For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

MAY/JUNE 2023 Volume 27 Number 6

- SSA mobile subscriptions to exceed 1 billion
- IoT: driving wireless communications
- Bringing broadband to Africa

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KADIUM

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Paratus celebrates 20 years in Africa with new DC

Paratus Group celebrates 20 years in Africa by announcing that it will construct Angola's first Tier-IV by design Data Center (DC) in Luanda.

This complements the existing two Tier-III by design DCs it already owns and operates in Angola. This is the fifth world-class certified and carrier-neutral DC operated by Paratus Group in southern Africa.

"The new DC will be constructed on a 30,000m2 plot, will have the capacity to house over 2,000 cabinets, and will have a total IT power capacity of more than 10MW. It is a natural evolution after having built other world-class DC facilities in Namibia and Zambia recently. It will be the biggest DC in Angola and not only complements our existing DC offering but will cement our network in Angola as a major hub in the region," said chief technical officer at Paratus, Rolf Mendelsohn. "Colocation of critical infrastructure in DCs is becoming indispensable to businesses wanting a digital economy advantage. We will support this by providing the necessary infrastructure and services to give businesses what they need to actively compete in the fourth industrial revolution (4IR)."

Paratus owns and operates DCs in Angola, Namibia, and Zambia. All Paratus DCs have been ISO 9001, ISO 27001, and PCI-DSS certified, a commitment to compliance that Paratus believes is unequalled on the African continent.

Cell C migrates network operation to MTN

Cell C has successfully completed its network migration ahead of schedule.

The migration involves switching off all its tower infrastructure and handing over the building and operation of its cellular network to MTN. MTN will provide Cell C with access to a 'virtual radio access network' for its prepaid and mobile virtual network operator (MVNO) subscribers.

MVNOs that run on Cell C include FNB Connect, Capitec Connect, Shoprite K'nect, and Standard Bank Mobile. Cell C's contract subscribers already all roam on Vodacom.

With its network migration complete, Cell C says it now has access to around 14,000 towers countrywide. Of these, over 12,000 sites are 4G/LTE enabled.

"This is a huge milestone for Cell C and our valued customers," said Cell C chief technology officer Schalk Visser.

The company promised that the migration would give customers expanded national coverage, higher quality connections, fewer dropped calls, and a more stable network during load-shedding. This is because their partner network is investing in backup power.

"We have effectively increased our network access close to three-fold in less than three years, from 5,500 towers to 14,000," said Cell C. "We are the first mobile operator to think about our network strategy differently, and instead of trying to build out an expensive and unsustainable network, we chose to become a buyer of network services."

Cell C said that technology advances enabled this approach and that this innovation has changed the telecommunications landscape. It also stated that the market now comprises those that own infrastructure and those that buy infrastructure as a service. However, Cell C insists that it is not itself an MVNO; it uses its own spectrum and is still fully in control of the customer experience.

"This ground-breaking model has propelled Cell C's network footprint forward by 20 years," said Visser. "We now have access to best-in-class infrastructure, can benefit from scale and have simultaneously reduced our network expenses and capital expenditure on costly infrastructure."

The alternative to this approach would be for Cell C to invest billions yearly to roll out a physical radio access network in the traditional mobile network operator model.

Vodacom and MTN each spend around R10 billion per year on their mobile networks in South Africa. In its most recent financial results, Telkom reported spending R2.75 billion on its mobile network in the past year.

"We can now focus our investment and energies into innovating products and services that will add value to customers, knowing that we can operate from a competitive platform that offers the same quality connectivity to all South Africans," said Visser.

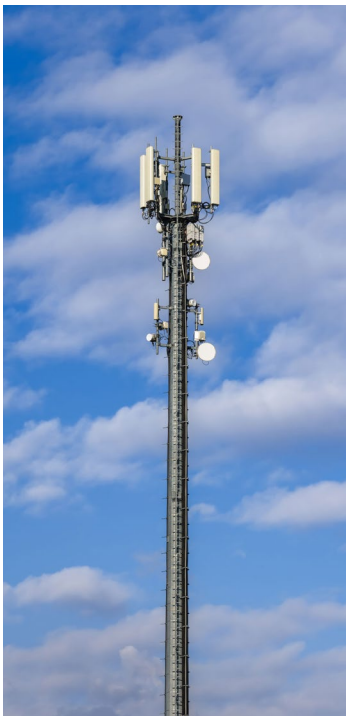
IFC invests in Eastcastle

The International Finance Corporation (IFC) has granted a $60 million loan to telecom tower manager Eastcastle Infrastructure. The funds will finance the extension of its network in the Democratic Republic of Congo (DRC).

Eastcastle will lease its new towers to mobile network operators and other digital service providers in the DRC. This will allow them to expand their coverage while reducing their operating costs and energy consumption through infrastructure sharing.

This investment is part of Eastcastle's growth ambitions in sub-Saharan Africa. The company announced in June 2021 that it would invest $130 million in strengthening its activities in the Democratic Republic of Congo, Nigeria, and Côte d'Ivoire. This stems from the sale of the majority of its capital to a consortium formed by African Infrastructure Investment Managers (AIIM), Adenia Partners and the IFC.

"We are very pleased that following IFC's equity investment in Eastcastle, it has been able to provide our DRC operations with a $60 million long-term debt program. Together with the $34 million from Standard Bank of South Africa, this will allow us to exceed 1,000 towers in the DRC," said Peter Lewis, co-founder and director of Eastcastle Infrastructure Ltd.

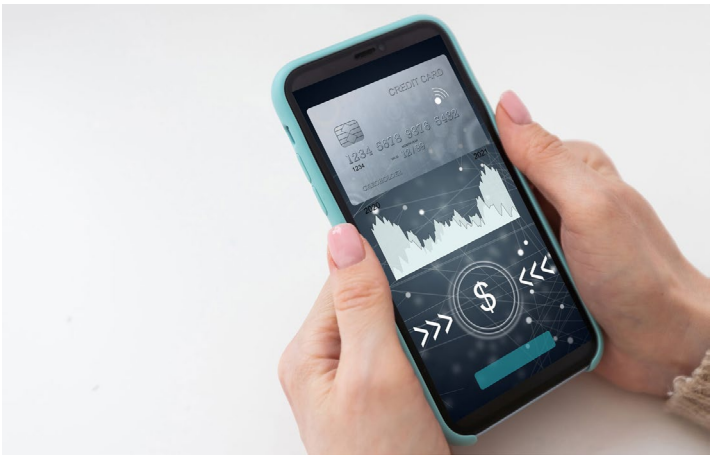


VodaPay adds free cash deposit service for the underbanked

Vodacom's super-app VodaPay has added a free cash deposit service to expand its reach to unbanked users in South Africa.

Vodacom Financial and Digital Lifestyle Services CEO Mariam Cassim said the new cash deposit and send mone" services support the operator's intention to accelerate digital and financial inclusion in the country for both banked and unbanked users.

"By building broader, more convenient offerings onto VodaPay, such as deposit and cash-out networks, we aim to enable more people to use and benefit from digital financial services," said Cassim.



Until now, the super-app's payment services have only been available to those with bank accounts but the new cash services expand the reach to the unbanked. VodaPay's deposit money function makes it possible for users to add cash for free into their VodaPay Wallet through Vodacom stores and selected national retailers such as Pick n Pay and Pick n Pay Express, Boxer, PEP, Ackermans, Makro, Rhino Cash 'n Carry, Game, Builders Warehouse and Cambridge Food. Customers can also deposit money to their VodaPay Wallet at local spaza shops through Kazang merchants.

