to transfer its shares in Vodafone Egypt to Vodacom Group Limited, its subsidiary in sub-Saharan Africa. The latter then announced that it was going to issue 242 million new ordinary shares at a unit price of 135.75 rand to finance 80% of the cost of acquiring the stake. The remaining 20% will come from its cash.

The completion of this transaction consolidates Vodacom's African operations and provides it with opportunities for accelerated growth beyond its key sub-Saharan African markets. In the Egyptian telecom market, Vodafone competes with Telecom Egypt, Etisalat, and Orange.



Safaricom files for tax exemptions

Safaricom wants to benefit from tax exemptions in Kenya, including the capital gains tax, which increases from 5% to 15% in 2023, in order to carry out its project of separation from its M-Pesa mobile banking.

Local media reports that Safaricom wants to avoid being imposed the payment of taxes in the event of a split with M-Pesa by the Kenya Revenue Authority (KRA).

Peter Ndegwa, chief executive of Safaricom, has been reported as saying that he would seek

tax waivers from the government as part of the initiative. However, Kenya's current president William Ruto has promised to be rigorous in the collection of tax revenues. The tax authority expects to collect nearly 500 billion Kenyan shillings by June 2023, and to increase this amount over the next few years.

Safaricom's request for tax exemptions is filed, although the company's board has yet to approve the spin-off of Safaricom's telecommunications business from its banking business.



Safaricom chairman makes rapid exit

Safaricom has disclosed that its chairman John Ngumi has resigned from his position.

John Ngumi left Safaricom only months after joining the company and reportedly has left to focus on green energy projects across the continent.

Vodafone to sell Ghana interests

Vodafone is disposing of its interests in Ghana to African operator, Telecel, with the country's regulatory authority having given the nod for the transaction.

Vodafone Ghana lodged an application with the National Communications Authority (NCA) of Ghana to transfer a 70% stake in the mobile operator to Telecel in January 2022. However, the regulator did not grant the go ahead as the transaction did not meet the regulatory threshold for approval.

Now, after a revised offer, the deal has been approved. The revised proposal demonstrated "the needed capital investment to extend the deployment of 4G and launch innovative fintech" solutions.

"The NCA confirms that the revised proposal from Telecel now meets the regulatory threshold and hence has granted conditional approval for the transfer of shares including the submission of strategies for employee retention," said the NCA in a statement.

Vodafone forayed into Ghana in 2018 when it snapped up a 70% stake in the then Ghana Telecommunications Company at a value of US\$900 million. The Ghanaian government has retained a minority stake in the operator.



Talking satellite

Martin Jarrold, vice president international programme development, GVF



Forging Africa's space ambitions

In my previous column in this publication, I referenced Africa's aggregate space economy being small (it is about 4% of the global space economy) and relatively young; but as more countries fulfil their ambition to join the club of space faring nations, the continent's space economy forecast is for one of significant growth.

Currently, 15 African nations have launched satellites to space - 10 of these are sub-Saharan countries [Angola (satellite lost after four months in orbit), Ethiopia, Ghana, Kenya, Mauritius, Nigeria, Rwanda, South Africa, Uganda, and Zimbabwe], and five are in the north of the continent [Algeria, Egypt, Morocco, Sudan, and Tunisia]. In aggregate, these nations have approximately 40 satellites in orbit, serving the following main applications (available data): telecoms (eight satellites), Earth observation (24 satellites), education & technology (eight satellites). Research predicts that a further 10 African countries will have a total of about 125 satellites in orbit by 2025, at which time the continent's space economy will have reached US\$23 billion, up from US\$19.4 billion as at the end of 2021.

Prior to writing this column I had finalised the latest version of GVF's fortnightly membership newsletter, 'GVF FOCUS.' One of the newsletter's items of *GVF Member News* noted that the low Earth orbit (LEO) satellite operator, and GVF member, OneWeb had announced a distribution partner agreement with an Africa-based specialist technology company that supplies connectivity solutions to 'off-grid' locations through its satellite broadband service, Twoobii. The OneWeb LEO satellite network will give Twoobii users access to high-speed, low-latency broadband connecting even the most rural and remote communities across countries including South Africa, Lesotho, eSwatini, Namibia, Botswana, Zimbabwe, Zambia, Malawi, and Mozambique. The service will provide vital internet service and WiFi backhaul to connect schools, hospitals, civil government and other fixed enterprise and fintech services throughout the continent including banking, mining, and backhaul solutions.

An example of a Twoobii application

is telemedicine for healthcare professionals. Telemedicine uses communications technology to connect patients, clinicians, and remote diagnostic equipment. The COVID-19 pandemic highlighted weaknesses in healthcare provision infrastructure in many countries, with populations in rural areas located far from clinical facilities. Modern technology offers access to needed medical advice and care cheaply and quickly, however, with a lack of terrestrial communications coverage - i.e., absence of mobile and fibre - in the regions in greatest need of telemedical coverage only smart satellite services offer the necessary speed and bandwidth to support seamless video and voice calls while offering other forms of specialist communication required for the clinicians to be able to interact with, and diagnose, patients.

Despite a quiet year with only one launch in 2020, satellite is becoming a more permanent feature on Africa's investment horizons. Tunisia launched its *Simba* satellite in 2021. Challenge One, supporting IoT applications, was not the only African satellite aboard the Soyuz launcher that day, with Kenya's *Simba* nanosatellite lofted in tandem, with a mission dedicated to observing wildlife in Kenya's natural parks. Mauritius' Earth observation *MirSat-1* satellite was also launched in 2021.

This year, 2022, has seen Uganda's first satellite, with *ZimSat-1* placed into orbit from the International Space Station (ISS) with a mission to monitor weather and disasters, map the country's mineral wealth and generate other significant data streams. Zimbabwe's *ZimSat-1* was similarly orbited from the ISS.

More African satellites are to be launched in 2023. Botswana's first satellite programme, *Bot-Sat-1*, was started in December 2020. The satellite will be utilised to generate valuable data to solve developmental challenges in the communications, internet, weather forecasting, agricultural, land resources mapping, television broadcasting, and tourism, which will be the backbone of the knowledge economy within Vision 2036 and the 'Reset Agenda' of Botswana. Zimbabwe is preparing to launch its second satellite in 2023, *ZimSat-2*, a communications satellite which will enable total national connectivity, making ICT and other communication applications pervasive in national development.

Kenya's *Simba* nanosatellite is an example of the importance for African countries' satellite programmes of the development of CubeSat technology. With CubeSats - smaller, lighter, and easy to design - the African satellite market is increasingly open, based on 'democratisation' of the manufacturing process.

Of course, no African country has its own launch capacity, and most African-owned satellites are still designed abroad, but there is underway a process of change and transition which means that the continent is definitely in the new 'space race.' Assets in space are much more than an exercise in national vanity or international rivalry. Owning a satellite is now a strategic necessity, for both economic and social development. The scale of the range of applications which can be served by satellite has already been partially illustrated above and encompasses meteorology, natural resource management, navigation, and surveillance as well as the telecommunications on which services such as the Twoobii-based telemedicine depend.

Connecting schools is another example of where there is a satellite imperative. One project to connect schools in fact engages both satellite communications and Earth observation (EO). 'Giga' is a joint initiative of UNICEF and the ITU - combining UNICEF's 'experience in education and procurement, ITU's expertise in regulation and policy, and the private sector's ability to rapidly deploy technology solutions' - to connect every school in the world to the internet by 2030.

Connecting schools allows children to develop digital skills and access online learning. Schools can become anchor points for surrounding communities, such that if you connect a school, you can connect local businesses and services. 'Giga' is advancing school connectivity with a combination of EO and an AI algorithm which can recognise such surface features as school-type buildings and football pitches. With information on school locations across remote regions being collected and collated, there is introduced an efficient and further first step in bridging the digital divide.



Transforming digital Africa



Next steps to net zero for African data centres

Stavros Spyropoulos, business development manager Africa region,
Subzero Engineering

We all know that the data centre industry, with high energy-intensive users, is looking to meet net zero goals. To achieve this, they need reliable and replicable solutions around greener energy. As the landscape in Africa is very different to Western Europe, with its increased external heat temperatures, makes it significantly harder to keep data centres cool. The industry must look towards technology that allows balance from both energy-efficiency, along with the data centre's operational needs.

It is not unusual to walk into a data centre in Africa and find not only the chillers working at 100% but also within the hall itself A/C units working full time to make the working environment more bearable. As costs increase, this is becoming more and more unsustainable. Plus, as more global companies continue to invest in Africa, their commitments to net zero also need to be taken into consideration putting more pressure on the data centre.

Data centres for Africa's MNOs

The African region is complex and does not have a one size fits all with its 54 countries; there are nearly 2,000 languages spoken and over 80% of the population does not currently have access to electricity. This same population is starting to mature in its need for digital services, be it consumer or enterprise. Over 70% of the population in many African countries is under 35, so the demand for all things digital is growing at a fast rate.

Underlying all this data centre market activity is, of course, the unstoppable momentum of digital transformation. Consumers demand ever higher levels of digital performance, and this means that the data centre industry is having to respond to meet this demand. In practical terms, this means more data centre capacity, faster connectivity options and higher compute densities.

Mobile network operators (MNOs) are fast adopting local data centre capacity to meet the growing data deluge. At the same time, environmental pressures, with net zero as the end target, are adding a layer of expectation to data centre owners, operators and users, including Africa's MNOs.

Renewable energy

An ageing energy infrastructure in some countries means there is an overreliance on oil generators meaning operators need to look at more reliable sources. If you take Kenya as an example, it hosts the largest wind farm in Africa, Turkana Wind Farm. The wind

farm covers 160 square kilometres and has a capacity of 310MW, enough to supply one million homes. 90% of all of Kenya's electricity being generated from renewable sources, such as wind and geothermal. However, in South Africa there is still a reliance on thermal power meaning currently it has a large carbon footprint.

Another thing to consider is the abundance of solar. As you can imagine Africa is currently seeing a fast-growing solar energy infrastructure. Morocco is currently home to Africa's biggest solar project and South Africa now hosts eight of the largest solar plants in the world. Once you take into account this and future projects across the continent it is not hard to see how green energy is the answer to achieving net zero whilst maybe significantly reducing energy costs.

Climate neutral data centres

There's a very real opportunity to go back to the drawing board and decide what a data centre should look like in terms of location, energy supply, connectivity options, design and construction, power, and cooling – virtually every aspect of the supply chain. With the obvious caveat that there are significant business challenges in the region.

Financing projects is the first obstacle to be overcome – although market entrants with a track record (and finances to match) in established markets are less exposed to this issue. There's also the question of sourcing the appropriate level and quantity of skilled labour at all stages of a data centre project. Supply chain logistics across the continent can be challenging and we can't avoid mentioning the

geopolitical instabilities which can cast a shadow over the data centre opportunity. However, set against these possible drawbacks, the sheer size and scale of the African data centre market is so enormous, that it's inevitable that the increasing trickle of activity will become more of a torrent over the next few years.

Whilst there is an enormous push towards new build projects, there are still several legacy data centres that need to be taken into account. As these have grown over time, a lot from telco providers for example, it has created a very complex environment where not only are they inefficient, but the buildings and infrastructure have not always been designed with these things taken into consideration. These facilities are then being repurposed for enterprise/hyperscale clients and as such needs to be upgraded to be able to serve these markets. This is where services such as CFD evaluations can become crucial for data centres. Data centre operators can learn how to optimize their facilities by discovering how to improve their airflow mix, how to reduce the use of their chillers and through specially designed containment how they can become overall more energy efficient.

Good news ahead

The good news is that the industry is responding successfully to this twin digital and sustainability challenge, with operational agility and technology innovation very much to the fore. Add in the burgeoning secondary/regional/edge market and there is, perhaps, no better example of how all of these factors are shaping the global data centre industry than in Africa right now. ■





More money more problems: Tackling mobile money fraud

Mobile money or MoMo is proving a versatile payment tool for receiving salaries, paying bills, accessing credit, online and in-store shopping, and sending money to family or friends. However, the vulnerability of MoMo services has left the door open to bad actors. Amy Saunders considers how MNOs and service providers can secure their MoMo offerings

Underbanked? There's an app for that

The MoMo market has boomed across Africa in recent years, with 70% of the world's MoMo value concentrated across the continent, amounting to a whopping US\$701.4 billion in 2021.

Good old fashioned 21st century convenience has a major part to play in the rising rates of global MoMo adoption, with many regions edging increasingly closer to becoming cashless societies. Of course, global mobile banking uptake accelerated significantly during the COVID-19 pandemic when the call for socially distant methods of exchanging money surged.

In Africa, financial inclusion is a massive selling point for MoMo services. Banking infrastructure across the continent is incomparable to that of western nations, with massive proportions of the population remaining unbanked or underbanked even in 2022. Only around half of Nigeria's adults, for example, have their own bank account, whereas more than 80% have access to a mobile phone. MNOs and service providers have accordingly filled the void created by the banks, offering a full range of traditional banking services, including credit lines, via mobile money.

And it's about more than just basic access: MoMo services have proven popular even amongst groups with literacy challenges. The GSMA reports that

71% of adults in Senegal had used mobile money services within a 30-day period, but almost half reported either great difficulties reading and writing or had a complete inability to do either.

Further evidencing of how mobile money can help overcome complex barriers to financial inclusion is the fact that gender disparity is closing. With mobile money, women more frequently have access to family money, and with rising MoMo adoption, more families across Africa now have savings than ever before.

Looking at the numbers, the GSMA reported that the volume of MoMo accounts globally grew by 12.7% year on year (yoy) to 1.21 billion in 2021, with faster than expected growth attributed to the relaxing

of onboarding requirements that made it easier to open an account, and regulators implementing more flexible Know Your Customer (KYC) processes. MoMo account activity grew too; more than 300 million monthly active accounts exist, and for the first time, the global value of daily transactions exceeded US\$2 billion. In total, more than US\$1 trillion was processed for the entirety of 2021.

In sub-Saharan Africa, the GSMA says that transactional volumes grew by 23% yoy to 36.6 billion, transaction values grew by 40% yoy to US\$697.7 billion, and the number of active accounts grew by 12% yoy to 183 million. Meanwhile, in the Middle East and North Africa, transactional volumes grew by 74% yoy to 242 million, transaction values grew by 49% yoy to US\$13.7 billion, and the number of active accounts grew by 68% to 5 million.

The numbers back up the stories we're all reading. Mobile money services are not only a viable alternative to traditional banking, but indeed, possibly the future of banking entirely in select world regions. However, despite the huge success of MoMo services in Africa and elsewhere, factors limiting growth remain, including mobile phone ownership rates, policy and regulatory conventions, transaction taxes, expensive or inaccessible mobile data, and, naturally, security challenges.

More money more problems

With more than 173 live MoMo services available across the African continent and a trillion-dollar global industry, it's not surprising that bad actors have entered the fray. Indeed, mobile money fraud in Africa alone is estimated to be worth around US\$4 billion a year, with Kenya and South Africa leading the way. Some 51% of transactions in Kenya were identified as suspect, 30% in South Africa, and 10% in Cameroon, according to Evina.

"Mobile money fraud is a growing phenomenon worldwide and Africa is no exception. The more the MNOs and financial sector use modern security measures to mitigate this risk, the more criminals find new ways that keeps them a step ahead," said Waheed Adam, executive chairperson, iTouch. "The lack of collaboration between the stakeholders such as the banks and MNOs, coupled with slow government intervention regarding regulation, adds to the problem."

Since MoMo services are delivered through such a complex ecosystem, each operator with their own unique quirks and delivery methods, providers and users alike are at high risk of cybercrime. Weak ID verification systems, inadequate security resources, poor training, limited access to fraud detection tools and poor customer awareness all add to the vulnerabilities inherent in mobile money. As such, phishing, vishing, SMiShing, clickjacking, malicious apps, identity theft, PIN sharing and agent-driven fraud are all very real challenges faced by providers and customers.

Mobile money fraud comes in several varieties. It might be customer acquisition fraud, where identity documents are used to create fake accounts on the platform, similar to identity theft, wherein fake ID is used to procure duplicate SIM cards for online

transactions, resulting in account takeovers. Internal fraud, where merchants or employees with access to customer information, is another issue. Finally, MoMo services are ideal for money laundering: launderers can exploit mobile money services to transfer the proceeds of crime to co-conspirators located in other countries, or supporters of terrorist organisations can exploit.

"These perpetrators are part of organised crime syndicates with tentacles that stretch far and wide. Often these criminals are insiders that understand, for example, the banks processes and are a part of, or have access to the fraud and risk departments," said Adam. "Or they work for the MNOs and are able to intervene when security measures may block possible fraud, and as such allow the fraudulent transactions to continue. Banks are aware of this and are always on their guard to prevent it from happening."

Instances of MoMo fraud are growing faster even than the number of new accounts and transactions. It was big news in 2020 when Uganda saw an estimated US\$3.2 million stolen by hackers utilising more than 2,000 SIM cards. However, this has been rather overshadowed by the US\$53 million loss by MTN Nigeria's new MoMo Payment Service Bank (PSB) back in May 2022, when in just a few days after its inauguration, some of 700,000 unauthorised transfers to 8,000 accounts in 18 Nigerian commercial banks went undetected for several days. While the transfers were stopped (and the vast majority reversed) and services were suspended for 24 hours, MoMo PSB is reportedly suing the 18 banks involved for return of the money and asking them to outline how much of the money was received in their customers' accounts.

Clearly, much tighter defences are needed to protect mobile money providers and end users alike.

People; process; technology

For the MoMo sector to continue its projected growth path, security measures must be upgraded to retain consumer trust. Providers who fail to adopt stringent measures against cybercrime can expect to see lower customer uptake than their competitors; this is doubly concerning for MNO mobile money

providers who, if faced with loss of reputation for inadequate MoMo security, may also lose core mobile business customers too.

The GSMA claims that a holistic, multi-pronged solution is required, with three key areas addressed:

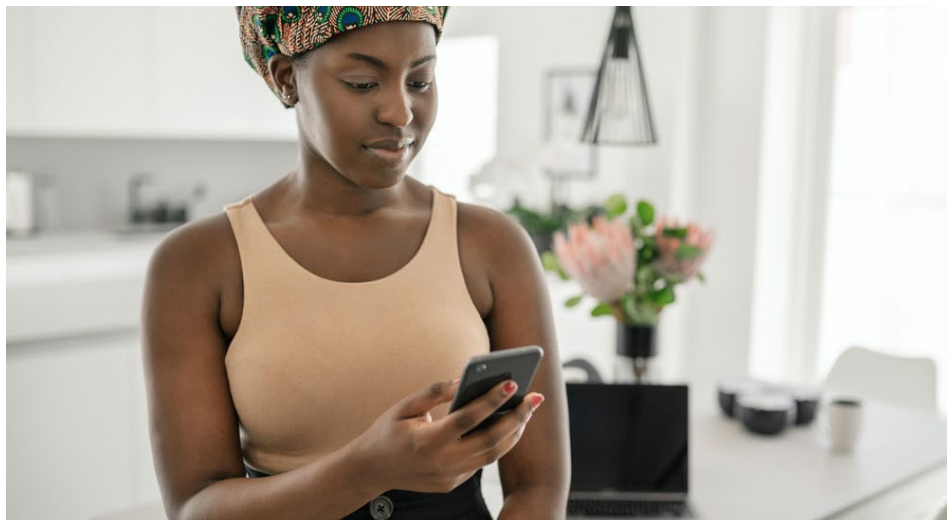
- People: consumers, third party participants, and the provider's employees
- Process: legal requirements, internal and supply chain management, incident response plans
- Technology: control of hardware and software assets, inventory

As for home and workplace computing, mobile money users have a significant degree of responsibility to protect themselves. Don't click on suspect links, don't download dodgy apps, don't share passwords/PINs, and so on. While this should be common sense to many, further unified customer education and awareness campaigns are required. However, this is a challenge in and of itself given the low literacy levels in some regions, where digital security and financial education are also low priority. Moreover, consumer education programmes can only go so far.

"Educating the public is a must and again we see disparate attempts rather than one voice. By bringing that voice as one, the power of the message may be lasting," said Adam. "In Africa where the average age is just 20 years old, it is obvious that most mobile money users are young. We have seen a significant rise of fraud in this area."

Regulatory frameworks on cybersecurity are also key. These vary widely country by country, but some nations are now creating frameworks specifically for the MoMo market. Kenya and Nigeria, for example, have adopted risk-based cybersecurity approaches which require regular assessments to identify all cybersecurity vulnerabilities, threats, likelihood of successful exploit, potential impact to information assets, and the associated risks. The creation of these frameworks is in its infancy for mobile money applications, and enforcement is challenging. In some countries with inadequate regulation, the Mobile Money Certification – a self-regulation tool – can be a good solution.





Industry standards on cybersecurity are fragmented, in part due to the continually changing environment. However, the lack of uniform global standards prevents collaboration and limits efforts to share security expertise between different operators. This fragmentation must be addressed in order to combat the pressing challenge of MoMo fraud. The GSMA recommends that global mobile money providers adopt industry-wide accepted standards on cybersecurity, including ISO and NIST frameworks, which will provide a unified approach, and be particularly helpful for those companies with multiple-country operations.

On the technology front, providers must continually upgrade their security mechanisms in the face of increasingly sophisticated attacks, an onerous task. According to the NIST security framework, the key elements of technology systems in cybersecurity should consider the ability to identify, prevent, detect, respond and recover from threats. For MoMo services, providers should apply principles of security by design and privacy by design to products, services, protocols, communications and processes, and conduct regular system assessments to identify gaps.