With cash loaded in their VodaPay Wallets, customers can buy products or make payments online with VodaPay as well as earn rewards.

Customers can use the money in their VodaPay Wallets to buy electricity, airtime and data, as well as to pay bills without incurring extra charges. The digital wallet also offers a secure way for users to store their money as it eliminates the need to carry cash.

"While digital payments are growing in South Africa, we understand that cash is still an important part of many of our customers' daily financial transactions," said Cassim. "We have also chosen specific partner channels that make the service even easier and simpler to use."

Vodacom's financial services offering is the fastest growing contributor to the group's suite of new services. In its quarterly trading update for the three months that ended 31 December 2022, the financial services division's quarterly revenue increased 30.6% YoY to R2.6 billion. The VodaPay super-app's downloads also reached 4.5 million, with 2.7 million registered users.

Pivotal Commware and MTN pilot 5G mmWave

Pivotal Commware has concluded a successful 5G mmWave field trial with MTN.

Pivotal created the world's first product ecosystem to help 5G MNOs like MTN to significantly reduce the total cost of ownership (TCO) of their mmWave networks, typically by 25-35% compared to the cost of fibre, while also minimising deployment time and maximising confidence in service assurance. Pivotal products leverage its patented antenna technology, Holographic Beam Forming.

The field trial used Pivotal's breakthrough network planning tool, WaveScape, to optimise the placement of multiple Pivot 5G network repeaters, enhancing mmWave signal coverage for the Festival's Edge apartment complex in Pretoria. These repeaters, which require no fibre connection, were able to extend mmWave signals beyond the range of the existing MTN base station's line-of-sight, improving broadband service coverage more cost-effectively than using fibre-connected base stations alone. The Pivot 5G's use of holographic beam forming technology enabled fibre-like, gigabit+ speeds at customer premises. Future testing will include the use of Pivotal's cloud-based Intelligent Beam Management System (IBMS) to commission, monitor, and optimise Pivot 5G functionality.

"MTN is committed to using enhanced cost and capex efficiencies to expand broadband service to our constituents. This field trial, the first of its kind in Africa, demonstrates our ability to harness robust, cutting-edge 5G technology to enable the benefits of a modern connected life to everyone. Pivotal Commware has given us a fresh perspective on the potential of mmWave's ability to help bridge the digital divide with gigabit connectivity," said Amith Maharaj, CTO, MTN Group. "While mmWave does present new challenges, its enormous capacity and throughput are undeniable. In Africa, mmWave could provide not only an attractive broadband alternative to fiber in terms of speed, quality and deployment time, but it could also lay the groundwork for enhanced mobile broadband."

"Pivotal is delighted to support MTN's bold and transformative step into mmWave, which we think will deliver on the promise of 5G for Africa. We look forward to partnering with MTN to bring reliable, ultrafast 5G broadband to African homes and businesses and regard this field trial as both a technical success and a demonstration of Pivotal's ability to execute globally," said Brian Deutsch, CEO, Pivotal Commware.

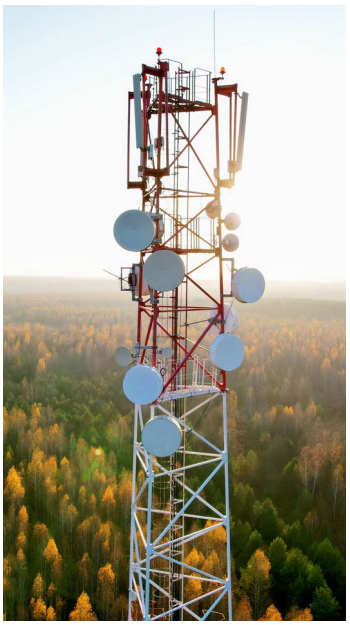
Angola Telecom privatisation cancelled

An Angolan government minister has said that plans to privatise the troubled state-owned Angola Telecom have been cancelled and the government is now focusing on restructuring the company.

According to local media, the minister of information and social communication technologies, Manuel Homem, has confirmed that Angola Telecom will not be privatised as originally planned. He said that Angola Telecom should now be treated as a strategic resource due to its significant role in the country's communication infrastructure.

However, he also admitted to the issues that may have encouraged privatisation moves in the first place, notably financial challenges caused by poor management, misguided investments and a belief that public institutions did not need to pay for services consumed, as they were perceived as belonging to the state.

Nevertheless, he suggested that Angola Telecom has the potential to meet service expectations. Thus, a strategic restructuring plan has been approved which will target unnecessary services and harmful practices. It will also seek strategic partnerships to leverage Angola Telecom's infrastructure and improve service quality for customers.



Huawei smartens up four mines

Huawei has partnered with four mines in Southern Africa to bring 5G-enabled technology solutions. The advancements mean that technologies such as remote vehicle control and Internet of Things (IoT), can be combined with 5G to improve functionality across these mines.

Currently, the company is working with three South African mines: Phalanndwa Colliery in Mpumalanga province; Nungu Mine, Mpumalanga; and Zijin Platinum in Limpopo. It is also working with Botswana's diamond producer, Debswana.

At Phalanndwa Colliery, Huawei and MTN provide an advanced 5G solution to ensure connectivity within the mine and plant area.

"Phalanndwa Colliery offers the perfect combination of the right technology with the right scenario, where ultra-high bandwidth and ultra-low latency of 5G allows real-time communication among the mine workers," said Huawei's SA carrier business CEO Fortune Wang. "The deployment of more application scenarios promises incredible changes will be happening in the Phalanndwa Colliery. These include PDS (proximity detection system), vehicle detection, tracking system and wireless video surveillance."

Huawei's technology has also been used by BCX to enhance worker safety and business productivity at Nungu Mine. The deployment of the 5G-enabled technology is set to boost the mine's operational efficiencies and safety. The mine has been equipped with wireless connectivity, data analytics and automation that enables video monitoring via drone technology, integrated connectivity with handheld devices and tablets, and a facial recognition proximity detection system.

According to Huawei South Africa enterprise division channel department director Frenndy Wang, in addition to improved safety and operational efficiency, another differentiator is that 5G allows for AI-based real-time data analytics, which is key for smart mining.

Meanwhile, the partnership between Huawei, MTN and the Zijin Mining Group sees the building of South Africa's first 5G-enabled smart metal mine. MTN and Huawei are providing 5G-based ICT solutions for smart mining including high-speed 5G broadband access, vehicle remote control, IoT, and enterprise digital transformation. Huawei said that once complete, the mine will mark a significant step forward in the digital transformation of the local mining industry. It will effectively demonstrate how several emerging technologies can be combined with 5G to improve functions across the mine.

"Digital transformation has become a global trend across numerous industries, and 5G has undoubtedly accelerated this," said Huawei global carrier marketing and solutions president Peng Song.

Huawei and Botswana diamond producer Debswana have also recently announced the 5G-oriented smart diamond mine project. The Huawei-enabled smart mine solution at the open-pit diamond mine, has seen Huawei's 4G eLTE private network solution providing stable connectivity for the Jwaneng mine. Connecting more than 260 pieces of equipment, including drilling rigs, excavators, heavy trucks, and pickup trucks the solution enables interconnection between the mine's production, safety, and security systems.

Mauritius Telecom's T3 cable lands in Amanzimtoti, brings 18Tbps to South Africa

Mauritius Telecom's T3 fibre optic submarine cable from Mauritius has landed in Amanzimtoti, Kwazulu-Natal Province, South Africa. It will be hosted and managed by Liquid Intelligent Technologies South Africa.