Another area to consider is the connections between services. Mobile money often moves across several different systems, and even if each of those systems has high-level security in place, the connections themselves may be vulnerable, allowing bad actors an easy way in to reroute funds. MNOs must establish ways of safeguarding the integrity of communications across the network, securing critical assets and preventing unauthorised access to any of the nodes in the networks. Preventative and detective measures should be implemented to protect both the integrity of mobile devices and their networks.

Combating mobile money fraud

With more than a decade since the inauguration of the world's first mobile money service behind us, MNOs, service providers and governments have begun to address security challenges in earnest.

Like many traditional banks in the UK, a large proportion of MoMo services include caps on both volume and size of transactions, which reduce the

risk of systematic failure and potential losses from fraud. Some providers have developed open-source fraud management and anti-money laundering systems that are both accessible and interoperable, and well-suited for a diverse digital financial service environment.

Meanwhile, some android mobile money applications can already validate the transport layer security (TLS) certificates through default certificate verification systematic mechanisms, which enables the systems to safeguard user data confidentiality and transaction integrity through user authentication of transactions. Other MoMo providers have adopted the utilisation of keys to encrypt the user PIN to enable a secure authentication process for the service.

"SABRIC (South African Banking Risk Information Centre) and the recently formed COMRIC (Communication Risk Information Centre) are bodies that represent the banking and MNO sectors respectively in South Africa," said Adam. "One of their main priorities is to tackle the question of fraud, while international bodies like Mobile Ecosystem Forum (MEF) have also been engaged in order to understand efforts abroad. This collaboration is precisely what is needed to mitigate fraud going forward. We sincerely hope that it is given the attention needed as more and more people are defrauded each day."

Regionally, several African nations have started to strengthen their regulatory and supervisory technological solutions to strengthen MoMo safety and security. The Nigerian Central Bank and Nigeria Inter-Bank Settlement System are creating a data stack incorporating data warehouses and dashboards to expand risk-based and immediate financial supervision. This also provides information for developing new policy frameworks to strengthen regulatory interventions and financial inclusion provisions on MoMo transactions.

Meanwhile, the National Bank of Rwanda is using an automated electronic data warehouse to streamline reporting and supervisory processes of more than 600 financial institutions like banking and microfinance institutions and savings and credit cooperative organisations. MoMo data is automatically retrieved every day to monitor transfer operations, enabling efficient tracking and

identifying potential money laundering activities.

In other news, most African nations are now cracking down on unregistered SIMs in an attempt to fight a range of challenges, including MoMo fraud. Earlier this year, the Ghana Chamber of Telecommunications announced that the nation's telecommunications companies have collectively blacklisted some 28,000 SIMs and 17,000 identities as part of a joint program to reduce MoMo fraud. 35,000 fraud and scam incidents have been reported in Ghana since a common blacklist was created back in August 2021.

"Mobile money services in Ghana are secured. But the challenge has always been our cyber hygiene. Our call is that you do not disclose your passwords or pins to anyone," said Ken Ashigbey, CEO of the Chamber.

Lesotho and Namibia, too, have recently launched campaigns for citizens to re-register their SIM cards with biometrics and digital IDs, with South Africa expecting to do the same imminently. The Communications Regulatory Authority of Namibia (CRAN) announced in October plans to deactivate all SIM cards not registered by 31 December 2023.

"A registered card comes with security benefits; it helps prevent identity theft; forms the basis for systems that combat phone-based fraud; and it aids in combating cybercrime," said MTC's chief human capital, corporate and marketing officer, Tim Ekandjo. "Moreover, this is particularly essential given the high rate of these forms of crime committed. It also generally comes with convenience value of accessing electronic services, especially now that more companies are upgrading their service offerings to digital platforms."

The future might be mobile

The benefits of MoMo services need not be stated, for they are truly life changing to those unbanked and underbanked individuals with no viable alternative, and invaluable to promoting financial inclusion, particularly for women.

With mobile money on course for a staggering growth trajectory, MNOs and service providers must look to upgrade the security of their networks in order to protect themselves, their customers, and retain consumer confidence amidst an ever-evolving cyber threat environment.

"Gaining trust is the first challenge for mobile money," said David Lotfi, CEO at Evina. "For people to be confident enough to receive their salaries via mobile money or to leave larger amounts of money in their wallets, trust is mandatory."

As bad actors streamline their methods of attack, so too must cybersecurity solutions enhance and expand their security toolbox. In line with the GSMA's 'people, process, technology' multipronged approach, all participants in the mobile money ecosystem must educate and adapt to the rapidly-changing threats threatening the environment.

"Fraud is pervasive: for every direct victim of fraud, a hundred people are indirectly impacted," said Lotfi. "Fighting fraud is the fastest, easiest and most powerful lever to accelerate the adoption of this payment method." ■



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What can the global mobile industry learn from Africa?

The mobile industry has advanced in leaps and bounds across the African continent. By adopting mobile technology later than much of the world, Africa has been able to leapfrog some challenges, and learn from mistakes. So, what can the rest of the world learn from Africa? Waheed Adam, chairperson, iTouch, reports



Mobile industry insights company Global System for Mobile Communications (GSMA) predicts that Africa will have 120 million new mobile subscribers by 2025, taking the total number of subscribers to 615 million, some 50% of the region's population. While the continent as a whole has been behind the technology adoption curve, the advent of cheap mobile devices has allowed Africans to transition straight into a mobile-first economy.

Despite Africa's lack of formal infrastructure - in fact, because of it - the power of mobile internet has inspired amazing innovations that could help empower both the continent and the world at large.

So, with all this rapid change, what can the mobile industry learn from Africa?

Free your thinking when considering infrastructure

Mobile infrastructure is far easier to set up than the traditional infrastructure of wired

landlines and fibre optic broadband. With a basic smartphone and a 3G signal, these resources then become the technological infrastructure.

In Kenya, for example, ATMs are a rare sight. They require wired networking, restocking, and security. But with mobile wallets and internet banking, someone selling fruit at the side of the road can now get paid electronically, without the need for either buyer or seller to visit an ATM, allowing them to sell more and in greater quantities.

These fruit sellers now have the electronic money required to pay suppliers electronically, and so on, creating a rolling digital infrastructure through a simple smartphone and 3G connection.

So, rather than seeing the rollout of mobile connectivity as a cost, we should view it as an investment. Mobile connectivity creates digital infrastructure. Africa provides a fantastic model of how a mobile-first economy creates low-cost, rapidly scalable digital infrastructure that can be replicated across the world.

Growth can suffer if the cost of data is misjudged

Despite 75% of all e-commerce now being done via mobile, only 58% of Africans can now access 4G internet. The majority of those connected to 4G are in urban centres, with 47% of urban dwellers connected compared to just 26% of rural dwellers.

These mobile owners spend large chunks of their salaries on mobile connectivity. Just one gigabyte of data could cost as much as a third of someone's salary. This is around 50% more than in Europe and prohibits growth.

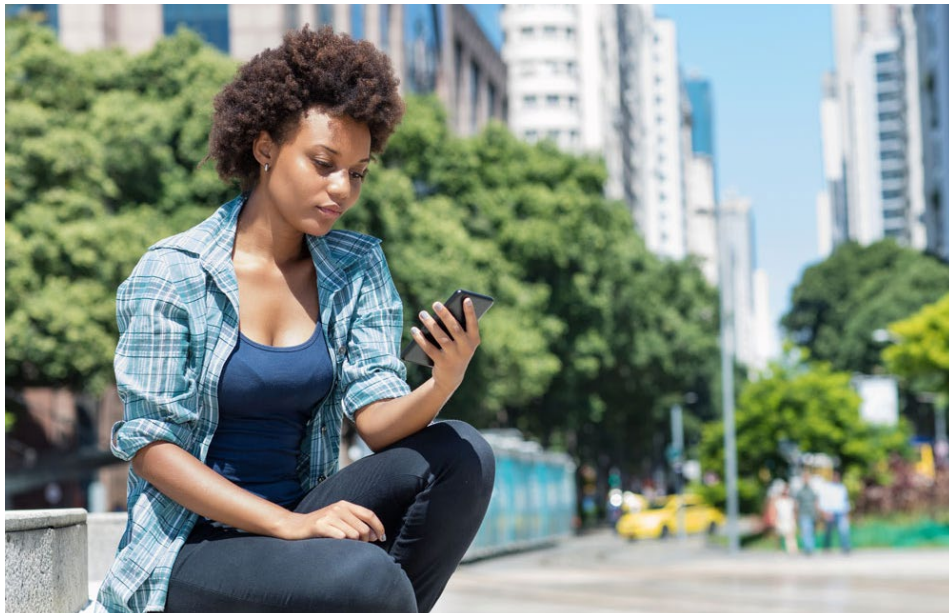
By focusing on reducing the costs of data while increasing penetration (including reducing the cost of handsets), more people can connect to the global digital infrastructure. This will create numerous global benefits, such as information sharing, innovation and economic growth.

Search for and nurture local innovation

An increasing number of successful African businesses have been established to solve challenges specific to Africa. And while many solutions created in Africa may be designed to solve African problems, there are plenty of innovations that will also benefit other regions.

Take pre-paid mobile credit, for example. As many Africans lack access to formal banking, they are unable to complete the credit checks required for pay-monthly mobile contracts. So, prepaid mobile credit was invented as a way of enabling people to get connected without the need for credit checks – an innovation that has benefited people across Europe and the rest of the world.

Large foreign multinationals, such as Google, as well as global VCs, are starting to recognise the potential of African innovation and are setting up regional innovation hubs. Through mobile internet, these innovations can be rapidly shared and improved upon.



As such, the mobile industry should invest in innovation hubs, especially in regions historically affected by adversity. People in these regions have had to innovate to solve regional challenges, making them quiet innovation powerhouses.

Speak to what is useful

In Africa, informal business is huge. For example, in South Africa, informal taxis generate around 50 billion rand a year, local fast food around 90 billion rand, and traditional medicine is estimated to generate 18 billion rand.

Local informal convenience stores, known as spaza shops, generated an estimated 150 billion rand a year, selling more potatoes, for example, in 2020 than large chain stores.

However, the needs of these informal businesses aren't going to be the same as large chain stores. Someone selling produce from a shipping container doesn't need the latest and greatest in Rich Communication Services (RCS) – they need fast and reliable mobile wallets, access to global pricing indexes, and the ability to quickly and easily order more stock.

Rather than assuming every business has the same needs, we need to understand and speak to the needs of each specific sector of the market. They are doing huge amounts of business and provide a key service to the community, yet we tend to speak primarily to the needs of large, complex global businesses, following the same pattern we take in Europe. Africa is an opportunity to learn, and recognise the benefits of speaking to smaller, more nimble businesses.

Consider GDP

An unspoken reality of the African environment is the fact that there are so many 'informal' businesses that are excluded from the data we see reported when looking at the GDP of an African country. Hence most reports on potential opportunities on the continent do not reflect what



is the true reality on the ground. And while these informal businesses may not be recorded, they still contribute to the fiscal as they pay VAT on their purchases but do not claim VAT, as the usual process in the formal sector.

So, what is the real opportunity? These informal businesses are the future economy, and which are solving real-life problems at grass root level. As we already know, technology and in particular, a mobile first environment plays a major role in solving these problems. We have seen that in Kenya where mobile money solutions have empowered this informal community of businesses that now contributes immensely to their GDP. South Africa is no different – more potatoes are sold to the informal sector than mainstream retail. So, when considering Africa as a destination to expand your business, factor in this so called 'informal' business community and consider how you may be able to serve their needs.

Global standardisation is critical

One major challenge to mobile growth in Africa is the plethora of local regulations and cultural expectations. Africa contains 54 different countries, each with its own regulations.

Industry bodies representing the private sector, such as MEF, have an opportunity to encourage businesses to grow from foreign investment by taking on a strategy to shift policy and align trade departments, both in Africa and globally. Africa shows us that standardisation is key, and as the global mobile industry expands, it needs to work together to ensure standardisation across markets.

Through events like trade investment conferences, industry bodies can help create collaborative environments to make it easier for businesses and people to connect and trade across borders.

By applying the lessons learned from Africa to other regions and businesses, the mobile industry can provide sustainable and scalable economic opportunities to every part of the world.

The potential is massive and, as an industry sector, mobile has a huge part to play. Above all, Africa demonstrates that a mobile-first economy can thrive without expensive formal infrastructure. Mobile infrastructure is relatively cheap and easy to set up, can facilitate information sharing and innovation, and benefit every business from fruit sellers to Google. ■

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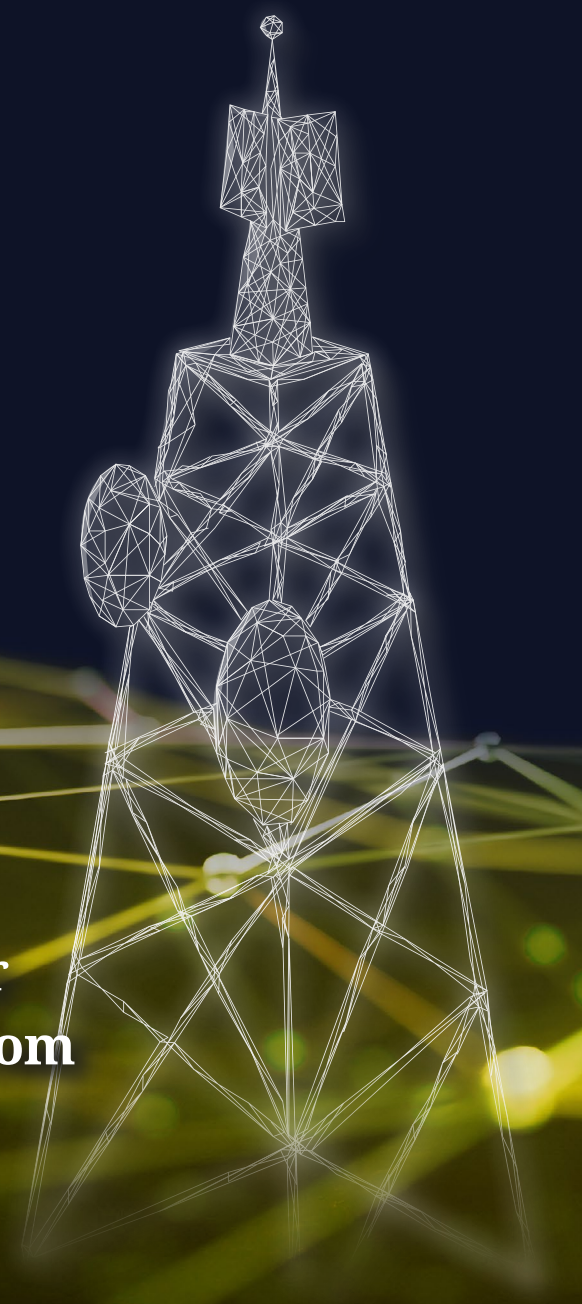
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Mobile roaming needs to stop disappointing customers

Dario Betti, CEO, Mobile Ecosystem Forum

Roaming requires the complex organisation of mobile operators, phone manufacturers, masts, and regulatory bodies all working seamlessly, making it one of the greatest technical achievements of the mobile sector. But many travellers are finding that their phones do not always work abroad — even in areas that were perfectly covered before — and their bills are far from worry free.

Many mobile operators are in the process of decommissioning their older networks (2G and 3G), in favour of more efficient 4G and 5G networks. These new networks are not yet fully supported for roaming by all operators.

There is plenty to concern customers — we appear to be going backwards, not forwards — and frankly more work from mobile operators is needed to protect one of the true successes of the mobile revolution. Here are a few areas requiring attention.

Support VoLTE roaming

Not supporting international roaming has multiple effects for high value customers: not receiving an SMS can block a bank transaction or a payment, voice communication is still key for business and private communications. Patchy or non-existent coverage while roaming is unacceptable. Customers rely on mobile devices; both voice calling and SMS are basic and intrinsic services expected from mobile phones. Mobile operators are reducing their value by not providing a consistent connection. Support for 4G and 5G roaming is necessary — or customers will go elsewhere.

Build services

Operators need to build a robust and reliable network to provide

a universal service and sign commercial deals that will get customers connected overseas. If customers can reliably travel to any country and use their mobile phone for voice and SMS, they will likely be happy to pay the premium.

Alternatively, and this is better suited to low-cost operators, rather than spending time, money, and resources building a universal network, these operators could build packages of OTT services, such as free WhatsApp messaging and voice calling, so that users can use their data allowance (already carried via the 4G network).

Whichever option mobile operators take, pricing strategy will be very important. Pricing these services needs to reflect the market, the competition, and the level of service the customer can expect. Set prices too low and it threatens to bring the market down. Too high and customers will find alternative workarounds.

Design easy to use international packages

In the age of apps and easier self-service and customer experience, some mobile operators are struggling to share information, and build packages that allow users to feel in control during their international trips. Daily passes, capped spending and many other tools have been created by operators to give customers the level of transparency and worry-free billing that can make roaming easy and enjoyable service. Operators should feel free to copy best practices.

Roaming is a premium service, but it should not be an exorbitant trap

A few operators are giving roaming a bad name, but it is every operator's

duty to control and manage their roaming prices. Prices are negotiated by two sides: the originating and the visited network — ultimately it is a common goal to get a fair and affordable price for roaming. Operators need to do a lot of additional work and maintenance to ensure roaming services work effectively. If a customer is paying a premium, they better receive the service they expect.

Make it simple – and communicate

One of the major challenges from the 2000s was the sheer complexity of overlapping technologies consumers had to contend with. They had to have the right handset with the correct signal banding for the destination country, the right mobile operator with the correct services enabled, and the right products to provide the connection. Today, people do not want to deal with such complexity. These issues were ironed out more than 10 years ago, so people do not expect to have to deal with this anymore.

Whatever solution you choose (building roaming networks, or putting together OTT packages for roaming customers), communicate with the customer and let them know what they need to do. For example, allow them to download configuration settings before they set off, tell them exactly what is included in the package or what services work in which countries. For example, some countries, like the UK, are dominated by WhatsApp while others have their own popular equivalent; in Korea most people use KakaoTalk, commonly known as KaTalk.

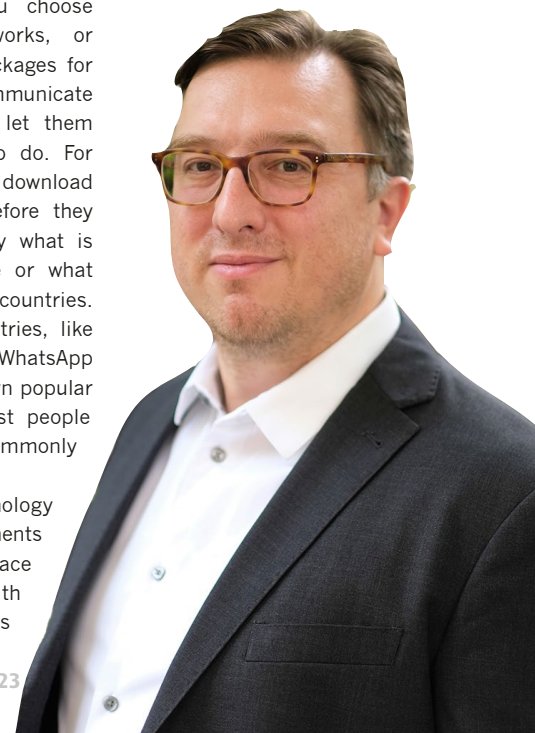
Keeping pace with technology can be tricky and developments move at a different pace around the world. In South Africa, most mobile users



use 3G, with a sizeable percentage still using 2G. In the USA, on the other hand, 3G networks are largely decommissioned.

But technology should not be an excuse for poor service. Customers can easily compare services across different operators to find one that works, is reasonably priced, and helps rather than hinders them while travelling.

It is time for the industry to take a long hard look at roaming and make a serious commitment to 'do better' and create a new 'golden age' of roaming that's good for customers and therefore, by extension, the industry as well. ■





Aiding agritech with the cloud

AFGRI Technology Services (ATS), part of AFGRI Group Holdings, is a leading agricultural services company with core competencies to enhance, support and guide the growth of agricultural enterprise. The enterprise works toward the development and implementation of agricultural technology solutions which will help ensure both the future of agriculture and enable food security for Africa and the world at large.

AFGRI offers innovation growth and advisory services, innovation consulting, project management, and management services, in order to develop and build client capabilities within the agritech sector. With such a heavy reliance on communications, and indeed, for an organisation offering its own digital products and services and mobile apps, AFGRI was hindered with a poorly organised telephone system, for both mobile and fixed calls.

"The AFGRI IT service desk, which supports many users across the country, was struggling with frequently dropped calls," said Frederik van Staden, senior account manager: WAN and ISP services at eNetworks, a wholly owned Datacentrix company. "This not only caused frustration for service desk team members and users alike, but repeated calls to different regions were also costly."

AFGRI sought outside assistance to improve its

capabilities and streamline operations, landing on Datacentrix.

Cloud-based telephony for fixed and mobile calls

Plans were established, and in time, AFGRI implemented a cloud-based telephony solution that could be integrated with its ITIL-compliant IT service management (ITSM) solution, for use by the internal IT support team.

"Traditional contact centre telephony systems can be integrated with typical CRM, ERP or ITSM software through customised programming, but this can be a lengthy, expensive process. The cloud-based phone system implemented at AFGRI was put forward due to its native integration into the support channel. It takes only a few clicks and can be deployed quickly and easily because no hardware is required for operation," said van Staden. "The eNetworks Session Initiation Protocol (SIP) trunking service, which interconnects with the phone system, means that calls between the branches and the service desk are zero-rated – so no cost is associated with these calls – even though the branches use a different telephone system."