The T3 cable is 3,200km long and has a capacity of 18Tbps, ensuring a more reliable, robust and redundant route between Mauritius and South Africa. Its commissioning is scheduled for the end of the year and its service life is estimated at 25 years.

The deployment of the T3 cable in South Africa comes about three months after it was installed by Mauritius Telecom in Baie-du-Jacotet, in the south of Mauritius. This infrastructure is a partial resumption of the IOX submarine cable project which was to link Mauritius to South Africa and India. First announced in 2017, it was discontinued in 2019.

"We started discussions in 2020 and they were motivated by the fact that Mauritius Telecom wanted to expand its telecommunications infrastructure, in terms of content sharing. This means we will have access to their content and they will have access to ours. Considering Mauritius as a country and in terms of large corporate customers based there, this is one of the main reasons why we are looking to deploy this cable there," said Mervin Chetty, head of global clients at Liquid. Intelligent Technologies.

Once in service, the T3 cable is expected to improve connectivity speeds, reduce internet costs, and accelerate the adoption of broadband connectivity.

VOX Solutions appointed exclusive gateway for A2P and SMS traffic for TNM

International voice and messaging specialist VOX Solutions has been appointed as the exclusive gateway for international application-to-person (A2P) short message service (SMS) traffic delivery into the Telekom Networks Malawi (TNM) network.

This appointment is described as the result of an interworking agreement between the two companies, allowing for direct termination of international A2P SMS traffic to TNM's network.

The partnership between VOX Solutions and TNM establishes an exclusive direct collaboration, which, the partners say, ensures the secure and reliable delivery of A2P messages to TNM's clients and international businesses.

This strategic alliance empowers TNM to gain control over the delivery of all international A2P SMS traffic into its network, including critical communications such as one-time passwords and customer notifications.

By adopting this comprehensive approach, TNM achieves the highest level of network protection against fraudulent activities, courtesy of VOX's expertise, as well as the advanced A2P voice and SMS traffic monetisation capabilities of the VOX-360 platform.

The VOX-360 platform is a comprehensive and unique solution in the market, encompassing anti-fraud features, flash call authentication, A2P SMS monetisation, and mobile identity capabilities. It empowers mobile operators to identify and block spam and fraudulent traffic, proactively safeguarding end users and enhancing the overall customer experience. Furthermore, it enables operators to optimise their network monetisation efforts.

IFC loans Seacom $207 million

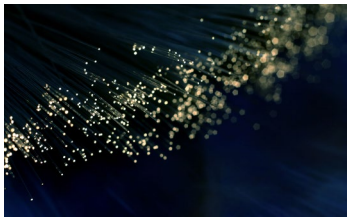
The International Finance Corporation (IFC), a branch of the World Bank focused on financing the private sector in emerging countries, has granted a long-term loan of $207 million to Seacom to expand the coverage of its fibre optic network and cloud-based services in seven countries in sub-Saharan Africa.

IFC's financing includes $70 million from the financial institution's own funds, $42.24 million in co-financing mobilised from institutional investors and the equivalent of $94.76 million mobilised from Nedbank Limited and Mauritius Commercial Bank.

This investment is the culmination of negotiations initiated since May 2022 between the IFC and Seacom. It is part of the company's expansion strategy in sub-Saharan Africa in a context marked by the acceleration of digital transformation as well as an ever-increasing demand for broadband connectivity and digital services. Seacom conducted a study in 2019 on the market potential of fibre optic services in Tanzania, Uganda, Kenya and Rwanda, with funding from the United States Trade and Development Agency (USTDA). The total cost of the project is estimated at approximately $563 million.

"Continuing our ambition to expand in Africa will enable our business to take advantage of the opportunities created by the growing demand for digital services; it is also a demonstration of a long-term partnership with the IFC," said Richard Schumacher, chief financial officer of Seacom.

The IFC estimates that its investment will increase access to quality IT services for African businesses, enabling Seacom to support the digital transformation of 24,000 businesses in the region by 2027, including in the low-income countries, by increasing access to the internet and to cloud and cybersecurity services.



MTN Rwanda innovates with eSIMs

MTN Rwanda has launched the eSIM technology across the country with compatibility with selected smart devices. The eSIM is set to replace the physical SIM technology with an integrated chip in the smart device itself.

"We are excited to introduce our customers to this new technology that represents a paradigm shift and offers convenience and ease. At MTN, it's crucial for us to ensure our customers' experience is not only seamless but suitable to their evolving needs," said Mapula Bodibe, chief executive officer, MTN Rwanda. "The days of struggling to insert tiny SIM cards and the hassle of transferring them between devices are long behind us. But eSIM will offer more than just convenience to our customers; it is a gateway to endless opportunities for businesses, travellers, and remote workers who desire innovative solutions that provide flexibility and choice."

"MTN is empowering customers to effortlessly embrace the digital world. We remain committed to drive the adoption of advanced technological, redefining convenience, and delivering seamless connectivity," said Desire Ruhinguka, acting chief digital and consumer officer, MTN Rwanda.

MNOs scrap roaming charges in 4 countries

Zimbabwe, Botswana, Malawi, and Zambia have pledged to scrap mobile roaming charges from next August, allowing mobile phone users to stay connected when traveling outside of their home network's country of coverage at no additional cost.

This project should notably reduce costs and facilitate and improve electronic communications. It should also facilitate the free movement of people, goods, and services, accelerating trade, among other things.

The initiative is part of the desire of the countries of the Southern African Development Community (SADC) to set up a single network area (ONA) to move closer to a single digital market. The countries of the community have been negotiating since 2014 for the implementation of a single roaming tariff project. In 2019, 13 out of 15 countries had already joined the project.

"The intention is essentially to remove the rigidities linked to trade barriers. In addition to what has been said about One Stop Border Posts in order to improve trade and eliminate all barriers to trade, it is important that SADC countries, including Zambia, remove customs fees. roaming on calls, which will make the region one of the first, if not the first, to do so," said Félix Mutati, Zambian minister of technology and science.

SA's broadcasters to vacate 'digital dividend' bands

Several of South Africa's broadcasters have agreed to the newest deadline – 31 December 2024 · to vacate the so-called 'digital dividend' bands by migrating from analogue to digital terrestrial television.

According to communications minister Mondli Gungubele, all analogue broadcasters using bands above 694MHz must vacate those frequencies by no later than 31 July. This is important for mobile operators which, in theory, were given access to those frequency bands during last year's spectrum auctions but still can't make full use of the spectrum.

Those broadcasters occupying the bands above 694MHz must move to lower frequencies at the end of July. All remaining analogue broadcasting services should temporarily be accommodated in lower frequencies. Digital broadcasting services operating above 694MHz must go to frequencies below 694MHz to free up the 694-862Mhz frequency bands.

All analogue signals are to be switched off no later than 31 December 2024, by which time, it is hoped, the millions of households now relying on analogue broadcasts will have converted to digital services.

Starlink gains Zambia license

Starlink, has been awarded an operating license in Zambia after conducting tests across nine provinces.

According to The SMART Zambia Institute's national coordinator, Percy Chinyama, Starlink's LEO satellite services are expected to extend broadband connectivity to disadvantaged users in remote parts of Zambia.

On the African continent, Starlink is already available in Mozambique, Nigeria, Rwanda, and the French department islands of Reunion and Mayotte off the African coast.

Vodacom Congo eyes up DRC mining sector

As part of Vodacom Congo's transformation from a telecommunications company to technology company (techno), it has committed to the growth of the mining sector in the Democratic Republic of Congo (DRC).

Minerals and petroleum are central to the DRC's economy, making up more than 95% of the value of its exports.

"For the first time since 2002, Vodacom Business Unit is presenting a 'one-stop shop' and its ability to support mining companies," said Stephanie Saidi, sales manager for Vodacom and Vodafone solutions for enterprises. "Through our participation in the DRC Mining Week, we want to forge partnerships with the mining sector to support the DRC's industrial strategy. We are ready to support the digital and ecological transition (via M-Pesa) of the mining sector, which is essential for economic growth."

Vodacom is working closely with mining companies to develop new technological solutions that can

improve efficiency, increase security, and reduce costs.

"Vodacom is undergoing an exciting transformation, moving from telco to techno," said Pamela Ilunga, deputy chief executive officer of Vodacom Congo. She added that this was leading the company to rethink the solutions it offers to provide optimum solutions for customers.

"This transition from telco to techno involves major changes in our activities, especially as we are moving from being a product provider to a solutions provider," said Ilunga.

Angola signs ICT MoU with Zambia

The Angolan minister of telecommunications, information technology and social communication, Mário de Oliveira, and the Zambian minister of science and technology, Felix Mutati, have signed a memorandum of understanding (MoU) to further information technology cooperation between both countries.

The agreement is in line with the ambition of both countries to accelerate the development of their respective ICT industries for digital transformation. The MoU will enhance cooperation in areas like digital transformation, AI, space technology and establishing direct cross-border optical fibre backbone connectivity between the two countries. Other main goals of the agreement include Zambia's space ambition to build on Angola's space experience to set up its space program, staff training, and knowledge exchange.

"We are very interested in connecting to Zambia via fibre optics. We are connected to the Democratic Republic of Congo (DRC) and Namibia. Within a month, we will be connected to Congo Brazzaville from the northern border of Cabinda," said Mário de Oliveira.

Mutati said that the agreement reflects the intent of both countries to use ICT to drive economic growth, foster innovation, and improve the lives of their citizens. This collaboration is expected to help improve the regulation of the Angolan and Zambian telecom markets, ensuring sound operational frameworks for telecom operators, and will lead to improved coverage and quality of ICT services provided in both countries.

Ericsson: SSA mobile subscriptions to surpass 1 billion by 2028

Sub-Saharan Africa's mobile subscriptions are expected to top 1 billion by 2028, up from 900 million in 2022 and growing at a compound annual growth rate (CAGR) of 3%, according to the June 2023 edition of the Ericsson Mobility Report.

"Despite the challenging macroeconomic environment, nations in sub-Saharan Africa are expected to invest in network infrastructure, driven by a large youthful population and a high demand for connectivity," said Ericsson.

This will also enable new growth opportunities for service providers, driven by advanced mobile data and fintech value-added services like mobile banking and payments.

Ericsson estimates that sub-Saharan Africa had 3 million 5G subscriptions at the end of 2022 and this would rise to 140 million by 2028, accounting for 13% of total connections in the region. Ericsson believes that in sub-Saharan Africa, 5G will have the fastest growth rate in subscriptions by 2028, attributed primarily to coming from a low base.

In comparison, by the end of 2028, there will be around 290 million 5G subscriptions in the Middle East and North Africa (MENA) region, accounting for 32% of total mobile subscriptions, as more countries issue licenses and spectrum to enable 5G network investment.

More than ten countries in sub-Saharan Africa have launched commercial 5G networks to date, with more planned.

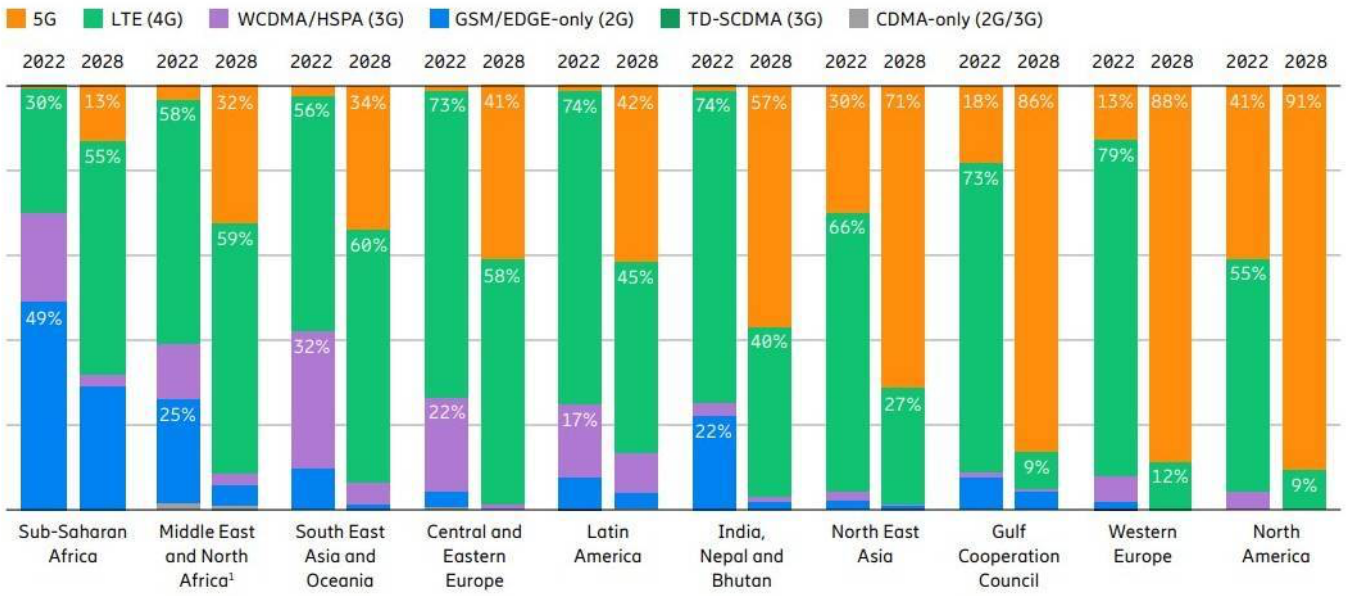
Growth in 4G is expected to continue and 4G will be the main contributor to new subscriptions up to 2028, accounting for 55% of all mobile subscriptions at the end of the period. The focus will continue to be on 4G and 5G, driven by the exploration of service offerings requiring high bandwidth and low latency, and the availability of a wide range of devices at attractive price points, researchers said.

While 2G remains an important technology in the region due to low-priced devices, affordability of service plans and many rural subscribers, 2G subscriptions are projected to continuously decline between now and the end of 2028, at which point they will account for 29% of total subscriptions.

Mobile financial services are expected to continue to gain momentum in Africa, with an increase in mobile connectivity and expansion of propositions from basic transfers. Merchant payments, remittances, insurance, and other services will also be factors to increase the usage of mobile financial services.

Sub-Saharan Africa is forecast to be the region with the highest growth in total mobile data traffic, rising by 37% annually between 2022 and 2028 as service providers across the continent continue to invest in 4G networks and migrate customers from 2G and 3G. This increase in data traffic will primarily be driven by a fourfold increase in smartphone traffic in the period, with average data per active smartphone settling at 19GB per month in 2028, up from 4.7GB per month in 2022. Meanwhile, smartphone subscriptions in the region were at 410 million in 2022 and are expected to grow to 690 million by 2028.

Mobile subscriptions by region and technology (percent)



(Source: Ericsson Mobility Report June 2023.)