The solution has improved support levels and delivered cost savings. Indeed, some 786 calls were reported on as zero-rated for AFGRI over a month-long period, at an average of 7.7 minutes

per call, translating into great cost savings for the organisation. As a result, AFGRI's support team can now spend more time on the phone in order to support their local user base, which is evidenced by the increase in average call duration.

"For the 12 months prior to the rollout, AFGRI's average duration per call was four minutes. Now, with zero-rated calls, calls are averaging 7.7 minutes in length – almost double – which has had a positive impact on the service desk's first-call resolution rate," said van Staden.

The more efficient, robust system saves AFGRI users time on searching for the right records, as the caller's details appear on the screen as soon as the phone rings. Engineers are able to save more time on every call by doing away with manual data entry. Calls are automatically logged as support tickets, along with key details about the call, including whether it is inbound or outbound, answered or missed, and the name of the line that was used. All call comments captured in the telephony system are also logged, along with a link to the call recording itself.

"The mobile nature of the cloud-based system is a great advantage for hybrid workplaces, as users only need a computer or smart phone and an Internet connection. Managers can effectively manage the service teams remotely through the advanced reporting and measurement KPIs," said van Staden. ■

Enabling smart farming with IoT

Twiga Foods is a Kenyan technology enabled B2B food distribution platform which builds fair and reliable markets for agricultural producers, food manufacturers and retailers with a focus on transparency and efficiency.

The company sources produce from more than 17,000 producers and delivers to more than 8,000 retailers around three times a week. Twiga's digital platform and logistics network links retailers with farmers and food manufacturers, presenting a convenient and reliable alternative to the current inefficient and expensive farm/factory-to-market processes.

To drive its mission forward, Twiga plans to develop technology-driven commercial solutions to solve the challenge of food security in Africa. As part of this mission, Twiga foods was looking to deploy a smart agriculture solution in one of its farms as a pilot, which could be replicated across their other farms in the country.

Twiga's Takuwa farm in Nairobi, Kenya was chosen, having been experiencing restricted growth due to insufficient water. The farm was also struggling with proper soil and fertilization management owing to lack of precise soil moisture, weather, and water quality data.

Smart farm transformations

With the potential of the Internet of Things (IoT) to transform agricultural productivity in Kenya and indeed the world at large - affording greater food security and improved incomes for farmers - Twiga Foods partnered with Liquid Intelligent Technologies Kenya to employ farming, enabled by Kenya's rapidly expanding Internet of Things (IoT) network.

"Climate change and global warming has brought about unpredictability in terms of weather patterns," said Peter Njonjo, CEO at Twiga Foods. "Adopting smart agriculture

solutions that use IoT will enable farmers gain better information for managing their input costs and increasing their crop yield, thereby encouraging food security in the country."

Liquid Intelligent Technologies deployed a comprehensive precision agriculture IoT system at Takuwa Farm, increasing productivity and helping transform it into an intelligent farm. The system includes four different types of agriculture sensors: a comprehensive weather station; soil moisture and temperature probes; borehole water meters; and sensors for measuring irrigation water acidity and salinity. It utilises Liquid Intelligent Technologies' extensive low-power wide area IoT network using OG Sigfox technology, which covers 85% of the population in Kenya at lower costs than other technologies.

With the system, the farm managers were able to move on from manual readings and historic analysis to automatic and real-time/predictive analysis. The sensors provide critical information to the Twiga agronomy team, while the smart weather station provides real time data that helps farm managers deploy the most effective farming methods for irrigation and application of pesticides. Meanwhile, the water quality sensors provide specific metrics that help the team to optimize their fertilizer application. Additional data gathered and monitored on a real time basis include temperature, humidity, rainfall, and wind speed.

The soil probes installed at Twiga's Takuwa farm measures moisture levels and temperature at six different depths into the soil, giving precise information of soil quality and irrigation needs at the roots of specific crops. This is set to directly increase yield and productivity.

Saving up to 30%

Since the IoT deployment, Twiga's Takuwa farm



is increasing farm production due to more precise application of inputs and faster reaction times to local weather and soil conditions. By applying inputs based on data received on hyper-local weather and soil and water content, Takuwa farm can also save on costs related to irrigation water/pumping, fertilizer, and pesticides.

"Increasing business efficiency through digital solutions is one of the main reasons we partnered with Liquid Intelligent Technologies," said Peter Njonjo, CEO, Twiga Foods. "By using smart devices, we have automated multiple processes across the farm's production cycle. For example, the use of soil probes in monitoring the soil moisture in the expansive farm has resulted in an efficient use of water, as irrigation is only done when the soil moisture level is low. I would encourage other farms to also deploy IoT solutions to aid in food security for our country."

Similar deployments of this IoT technology have resulted in as much as 30% savings on irrigation water, which directly translates to electricity cost savings, and up to 25% increases in crop yields. Man-hours have also been reduced by 50%.

"I am excited about this partnership because, at Liquid Intelligent Technologies, we strive to be at the forefront of technological innovation that continues to bring positive transformation in many sectors of the society, including agriculture," said Adil Youssefi, Liquid Intelligent Technologies CEO East Africa. "Having now deployed our intelligent farming expertise on the Twiga Foods Takuwa Farms through the use of our IoT sensors will increase productivity and efficiency, ultimately contributing to the national Big 4 Agenda." ■



Cambium Networks launches next generation fixed wireless platform - the ePMP 4600

Cambium Networks has introduced the ePMP 4600, a next generation fixed wireless platform that allows service providers and private network operators to utilize the entire 6GHz spectrum to deliver up to 4Gbps throughput per sector over fixed wireless.

The ePMP 4600 is deployed in days rather than the months it takes to deploy fibre and is dramatically less costly than satellite access technologies, enabling service providers in rural and suburban areas to offer up to 1Gbps service packages with low latency to business and residential customers.

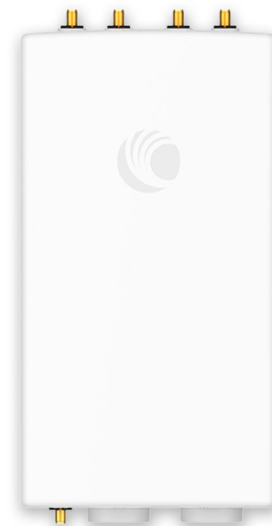
Network operators report field tests showing multigigabit throughput per sector and more

than 1Gbps to subscriber modules at ranges greater than two miles. The new spectrum will especially benefit hard-to-reach rural communities most impacted by the digital divide by providing a rapidly deployable way to deliver high-bandwidth, low-latency services for demanding applications, such as streaming video, videoconferencing, and gaming.

The 4600 is the fourth generation of Cambium Networks' successful ePMP platform with more than 3 million radios deployed and serving customers globally. The ePMP platform offers scalability and interference mitigation based on its unique air interface. The platform takes advantage of the 802.11ax

standard and overlays ePMP features such as TDD synchronization, SmartQoS and frame optimization.

The upcoming 6GHz spectrum will offer 850MHz of new clean, low noise floor channels that will be ideal for the new capabilities offered in the ePMP 4600 such as orthogonal frequency-division multiple access (OFDMA), multi-user multiple-input, multiple-output (MU-MIMO) in both the uplink and downlink directions and TDD synchronization. For point-to-point (PTP) applications such as campus connectivity and business services, the Force 4600C builds on the proven ePMP Force 400C Series to offer multiple Gbps and leverage the unique ePTP protocol for higher network efficiency.



Ceragon releases new RAON software for reduced energy consumption

Ceragon Networks Ltd.'s new Radio Aware Open Networking (RAON) software is now available for purchase as part of its IP-50FX Disaggregated Cell Site Gateway (DCSG) solution.

The RAON software is designed to increase operational efficiency, simplify radio monitoring and management, and reduce energy

consumption at a time when global energy prices are adversely impacting OPEX. By enabling the cell site gateway to act as a virtual in-door unit with a single IP address, RAON empowers unified monitoring and management capabilities. It informs the cell site router of any changes in connected outdoor

radios, allowing for data-driven decisions such as rerouting for optimal traffic flow.

The RAON-enabled two-in-one configuration combines a cell site router (CSR) and radio indoor unit (IDU) into a single device, increasing operators' flexibility to meet changing capacity demands

while also achieving cost savings. With the new software, the need to power, cool, connect, and provide rack space for two separate devices is eliminated, minimising energy consumption and reducing operational, administration, and maintenance (OAM) complexity, as well as provision complexity.

URGROUP's tunable DWDM transceivers to simplify 5G network management

URGROUP has announced the general availability of the ATOP family of Tunable DWDM transceivers. Developed to meet increasing customer demand for high performance optical transceivers, the ATOP 25G Tunable DWDM benefits from a high-density form factor with extensive tuning range. The range covers both 25G and 10G rates and a range of 10km to 80km.

Designed to simplify 5G network deployment and support flexible network management too, this product has already been extensively tested and qualified for OEM and

operator clients in a wide range of 5G Radio Access Network (RAN) applications.

Highlights of the ATOP Tunable DWDM transceiver range include multiple data rates, 25.78Gbps, 24.33Gbps, 10.31Gbps, 10.13Gbps, and 9.83Gbps; 48 C-band channels, full band auto-tuning within 4 minutes; 10-80km transmission distance via single-mode fibre; max power consumption less than 2.5W; and extended operation temperature range (-20-85 °C).

Not only does the new range enable flexible network management

by supporting bandwidth changes as needed in enterprise or metro networks, but it also delivers

significant long-term cost savings by reducing on-hand network inventory and simplifying spare parts stocking.



Field Master MS2080A spectrum analyzer - ideal for emerging wireless networks

Anritsu Company's Field Master MS2080A, a multi-functional spectrum analyzer, integrates nine instruments into a single package for time and cost efficiencies in the most demanding field environments.

Covering 9kHz to 4GHz, the MS2080A has unprecedented performance and features for a compact and portable spectrum analyzer, bringing distinct benefits to interference hunting and 5G/LTE base station installation and maintenance (I&M) applications.

It combines fast sweep speed of 45GHzps, advanced user features like interference source location by triangulation, and best-in-class RF performance, including ± 1 dB amplitude accuracy. Additionally, it supports a cable and antenna analyzer, power meter, and 5G/LTE analysis to make it an ideal general-purpose instrument that addresses measurement requirements for legacy and emerging wireless networks.

An optional real time spectrum analyzer (RTSA) with 2.5 μ s probability of intercept (POI) is available. The RTSA has up to 40MHz analysis bandwidth and DANL of

<-150dBm, making it well-suited for capturing intermittent and digitally modulated signals that can be hard to identify. Spectrograms allow irregular and drifting signals to be captured, recorded, and displayed.

The MS2080A supports a full range of measurements for 5G frequency range 1 (FR1) radios to 4GHz, including C-band, to support I&M of 5G New Radio (NR) and LTE base stations. Gated sweep analysis for transmitter quality measurements to accurately verify FR1 carriers is provided. The MS2080A offers full-channel, power-based, and 5G/LTE modulation quality measurement-based coverage mapping for

accurate over-the-air (OTA) testing.

Field Master MS2080A is the only instrument in its class to provide 5W of continuous RF input overload protection, preventing costly damage to the instrument's front-end when used close to high power transmitters or in high signal level environments. A 10-inch 1280x800 display meets the demanding IK08 specification for direct knocks and drops. Common functions are always accessible from the display, and side menus collapse to maximize graphical results. A soft case provides IP52 environmental protection to safeguard the instrument during transport or rain.



Look out for...

Coming soon: smarter cities for Egypt

Key stakeholders in Egypt's construction sector are increasingly embracing digitalisation as the country looks towards smart city solutions to solve its housing shortage.

Egypt's population increases in size by more than 1.5 million people annually, resulting in a chronic shortage of housing stock, which is added to by high levels of rural-urban migration. Accordingly, smart cities comprising clusters of smart buildings that use integrated processes and creative design to self-regulate their operations and environment have been planned to ease urban congestion.

The government foresees 37 new smart cities being constructed across Egypt, with several already underway; the New Administrative Capital, 45km from Cairo, which will be home to some 7 million people upon completion; the New Alamein City, on the North Coast, which is set to provide housing for 2 million people; and the New Aswan City, which is expected to provide social housing for over 850,000 people.

Smart cities require smart support. Etisalat Misr and Honeywell have signed a partnership deal that will see them collaborate on developing digital solutions to create safer cities and communities for citizens through areas such as improved citizen engagement, public space monitoring, environmental monitoring, improved navigation and connected health systems.

Honeywell will provide an IoT platform to enable artificial intelligence and machine learning, while Etisalat Misr will be responsible for connectivity, hosting services and software. The collaboration supports Egypt Vision 2030 by helping to enable digital transformation of key industry sectors across the country and creating a more sustainable environment through the deployment of smart solutions to conserve energy and water consumption and manage waste.

New access points meet WiFi 6 requirements for industrial vehicles

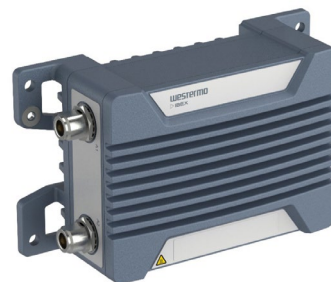
Westermo has added two new access points to its Ibex range of WLAN solutions to provide high-performance data communications onboard trains, industrial vehicles, and outdoor applications.

The Ibex-1310 and Ibex-1510 are concurrent dual band (2.4GHz and 5GHz) access points and clients designed to meet the IEEE 802.11ax standard, WiFi 6. By delivering enhanced performance and speed, especially in device-dense environments, the access points create networks that better support applications such as maintenance access, train data offloading and management systems, and hotspots for passenger WiFi.

The Ibex-1310 is approved for use on industrial vehicles, while the Ibex-1510 has been tested and

certified to meet rail standards EN 50155 and EN 45545-2, allowing deployment both onboard trains and trackside. The devices are designed to withstand the tough environment onboard vehicles, including the exposure to constant vibration, extreme temperatures, humidity and demanding electromagnetic environments. The compact and power efficient design enables easy integration in space-restricted installations.

A range of design and construction features helps to ensure a high degree of reliability over an extended lifecycle, which reduces total cost of ownership. A GORE-TEX® membrane prevents internal condensation, while IP66 protection prevents ingress of water and dust, even at the quick connect QMA connectors available



on the Ibex-1510. A high level of isolation between all interfaces enables direct connectivity to vehicle auxiliary power and protects against overvoltage and surges.

The access points are very easy to install, operate and maintain. The two devices are powered by Westermo's robust and easy to use SW6 operating system, which provides the latest cybersecurity features and updates.

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1&1 brings 5G fixed wireless access to 50 more sites



New German mobile operator 1&1 has announced the expansion of its 5G coverage with the activation of 50 additional 5G sites in Hamburg, Essen, Düsseldorf, Wiesbaden, Mainz, Munich, and Freiburg. These new sites will be used to make 5G fixed wireless access (FWA) services available to customers in those locations.

These new sites join the three

already activated in Frankfurt am Main and Karlsruhe in December 2022. These sites allowed 1&1 to claim to have met its goal of launching commercial 5G services by the end of 2022.

1&1 was originally aiming to have rolled out 1,000 5G mobile sites by the end of the 2022, as per its regulatory obligations, but in September the company moved to rein in these expectations,

blaming a then-unnamed partner for delays that could take up to six months to resolve. The partner was subsequently revealed to be Vantage Towers.

While only 235 sites are currently under construction, CEO Ralph Dommermuth said that he was confident that the company could still reach its obligated coverage target of 50% of all households ahead of its 2030 deadline.

Achieving such targets will reportedly require “around 12,600 radio masts and over 500 regional datacentres,” said Dommermuth.

1&1 is required to have passed 25% of the German households by the end of 2025. The company is one of the few operators in the world building a network entirely on Open RAN architecture, with its network being built and managed by Open RAN specialist Rakuten Symphony.

Africa Data Centres offers remote peering



Africa Data Centres now offers remote peering or peering at an internet exchange without having to be physically present, through its partnership with INX-ZA, which operates a fully neutral, community-run internet exchange point in South Africa.

Through this partnership, it brings free peering from any of Africa Data Centres' facilities to INX-ZA's Johannesburg Internet Exchange (JINX), the oldest IXP in the country, as well as its Cape Town Internet Exchange (CINX).

The alliance means customers can use any network service provider's infrastructure to reach the IXPs, so they do not need to invest in any extra equipment. Remote peering makes multi-region peering more accessible,

efficient, and simple to manage.

“Bringing remote peering to the table is just one more way Africa Data Centres is helping customers reap the benefits of peering at INX-ZA without having to build and manage their infrastructure in Europe,” said Tesh Durvasula, CEO of Africa Data Centres.

He explained that instead of setting up a point of presence to access internet exchanges, customers can now connect directly to them using existing infrastructure. “Having this ability not only reduces capital expenditure and complexity, deployments can be achieved in a matter of minutes rather than months.”

“By using a remote peering provider organisations in every

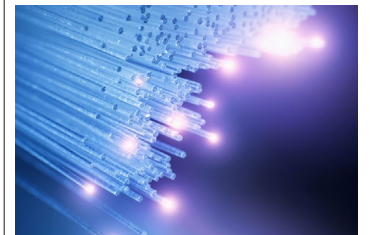
industry can add scalable bandwidth capacity on flexible terms to access a wide range of IXs. The company in question will still need its own autonomous systems number in order to peer with other members but will maintain full control over peering and routing policies,” said Durvasula.

The introduction of remote peering lays the groundwork for more businesses to peer at IXs around the world. “It is a faster and more cost-effective way to access a wide range of IXPs, reducing the number of suppliers and general network costs. Connectivity can be managed simply, without the expense of purchasing physical port or having to deploy equipment at each exchange point,” said Durvasula.

Angola gains \$249 million for broadband



Angola will benefit from a loan of \$249 million from the People's Republic of China to finance a national broadband project.



Under the terms of the agreement, the funds will be disbursed by the Export and Import Bank of China. They will be used to build a 2,000km land optical cable network across Angola as well as an undersea line linking the enclave of Cabinda. The money will also be used to modernize the country's telecommunications network.

This partnership is part of the actions undertaken by the Angolan government to accelerate the development of the telecommunications sector in a context marked by the acceleration of digital transformation and the growing demand for high-speed telecom services.

The national broadband project is expected to strengthen the country's telecom infrastructure and bring broadband network services to remote areas. It should also reduce access costs and accelerate Luanda's digital economy ambitions.

Airbus deployed Tetra network for FIFA World Cup 2022



Airbus helped ensure the safe hosting of the FIFA World Cup 2022 as communication technology partner of the event in Qatar.

Airbus deployed its mission-critical communication and collaboration solutions for use by security, public safety, and emergency personnel assigned to different key points and areas in, and around the stadiums and the metro.

The resilient Tetra network, the Tactilon Dabat terminals, as well as more than 20,000 reliable radios, and Tactilon Agnet were used to secure various areas, and guarantee the safety of the international football teams and spectators.

Security personnel and first responders, including 5,000 policemen, benefitted from the technologies' multimedia-enriched features such as video and text and voice messaging as well as emergency calls and location tracking.

“In any mega events such as the World Cup, collaboration is key in the area of security and safety. Our mission-critical solutions helped connect the first responders during the football tournament, giving them the possibility to carry out their jobs efficiently. Airbus is delighted to have contributed to Qatar's efforts to guarantee everyone's safety, from the footballers, to fans and spectators, as well as those who work behind

the scenes,” said Selim Bouri, vice-president for Airbus Secure Land Communications in Africa, Asia and the Middle East. “We were fully aware of the great lengths that went to security and safety planning and training, and to be picked as the sporting spectacle's communication technology partner was an honor and a proud moment for us.”



Colombia's MNOs eye 5G spectrum auction

 Nine telecommunications companies have apparently expressed their interest in acquiring radio spectrum in the 5G spectrum auction expected to take place in Colombia in the third quarter of 2023.

Claro, Tigo, Telefónica, WOM, ETB, OSC Top Solutions Group, Colombia WB Hots, Global Play and EGC Colombia have all indicated that they plan to take part in the public tender.

At the end of 2022, the Ministry of Information and Communication Technologies began work on finding out the likely spectrum needs for the

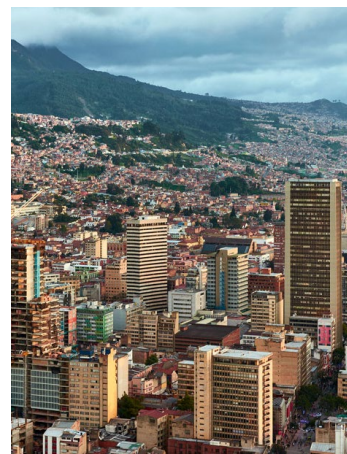
deployment of 5G in the country. It has proposed an action plan involving bidding for frequencies in the 700MHz, 1.9GHz, 2.5GHz, 3.5GHz and 26GHz bands.

"Capacities and speeds will be higher and with them it will be possible to meet the growing demand for data, content and applications from users, as well as reach remote regions of the country with quality solutions for rural areas," said ICT minister Sandra Urrutia.


Eight operators have expressed interest in obtaining frequencies in the 3.5GHz band, and six

have said they want spectrum in the 26GHz band.

Claro has expressed interest in acquiring frequencies in all available bands with a national coverage area, using 3.5 and 26GHz spectrum for 5G. Colombia WB Hots is also looking at frequencies in all available bands. The others are proposing a variety of spectrum combinations, though one potential bidder, the Empresas Públicas de Medellín (EPM) group, is awaiting a regulatory framework that makes it possible for participants other than telecommunications companies to access the spectrum.



Airtel Zambia supports education

 In continued support of the delivery of quality education across the markets, Airtel Zambia has handed over six classrooms and an ablution facility to the country's Ministry of Education.

The facilities are located at Mwalubemba Community School


in Chongwe Rural and Tsalubuka Community School in Ndola.