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Going further in critical communications

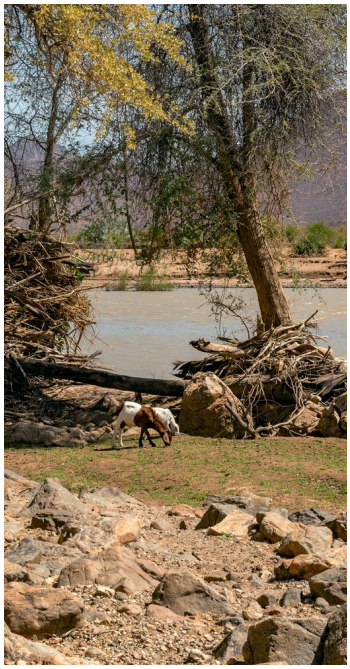
Angola Telecom targets remote regions

Angola Telecom has announced the launch of a new service called Conecta Angola, whose aim is to reach the most remote areas of the country where, previously, none of the country's mobile operators had been active.

The Conecta Angola project has a strong social angle, notably targeting communities where schools, hospitals and municipal administrations have limited access to operators, to create more digital inclusion.

Sales director Eusébio Santos says that the first phase of the project would involve taking the service to previously internet-excluded populations. In a second phase of the project, "we will be able to start thinking about how to integrate small and medium-sized companies" that operate in these areas. A pilot project is already underway in Bela Vista, in the province of Bié , where students and other users at the local Academic Centre of Excellence can use new internet facilities free of charge.

Conecta Angola developed from a partnership between Infrasat and the country's National Space Programme Management Office (GGPEN).



Talking critical

TCCA's TETRA Applications Group – led by Hannu Aronsson

TETRA – the benefits of both voice and data

TETRA is recognised as a leading mobile communications technology that is delivering mission-critical voice services to public safety organisations and mobile workers worldwide. However, TETRA data capabilities are often under-utilised. There are many automation-related examples of TETRA data applications that are available from a wide ecosystem of innovative developers.

TETRA can be used for automation, control including Internet of Things (IoT) and Internet of Life Saving Things (IoLST), machine to machine (M2M) and supervisory control and data acquisition (SCADA) solutions as TETRA is a mission critical network.

IoT in a narrowband radio network context means using the radio network for data communications for control, reports, alarms, etc. and leveraging the features of the narrowband radio network for control, i.e., security, encryption, private network, and quick reliable small data delivery. TETRA is very efficient in delivering small pieces of data with a very fast round-trip time, and provides high security and encryption options, which enable its use to control and automate critical systems.

Public safety, fire and ambulance operators can securely deliver alarm and task information to field units over the public safety TETRA network. For example, task information, destination address and priority information can be sent as data over TETRA and shown to the users using their in-vehicle device. The users can provide progress updates from this device which can be updated in the emergency call centre via TETRA.

In some countries, millions of TETRA Packet Data IP transmissions, data SDS and status messages are used every day to deliver key information to and from the field units, providing exceptional situational awareness for both the field units and the control room.

For automation and control, bandwidth is not the most important feature. Often having a guaranteed data rate and response time is most important. Reliability and quick delivery of small pieces of data enables most automation and SCADA applications with TETRA.

Today's IP based SCADA protocols like IEC60870-5-104 or DNP3 are optimised for small bandwidth technologies like TETRA. A short heartbeat packet over TETRA to each field unit every few minutes is enough; in case something changes in a field unit it will be reported automatically to the server in the control room. With these protocols and Packet Data Channel Sharing active on the infrastructure, up to 800 field units can be handled per base station and traffic slot using a 15 minute heartbeat.

TETRA with its quick round-trip times is especially suitable for alarms and alerting systems, such as public siren systems which are used to alert the public about potentially dangerous situations, as well as for monitoring, IoT sensors, and environmental sensors. For example, a water utility can monitor measurements from numerous points in its water treatment facility using TETRA-enabled RTUs with alarm functionality. By monitoring the whole process in real time, the utility can provide safe drinking water efficiently. TETRA solutions can also work along broadband solutions for those applications that require high data bandwidth, such as surveillance cameras, video and high-speed data streaming.

There is a wide variety of handheld TETRA radios available, but there is also a wide variety of other kinds of TETRA terminals and devices. Industrial TETRA terminals can include automation RTU (Remote Terminal Unit) functionality in the same device. These terminals often have I/O (input/output) and local networking ports for easy integration with SCADA and other devices. This means that a single device can solve both the automation, SCADA and communications needs in a remote location.

Industrial processes can be monitored using SCADA running over TETRA packet data. This is a suitable solution for outstations and remote locations from which SCADA information is needed for the operational processes. TETRA SCADA-enabled terminals can be part of a standard SCADA solution.

Some of these TETRA terminals designed for automation also include programmable business logic functionality, allowing a portion of the automation to be handled locally on the device itself. TETRA can provide information updates to public transport station displays while also providing a high-quality voice audio channel for audio notifications in special situations.

TETRA data communications capability is also relatively simple to integrate in the back-end office IT system world. Using a TETRA data gateway, TETRA's efficient narrowband radio optimised data communications can be connected with standard IT protocols and IT systems. TETRA packet data is standard IP networking, but the SDS and status messages and group-addressed data delivery allow for even more efficient communications over the network.

TETRA can be used as a private network totally under the owner's control. As a private narrowband radio network, frequencies can be available even in most built-up areas. A private TETRA network enables the owner to control coverage, capacity, availability, resilience, and security to fit specific requirements. Network coverage can be optimised to cover an oil or gas pipeline with low number of base stations and enable pipeline monitoring and control using a secure wireless network in addition to providing secure and reliable voice communications along the length of the pipeline. The lower number of base stations also makes it easier to provide battery or generator backup power for a business or mission critical network.

When buying a TETRA network, consider both voice and data benefits, which can improve the ROI. An existing private or shared TETRA network can also be used to deploy data and automation, extending its value and lifetime.

> "TETRA network enables the owner to control coverage, capacity, availability, resilience, and security to fit specific requirements."

Africa for Africa: Vertiv opens African head office in Johannesburg

Vertiv has officially opened its African head office and state-of-the-art customer experience centre, based in Johannesburg, South Africa.

According to Wojtek Piorko, the recently appointed managing director for Vertiv Africa, the formal opening of the South African premises forms an important part of Vertiv's 'Africa for Africa' initiative and underscores the organisation's investment in the region.

"Vertiv is placing a strong business focus on Africa, as well as expanding our local network of authorised partners and service providers. Our 'Africa for Africa' project also emphasises the importance of meeting our local clients' needs, of which the opening of the African head office and local customer experience centre play a key role," said Piorko.

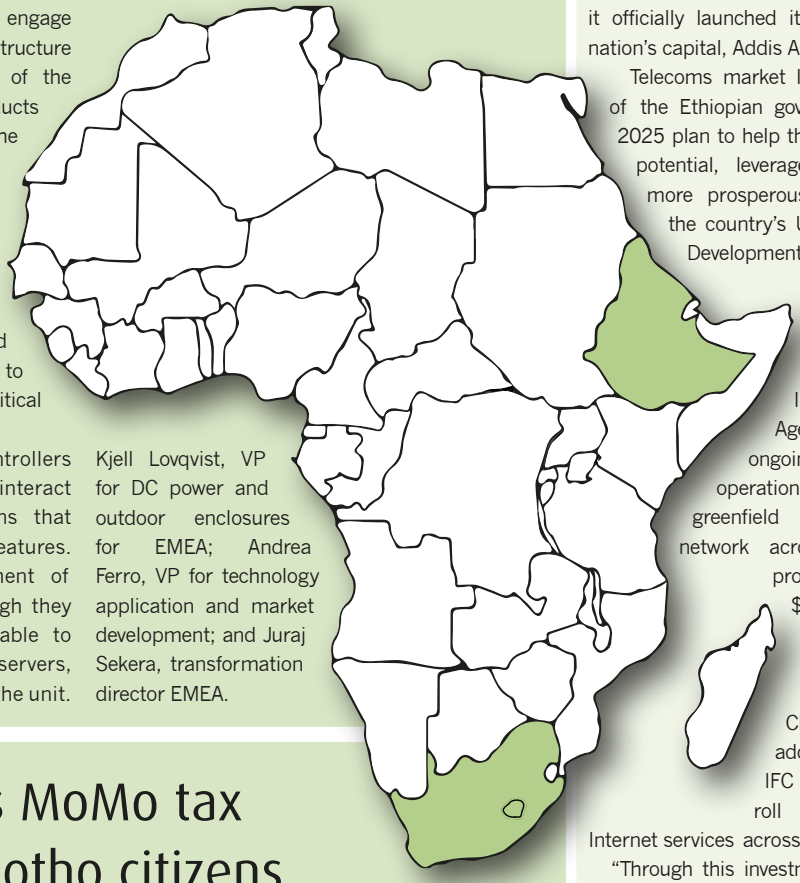
The Johannesburg customer experience centre provides customers with the opportunity to engage with Vertiv's diverse range of critical infrastructure solutions for applications from the edge of the network to the cloud. In addition to the products displayed at the centre, Vertiv offers the experience of its large-scale modular data centres, power and thermal management solutions through VR to African customers.

"Using our VR offering, the Vertiv Virtual Showroom, clients can embark on a unique virtual trip to experience Vertiv's capabilities, giving both novices and seasoned experts of Vertiv products a way to fully understand the entire layout of the critical digital infrastructure," said Piorko.

Users wear a headset and use hand controllers to navigate the VR environment, interact with equipment, and watch animations that demonstrate a product's value and key features. They can observe the spatial placement of Vertiv's rack and row solutions, as though they were actually on site. They are also able to customise a Vertiv VR rack by placing servers, power, thermal, and storage devices into the unit.

"This experience gives decision-makers a deeper understanding of the entire infrastructure at work," said Piorko. "In addition, our new Customer Experience Centre will provide presales, sales, and product training, as well as full-service certification courses for Vertiv's authorised service partner network."

Piorko was joined recently by a number of senior Vertiv leaders for the African head office roof wetting celebration, including Karsten Winther, president of the Europe, Middle East and Africa (EMEA) region; Paolo Gattagrisa, chief financial officer and VP of finance for EMEA; Peter Lambrecht, VP of sales for EMEA; Vicente Chiralt, VP of marketing for EMEA; Viktor Petik, VP and global leader for Vertiv's integrated modular solutions business ; Kjell Lovqvist, VP for DC power and outdoor enclosures for EMEA; Andrea Ferro, VP for technology application and market development; and Juraj Sekera, transformation director EMEA.



IFC invests in Safaricom Ethiopia

Safaricom has welcomed another investor to its consortium in Ethiopia, with the International Finance Corporation (IFC) joining as a minority shareholder through a $157.4 million equity investment in The Global Partnership for Ethiopia and a $100 million loan to its wholly owned subsidiary, Safaricom Telecommunications Ethiopia.

The Global Partnership for Ethiopia is a consortium comprising of Vodacom Group, Vodafone Group, Safaricom, Sumitomo Corporation, and British International Investment (BII). The consortium was created to bid for a telecoms license to operate in Ethiopia, and it was awarded that license in May 2021 as part of the Horn of Africa nation's strategy to liberalise its telecoms sector.

Safaricom Ethiopia began rolling out its network in August 2022 in Dire Dawa. In October 2022, it officially launched its national network in the nation's capital, Addis Ababa, and ten other cities.

Telecoms market liberalisation is a key part of the Ethiopian government's Digital Ethiopia 2025 plan to help the country realise its digital potential, leverage technology to build a more prosperous society and help meet the country's United Nations Sustainable Development Goal commitments.

Now the consortium adds World Bank Group members IFC and MIGA (Multilateral Investment Guarantee Agency) to support the ongoing construction and operation of Safaricom Ethiopia's greenfield telecommunications network across Ethiopia. MIGA will provide ten-year guarantees of $1 billion to cover the equity investments of Safaricom Ethiopia's shareholders.

Safaricom Ethiopia CEO Anwar Soussa said the additional investment from the IFC will strengthen its ability to roll out modern, high-speed Internet services across Ethiopia.

"Through this investment, we hope to help the company create a competitive market for mobile connectivity, reflecting our strategy to increase competition in the digital sector globally, and reduce costs for consumers. Young people, small businesses, and entrepreneurs will particularly benefit from improved access to high quality digital services such as mobile financial services," said Mohamed Gouled, IFC vice president of industries. "The Ethiopian telecommunications market – as well as the country's economy and society – will benefit substantially from equitable, high quality internet access and improved financial inclusion, advancing the country on a path to a more prosperous future."

Vodacom enables MoMo tax payments for Basotho citizens

Vodacom Lesotho has joined forces with Revenue Services Lesotho (RSL) to provide an innovative solution for Basotho citizens.

Through this partnership, Vodacom customers in Lesotho can now pay their taxes using the M-Pesa mobile money app. This collaboration aims to streamline the tax payment process, offering a hassle-free experience for taxpayers. With the integration of RSL into the M-Pesa menu, customers can settle their inland and customs taxes with ease.

This partnership between Vodacom Lesotho and Revenue Services Lesotho demonstrates the power of technology and financial services in simplifying administrative processes. By integrating the RSL tax payment service into the M-Pesa menu, Vodacom Lesotho is leveraging its mobile money platform to make tax payments more accessible and user-friendly. This collaboration highlights the commitment to enhance financial inclusion and promote digital solutions for the benefit of Basotho citizens.

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Maroc Telecom invests 150 million euros in West African subsea fibre optic cable

Itissalat Al Maghrib (Maroc Telecom) has invested 150 million euros in the construction of a new submarine fibre optic cable.

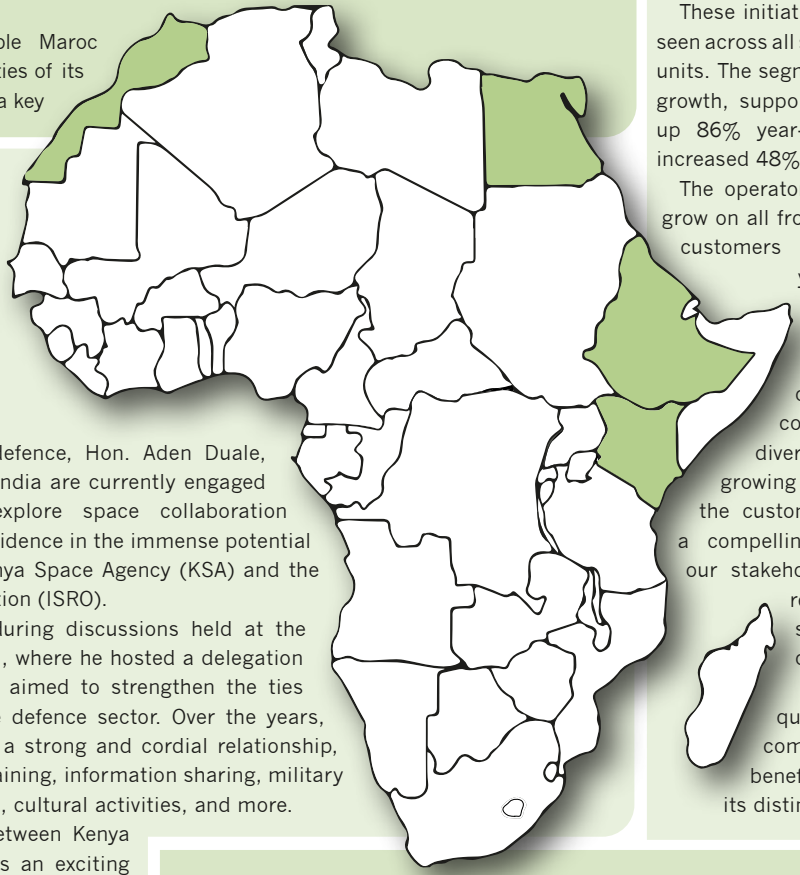
The West Africa cable infrastructure connects the company's subsidiaries as well as operators in the West African region to the international optical loop in Europe.