Airtel Zambia's managing director, Manu Sood noted that the facilities were constructed in partnership with the Zambia Open Community Schools. ZOCS' Board chairman, Victor Koyi, called for more such partnerships

to enable orphans and vulnerable children to access education through community schools.

"At Airtel Africa, we believe that education is a basic right for all children and a vital engine for social mobility and equality," said Airtel Africa in a statement.

Panama seeks third MNO

 Panama has opened the doors for a third operator to enter its market to fill the void left by the exit of Digicel Panama, by opening pre-qualification for the operator's mobile licence.

Autoridad Nacional de los Servicios Públicos (ASEP), Panama's national public services authority, plans to start the first stage of the licensing processes in March. The acquirer of the licence will also be able to purchase certain Digicel assets.

"We reiterate to all Digicel customers, as well as to its collaborators and suppliers, that the company continues to operate hand-in-hand with the auditor, providing its services without interruptions. Digicel will maintain its operations until the entry of the new operator and, in addition, it will accompany the new company in the transition process," said ASEP in a statement.

Digicel revealed in April 2022 its intentions to liquidate due to the merger between rivals Cable & Wireless Panama which operates the +Movil brand and Claro, as it believed the merger will lead to unfair competition in the market.

Currently, Millicom's Tigo Panama is the only operator competing against the merged entity of CWP/Claro.

Marlink connects Solstad Offshore via Starlink

 Marlink has equipped the Solstad Offshore vessels with Starlink connectivity integrated with the Sealink VSAT, L-band backup and 4G services. Solstad Offshore is the first offshore vessel operator on the Marlink network to trial Starlink, testing the network in harsh weather conditions.

Solstad Offshore will use the connectivity to deliver enhanced communications for seafarers, with high speed, low latency connectivity, designed to provide an unparalleled Maximum Information Rate (MIR) performance in combination with a reliable Committed Information Rate (CIR) over VSAT, guaranteeing business critical connectivity.

"We are delighted to be supporting the adoption of next-generation networks in the maritime offshore market through this agreement with Solstad Offshore, which is the first of its kind on the Marlink network in this sector," said Tore Morten Olsen, president, Maritime, Marlink. "The integration of new LEO capabilities with our well-established Sealink VSAT service represents a new

frontier of performance for maritime customers, like Solstad, that will experience unparalleled connectivity that improve business operations and crew welfare."


Marlink's integration of existing and emerging networks into one seamless end-to-end managed hybrid network provided to Solstad will improve user experience, application performance, reliability, scalability, and security. Solstad will also benefit from advanced network management tools, including SD-WAN application-based routing, to optimise reliability of business-critical communications and enable a higher quality user experience.

"Solstad Offshore is committed to innovation and quality in all

our operations and we consider connectivity to be an important driver of value for our customers, crews and our people ashore," said Christian Nesheim, ICT director, Solstad Offshore. "We are happy to further deepen our relationship with Marlink and have the opportunity to pilot the Starlink connectivity solutions together. Testing done on vessels in the North Sea region will give us valuable experience on the roughness and stability of the solution during the tough winter months. Following the Starlink trial we will evaluate if this should be incorporated as a supplement in the Solstad Offshore fleet, as an integrated part of our existing connectivity solutions by Marlink."



France dedicates €750 million to 5G and 6G R&D

 The French government has launched a new support scheme for R&D projects centred on advanced 5G, 6G, and future generations of networks. A call for projects has been issued, and the application period will remain open until the end of February 2024.

Against a backdrop of supply chain disruption wrought by the pandemic and global trade disputes, there is a heavy emphasis on producing sovereign solutions. France is on the lookout for projects that can guarantee high levels of security and reliability.

"The developments carried out may relate to all the telecom equipment (software, hardware and services) for

the access network, the core network, the edge cloud, the connected 5G terminals, [and] the technological bricks necessary for the deployment of innovative uses," the government said in a statement.


The government is also seeking environmentally responsible innovations, particularly on controlling network energy consumption, and considering the challenges of eco-design of materials to limit the material footprint of digital equipment.

The scheme comes under the umbrella of president Macron's France 2030 strategy, a €30 billion plan unveiled in autumn 2021

aimed at modernising the economy, including but not limited to the energy, transport, food, health, and culture sectors. €750 million of the France 2030 budget will be funnelled into the 5G and 6G R&D support scheme by 2025.

"With this new call for projects, we are positioning France at the forefront of global innovation on the network technologies of the future," said Jean-Noël Barrot, minister delegate for digital transition and telecommunications, in a statement. "Let's continue the momentum instilled by France 2030 to guarantee the country's technological sovereignty."

Lynk Global to launch satellite-phone in April

 Lynk Global has successfully deployed two more satellites as part of a plan to launch a phone connectivity service.

The launch and deployment of the satellites was postponed several times due to delays and high traffic on SpaceX's rockets, but the company remains in a good position to launch a satellite-to-phone service in April 2023.

While some competitors are targeting newer premium smartphones, Lynk Global's service is designed to work across 2G, 4G LTE and 5G. It's also compatible with 3G. Lynk Global has signed commercial agreements with 25 operators covering 41 countries and testing is underway.

Juniper Research: global eSIM market to reach \$16.3 billion by 2027

 Juniper Research forecast the value of the global eSIM market will increase from \$4.7 billion in 2023 to \$16.3 billion by 2027, driven by increased adoption in consumer devices.

Juniper Research found the total number of smartphones using eSIM will increase from 986 million this year to 3.5 billion by 2027 with manufacturers such as Samsung and Google developing eSIM-only Android devices to compete with Apple.

One of the previous concerns by operators about dropping a

physical SIM slot in favour of a virtual module was it made it easier for customers to switch operators.


"Despite operator concerns regarding the disruptive impact of eSIMs on existing business models, growing support from smartphone manufacturers will place additional pressure on operators," said Juniper Research principal analyst Scarlett Woodford. "In response, service providers must support eSIM connectivity to avoid subscriber attrition as technology

awareness increases."

Juniper Research also found that India and China will account for 25% of the smartphones using eSIM by 2027, but noted current regulations prevent Chinese-based device manufacturers from selling to their home markets.



OneWeb closes Akiak test site

 OneWeb has closed its vaunted test site in the village of Akiak, Alaska, following complaints from the Alaska Telecom Association (ATA) and local internet providers.


Akiak was one of OneWeb's first test sites and was notable for being a keystone of the company's marketing campaign, designed to show that the LEO satellite constellation could provide internet services to one of the most remote communities in the US.

According to sources, the ATA and local providers have written to the Federal Communications Commission (FCC) to complain that the "service is too costly to adopt" and had been discontinued "due to ongoing technical difficulties." The nature of these technical troubles remains unknown.

According to OneWeb, other rural Alaskan test sites are still up and running with positive results.

In contrast, Starlink launched commercial services to consumers in Alaska in November and is reportedly gaining a growing market share in remote locations. The service already covers Akiak and has been well received by residents.

DFA and BCS progress on long-haul fibre project along Zimbabwe's rail tracks

 Dark Fiber Africa (DFA) and Bandwidth and Cloud Services Group (BCS) have completed the first stage of their long-haul fibre backbone project, which aims to provide better connectivity between Zimbabwean towns and cities by deploying fibre along the country's national rail tracks.

In the first phase, 1,180km of fibre will stretch from Zimbabwe's border town of Beitbridge in Matabeleland South province to the resort town of Victoria Falls in the

north of the country. The network infrastructure cost \$18 million.


The second phase, also expected to cost \$18 million, will extend with an additional 800km from the village of Somabula to Harare via the city of Gweru. The infrastructure will also extend the network from the city of Bulawayo to Plumtree as well as from Harare to Mutare by the middle of 2023. Eventually, the project will have three additional stages that will see Zimbabwe interconnected with South Africa, Botswana, Zambia,

and Mozambique.

BCS has also partnered with National Railways of Zimbabwe (NRZ) to use technology to dig and lay cables under the ground on the side of the railway line.

"The project underlines Zimbabwe's commitment to improving people's livelihoods in line with the Africa Continental Free Trade Area concept," said Jenfan Muswere, Zimbabwe's Information Communication Technology, Postal and Courier Services minister.

Trans Africa Towers and NuRAN Wireless to deploy 500 towers in DRC

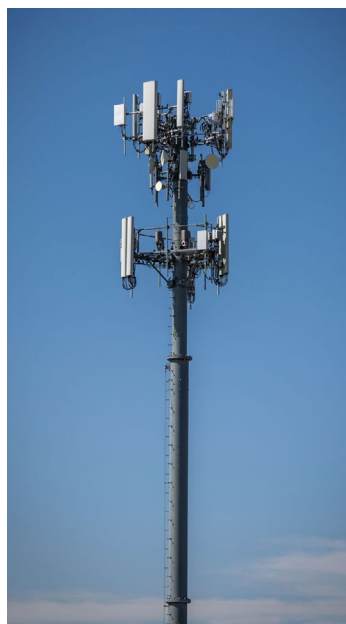
 NuRAN Wireless Inc. and Trans Africa Towers will deploy 500 telecom sites over a three-year period in the Democratic Republic of Congo (DRC). The collaboration is expected to improve mobile network coverage in the country.

According to Sleiman Haddad, chairman and CEO of Trans Africa Towers, some 66% of the new telecom sites to be built under this project will be in the provinces of North Kivu and South Kivu. Improved communications should help strengthen the security of remote and vulnerable villages in these provinces.


“Over the years, Trans Africa Towers has developed strong expertise and capabilities in

deploying mobile infrastructure for rural connectivity. We are confident that the collaboration between our two companies will result in successful large-scale deployments to bridge the digital divide,” said Francis Létourneau, president and CEO of NuRAN Wireless.

NuRAN Wireless has set itself the goal of reaching 10,000 contracted telecom sites in Africa. The company has already signed several partnerships, notably with the South African group MTN in South Sudan, Sudan, Namibia, and Côte d’Ivoire. In the DRC, NuRAN Wireless had already signed a similar agreement with Orange in 2021. The contract provides for the deployment of 2,000 new telecom towers in the country over forty months.



Verizon switches off 3G

 Verizon has officially decommissioned its 3G code-division multiple access (CDMA) networks, becoming the last major US MNO to do so.

As of 31 December 2022, Verizon’s 3G CDMA network was no longer functional, in line with moves made by other US MNOs such as AT&T which ended its 3G support in February 2022.

Businesses using devices only capable of accessing 3G networks, such as older models of mobile phones, tablets, or diagnostic machinery will no longer have network access. This applies even to emergency calls, and numbers registered to accounts that have not migrated to more advanced networks by February will be disconnected.

Many businesses that still use 3G devices have worked with Verizon to create migration plans that will enable them to quickly switch to 4G and 5G-capable equipment.



Croatia begins spectrum auction

 Croatia’s telecommunications regulator HAKOM has announced the start of the latest competitive frequency allocation process in the country.