The new cable is 9,414 km long and consists of two segments. The southern segment interconnects Morocco with Côte d'Ivoire, Togo, Benin, Gabon, and Mauritania through seven landing points on a route of 8,600km. Commissioned in July 2021, it provides a capacity of 20Tbps expandable to 40Tbps. The North segment, meanwhile, was commissioned in April 2022. It connects Casablanca to Lisbon, Portugal with a length of 814km, with a capacity of 60Tbps.

This investment should enable Maroc Telecom to strengthen the capacities of its subsidiaries, which have become a key factor in the group's growth while the domestic market is subject to strong competition.

In the first quarter of 2023, the subsidiaries generated revenue of 4.6 billion dirhams, up 7.3%, compared to 4.7 billion dirhams for its activities in Morocco (up 0.6%). This performance of the subsidiaries in sub-Saharan Africa was notably driven by the growth of mobile data.

Maroc Telecom was recently named within Forbes Middle East 'Top 100 Listed Companies,' coming in at number 52. However, BMCE Capital Global Research forecasts that profits will stagnate this year, showing only around 1% growth over 2022, due to a drop in profits from operations coupled with consolidating profits from global operations.



Kenya and India explore space collaboration

Kenya's cabinet secretary for defence, Hon. Aden Duale, has announced that Kenya and India are currently engaged in bilateral discussions to explore space collaboration opportunities. He expressed confidence in the immense potential for cooperation between the Kenya Space Agency (KSA) and the Indian Space Research Organisation (ISRO).

Duale made these remarks during discussions held at the Defence Headquarters in Nairobi, where he hosted a delegation from the Indian Navy. The visit aimed to strengthen the ties between Kenya and India in the defence sector. Over the years, the two countries have fostered a strong and cordial relationship, characterised by joint military training, information sharing, military medical services, military games, cultural activities, and more.

The potential collaboration between Kenya and India in the space sector is an exciting prospect, expected to encompass various areas, such as satellite technology, remote sensing, space research, and exploration. Both countries can significantly advance space science and technology by leveraging each other's strengths and expertise.

Furthermore, this collaboration promises to expand scientific knowledge, enhance national security capabilities, and foster economic development through space-related activities. As negotiations progress, specific areas of cooperation and joint projects are expected to be identified.

Telecom Egypt achieves 144% yoy net profit growth

Telecom Egypt recorded a net profit of 4.1 billion Egyptian pounds at the end of the first quarter of 2023. This performance represents an increase of 144% compared to the same period of the year 2022.

Telecom Egypt attributes this performance to healthy margins and increased investment income, "which overshadowed the increase in administrative and financial costs."

During the quarter, Telecom Egypt invested 6.1 billion EGP in the extension and densification of its network, as well as in the launch of innovative offers adapted to the needs of its customers.

These initiatives have resulted in the growth seen across all sectors, particularly in wholesale units. The segment accounted for 70% of total growth, supported by infrastructure revenues up 86% year-on-year. Consolidated revenue increased 48% year-on-year to EGP 14 billion.

The operator has seen its subscriber base grow on all fronts. Fixed voice and broadband customers grew 5% and 7% year-on-year, respectively. Mobile subscribers increased by 22% to 12.4 million.

"We continue to execute on our strategy and remain committed to expanding and diversifying our service offerings, growing our customer base, improving the customer experience, and delivering a compelling financial model to all of our stakeholders, and I am sure we will reach even greater heights," said Mohamed Nasr, CEO of Telecom Egypt.

Nasr added that the first quarter results demonstrate the company's ability to maximise the benefit from its diversified assets and its distinguished strategic location.

INCM and ESCCOM to cooperate on ICT with Safaricom Ethiopia

The Mozambique Communications Regulatory Authority (INCM) has signed a cooperation agreement with the eSwatini Communications Commission (ESCCOM) covering several collaboration frameworks and mechanisms in the information and communication technology (ICT) sector.

Under the terms of the agreement, cooperation between Mozambique and eSwatini will include radio frequency management, telecom spectrum management and standardisation. It will also cover any other matter of common interest in the field of telecommunications and broadcasting services.

"This agreement will solve problems of common interest to both countries. It will also help find new approaches and strategies to consolidate, expand and define areas of economic development between the two countries," said Mvilawemphi Dlamini, chairman of the executive committee of ESCCOM.

ICT comprises 14.13% of Nigeria's GDP

The Nigerian Communications Commission (NCC) has reported that the telecommunications and information services sector in Nigeria has in the first quarter 2023, delivered N2.508 trillion of financial value contribution to the nation's gross domestic product (GDP) representing 14.13%.

Figures released by the National Bureau of Statistics showed that the sector recorded a 4.3% increase from its performance in the last quarter of 2022 when it recorded 13.55%. When compared year-on-year, the growth showed positive progression from 12.94% in the first quarter of 2022 to 14.13% in 2023.

The Nigerian telecom industry has continued its show of positive outlook, which is credited to innovative and predictable telecom regulatory environment promoted and implemented by the NCC.

One of the key highlights of the telecom industry performance within the period was the generation of $820.8 million for the federal government from 5G Spectrum licenses fees paid by three eventual winning operators, MTN, MAFAB and Airtel. Following the issuance of the licenses in December 2021 to MTN and MAFAB, both companies have launched 5G services.

Another major development in the sector was the launch of Starlink's broadband services, which followed the issuance of license to SpaceX by the NCC. The services are now available in different parts of the country.

Meanwhile, the growth statistics of the telecom industry are showing impressive record of contributions to the economy. The number of phone subscribers as at April 2023 stood at 223.6 million, scoring a teledensity of 117% . Internet subscribers for the same period were 157 million, while broadband subscriptions stood at 92 million, translating to 48% broadband penetration.

IHS seeks advice on shareholder disagreement

IHS Holding Ltd. is consulting with JPMorgan Chase & Co. for advice on an escalating standoff with its largest shareholders – MTN And Wendel SE · over how the African tower operator is run.

Shareholders representing about 48% of IHS shares submitted the proposals to bring its governance in line with best practice at US-listed companies and to improve market perceptions. Management fears that governance changes sought by MTN and Wendel could enable a hostile takeover.

The shareholder dispute comes as IHS shares have lost about 60% since the company's 2021 initial public offering in New York.

AirtelTigo rebrands to AT to simplify brand

Ghana's AirtelTigo will henceforth operate under the name 'AT.'