On 16 January bidding began for licenses to use spectrum for mobile communications in the 800MHz, 900MHz, 1800MHz, 2100MHz, 2600MHz and 3600MHz bands.

Bidding during the auction will be conducted electronically. Bidding for individual frequency bands is separated into two phases. The first tender covers the 800MHz, 900MHz, 1800MHz, 2100MHz and 2600MHz frequency bands, which will be allocated on

a countrywide basis. The second will cover the 3600MHz frequency band at the regional level.

The 3400-3480MHz band will be allocated at the regional (or county) level to create business opportunities for smaller, regional operators, to encourage a variety of services, and to give end users more choice.

The auction is expected to wind up in March, assuming, of course, that one or both tenders don’t take too long. For the format of both competitions, a simultaneous multi-round auction system is being used. The specific placement of frequency blocks

per bidder will be determined in an additional round of bidding through sealed bids. Permits will be issued for a period of 15 years but could be extended for an extra five years.

The total starting price of all bidding blocks for national coverage is €154.8 million.

A1 Croatia, Hrvatski Telekom and Telemach will be participating in the auctions for the frequency bands 800MHz, 900MHz, 1800MHz, 2100MHz and 2600MHz. Meanwhile, Digicom and Markoja are expected to go head-to-head for the 3600MHz frequency band.

Russia causes US\$1.79 billion damage to Ukraine’s telecom sector

 Russia caused US\$1.79 billion worth of damage to Ukraine’s telecoms sector, reports the ITU, which stated that Russia had either “destroyed completely or seized” telecoms infrastructure in the country.

According to Reuters, the ITU was appointed to assess the damage in the six months since Russia invaded


in February 2022. The ITU found that Russia caused considerable damage and destruction to more than 10 of the 24 regions in Ukraine.

“Since the beginning of military attacks, with the purpose of using the facilities in its interests and for its own needs, the aggressor either destroyed completely or seized the regular operation of public and private

terrestrial telecommunication and critical infrastructure in the temporarily occupied and war-affected territories of Ukraine,” said the ITU in the report.

It also accused Russia of switching Ukrainian dialling codes to Russian ones and conducting 1,123 cyber-attacks against Ukraine. A Russian diplomat has reportedly dismissed the ITU’s report.

Mada Communications deploys Nokia’s Wavence

 Mada Communications will deploy Nokia’s Wavence microwave solutions to modernize its transport network and offer enhanced experiences to its customers in Kuwait.

Under the deal, Nokia will replace Mada’s existing transport network with Wavence microwave solutions. In addition to boosting network performance, this will help Mada to simplify its network operations and improve network economics. Mada will benefit from a seamless installation and lower transport network power consumption.

The Wavence portfolio provides a complete microwave solution for all use cases covering short-haul, long-haul, E-band and SDN-based management, both for service providers and enterprises.

Q&A

Tero Pesonen, chair of TCCA's Critical Communications Broadband Group and vice-chair of TCCA's Board



Who was your hero growing up?

I was brought up to respect integrity, people devoted to their values, but also to admire people who were innovative and prepared to think out of the box. However, it seemed right not to idolise individuals, but to recognise the importance of cooperation.

What was your big career break?

I am curious and interested in all kinds of fields ranging from history, social sciences, linguistics etc., but technology innovations have always had a special spark. ICT was taking giant leaps and I wanted to be part of it. I applied to do my military service in signalling with digital systems and went to study related fields in the university. An opportunity to write my master's thesis on TETRA opened back in 1997, when my semester break time superior in Nokia moved to the Nokia PMR unit. It felt like a great combination of being allowed to work with leading edge technology and at the same time make a real difference in contributing to the saving of lives around the world.

What's the best piece of advice you've been given?

It is debatable if this is really the best or even a good one, but nevertheless one that I have tried to follow is "nothing is to be shamed for." With this I have been able to take a step forward to uncertainty and out of my comfort zone.

If you had to work in a different industry, which one would you choose?

I devote part of my time to help charities develop their fundraising and volunteer management processes and systems. It is another way

of trying to contribute to developing a better world. In critical communications it is about saving lives and protecting societies by enabling first responders and others to conduct their duties efficiently and safely. Charities in turn bring help and relief to the ones in need via different route.

What would you do with \$1 million?

Could we make it \$100 million? I would split in three.

One third to directly support the charities I care for. One is devoted to increasing literacy around the world and as part of it to protect as far as possible spoken languages from extinction. Being able to express oneself in your own language is a basic need.

Second, to invest in some critical communications start-up phase company that has a novel idea about how to increase operational efficiency in information centric field operations.

The final third would be for a similar investment, but in the charity technology sector. There are plenty of opportunities to communicate to and involve donors and volunteers deeper into the mission of a charity. However, developing suitable tools for that may not be very high on commercial companies' agendas.

Where would you live if money was no object?

Summers with plenty of light in Finland are wonderful, but it is fair to acknowledge that in November – January it would be quite enjoyable to be elsewhere. I have felt rather good wherever I have lived, but I do value access to nature, safety, working process as well as clean air and

water (in addition to high-speed reliable internet). Coming to think about it, it is stress free to live in a trust-based society. Perhaps, that is a contributing factor as to why Finland was rated as the happiest country in the world recently.

What is the most challenging aspect of your job?

My role in TCCA is to help build a safer and more secure future. However, everyone in the sector is already quite busy with the present and sometimes past issues. Convincing and bringing stakeholders across the entire sector, including

"It is debatable if this is really the best or even a good one, but nevertheless one that I have tried to follow is 'nothing is to be shamed for.' With this I have been able to take a step forward to uncertainty and out of my comfort zone."

vertical markets, together to invest into the future with great potential return is the most challenging part.

TCCA has been rather successful in achieving this. We have established the Critical Communications Broadband Group that consists of all the stakeholders in the value chain, giving us a unique opportunity to take every relevant aspect into account. A remarkable example is the creation of a white paper on Mission Critical Broadband Device Procurement that addresses the realities from the industry as well as from the user and operator sides for optimum outcomes. Now we are looking into challenges that Massive Mission Critical Video brings, looking into specific cybersecurity questions for the sector and the creation of a common 3GPP standard conformance certification for mission critical services together with the Global Certification Forum (GCF) just to mention few. 'Success In Cooperation'

– the theme for Critical Communications World 2023 – is true. Mutual trust, openness and joint work brings us the results.

If you could dine with any famous person, past or present, who would you choose?

Dining with Jesus would be quite remarkable. His teachings are being interpreted in so many ways today; it would be very interesting to ask about them first hand.

From the present day I am certain I would be able to get food for thought with many of those that are leaders in their sector – be it in science, business, politics, culture or even religion.

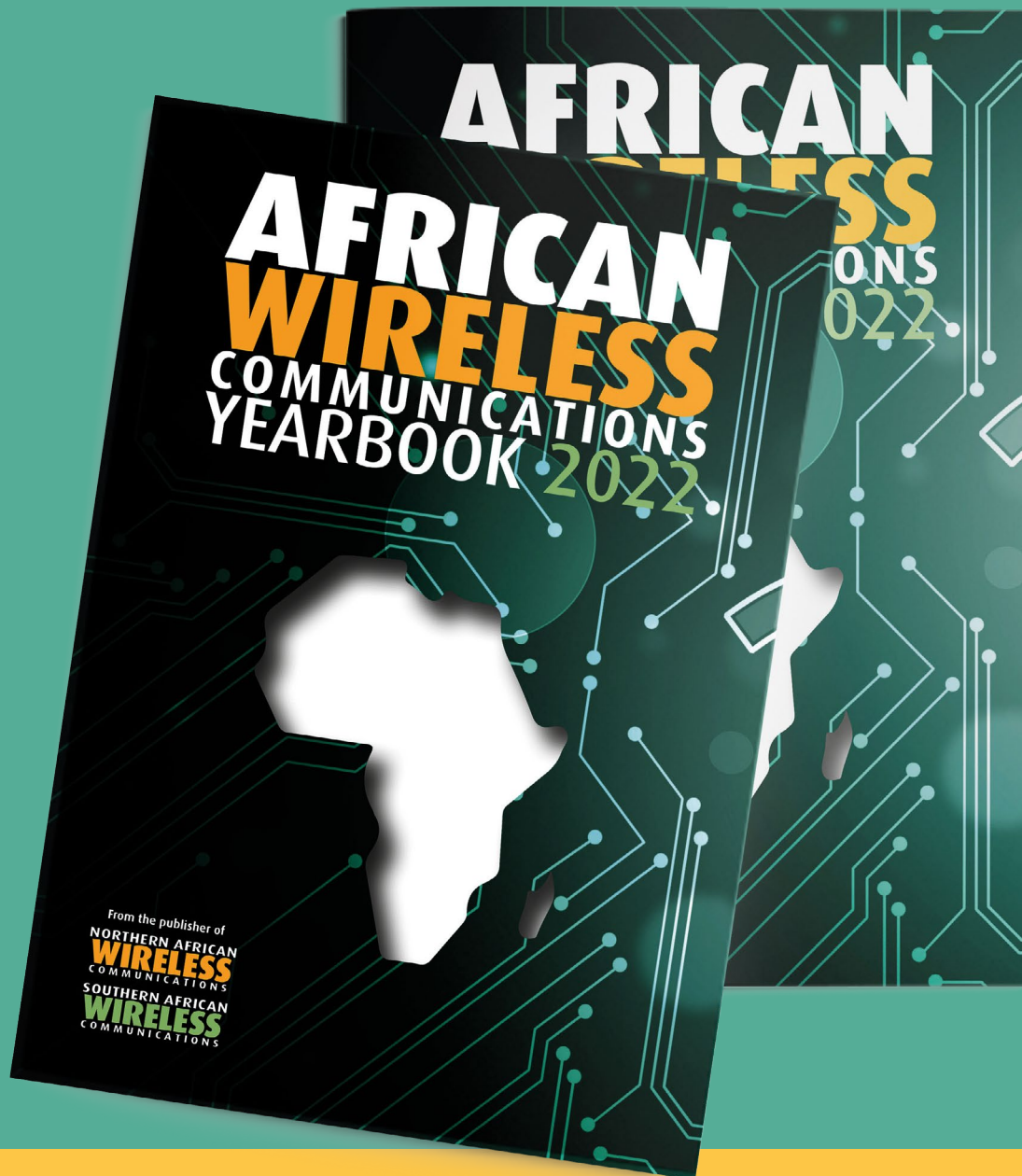
What's the greatest technological advancement in your lifetime?

In my mind there are two competing things: mobile communications and the internet. Together they have changed the way we live and our societies work profoundly.

These relate also very strongly to our present-day situation with critical communications. In the previous technology cycle 25 years ago, the essence was about digitalisation – moving from analogue technologies to digital one such as TETRA. With that a substantial service improvement was possible. Higher capacity, improved speech quality, increased security and data services like database queries and automatic location. Now, we are on the verge of a new transition the shift from voice centric to information centric field operations. Augmented and virtual reality combined with multi-sensoring interpreted with artificial intelligence are opening new yet to be explored avenues. ■

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