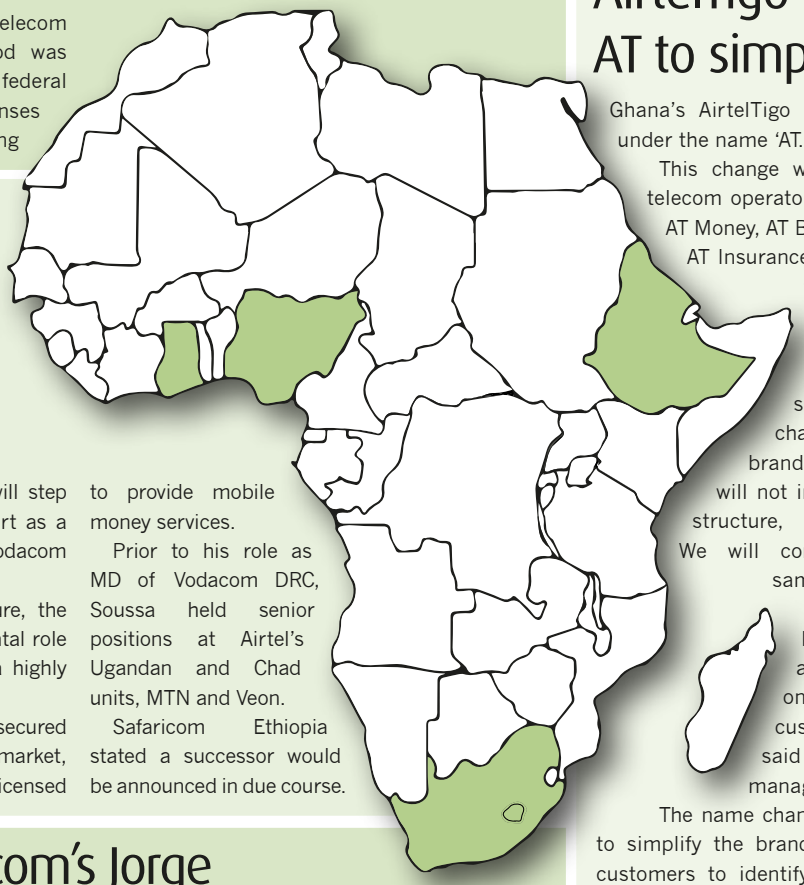
This change will apply to all of the telecom operator's sub-brands including AT Money, AT Business, AT Premier and AT Insurance. It will also apply to all future communications, marketing materials and branding efforts.

"Our stakeholders should note that this change only applies to the brand name and logo, and will not impact our management structure, products or services. We will continue to deliver the same innovative services that our customers know and trust, with an increased focus on user experience and customer satisfaction," said AT general manager Leo Skarlatos.

The name change is part of a strategy to simplify the brand to make it easier for customers to identify and interact with the telecom operator. It comes just over two years after the Ghanaian state bought the company for $1.

AirtelTigo was officially born in November 2017 from the merger of the Ghanaian activities of Bharti Airtel and Millicom International Cellular (MIC). The two groups decided to join forces to remain competitive in the Ghanaian telecoms market, which was then contested by six companies.

The new brand identity could enable AT to reposition itself in the Ghanaian telecom market where it has been losing momentum for several years.



Anwar Soussa stands down from Safaricom Ethiopia

Safaricom Ethiopia CEO Anwar Soussa will step down on 31 July. The executive will depart as a secondment from his regular role with Vodacom DRC comes to an end.

Announcing the end of Soussa's tenure, the operator praised the executive's fundamental role in overseeing "significant milestones in a highly dynamic environment."

Under Soussa's leadership, Safaricom secured permission to operate m-Pesa in the market, becoming the first non-domestic investor licensed to provide mobile money services.

Prior to his role as MD of Vodacom DRC, Soussa held senior positions at Airtel's Ugandan and Chad units, MTN and Veon.

Safaricom Ethiopia stated a successor would be announced in due course.

Cell C to gain Vodacom's Jorge Mendes as CEO

Cell C revealed that long-standing Vodacom Group executive Jorge Mendes will become its CEO at the start of July, an appointment the company lauded as a positive step towards restoring its position as a key industry player.

Mendes replaces acting CEO Brett Copans, who took the interim role alongside his responsibilities as chief restructuring officer when former boss Douglas Craigie Stevenson resigned for personal reasons in March.

As the former chief consumer business officer at Vodacom South Africa, Mendes played a pivotal role in the company's success by spearheading strategic initiatives, implementing innovative solutions and enhancing the overall customer experience.

Cell C reports that there is a high expectation of its new chief to help grow the business and enhance profitability. Mendes worked across various Vodacom companies for 23 years, culminating in being chief officer: consumer business unit when parting company with his former employer earlier this year.

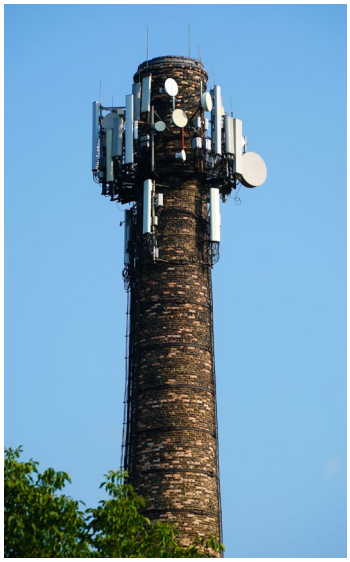
CRAN recommends privatisation to promote competition

The Communications Regulatory Authority of Namibia (CRAN) recently released its 'CRAN Draft Market Saturation Report' wherein it recommended the full privatisation of MTC and Telecom Namibia to help create fair competition in the country's telecom market.

MTC and TN would potentially compete more with each other if owned by different private sector companies compared to the current situation where both are controlled by the state.

The telecommunication sector can usually be made more competitive through private investments by reducing state-ownership. Alternatively, competition may be revived by attracting direct foreign investments through issuing a licence with bundled spectrum that does not have an ownership restriction.

This happens through various mechanisms such as setting prices that are too low for competitors for new entrants to match. In addition, they use exclusive contracts with suppliers or customers, for instance, Telecom Namibia and MTC had such an exclusive agreement with NamPower, for dark fibre lease for many years, thus cutting out any other potentials.



Talking research

Amy Saunders, editor,
Southern African Wireless Communications

The mobile gender gap prevails, trust is down, and rightly so with IoT DDoS attacks growing fivefold

In its sixth annual *Mobile Gender Gap Report*, the **GSMA** said that more than 100 million women must adopt mobile internet each year between now and 2030 to close the distance to male users, with parity requiring 800 million women to get online. The GSMA's research centres on low- and middle-income nations in Africa, APAC, and Latin America.

It noted 61% of women in the target nations used mobile internet services at end-2022, but highlighted a slowdown in adoption, with 60 million new users compared with 75 million in 2021. The research highlighted 900 million women in the countries remained unconnected by end-2022, the majority located in sub-Saharan Africa and south Asia.

Awareness and use of mobile internet services by women are almost on-par with men once they are equipped with a smartphone, but the GSMA noted 440 million women do not own any kind of mobile phone. The GSMA highlighted affordability, particularly of handsets, remained a barrier to mobile internet adoption, along with digital literacy and skills, and safety and security concerns.

The GSMA reports that, to "fully address the issue," internet companies, governments, regulators, and developers must increase their focus and take "targeted action."

In other news, the **Mobile Ecosystem Forum's** 9th annual Global Trust Report finds that consumer trust in data sharing is weak and abstinence levels are increasing. Most mobile users have some level of concern about remaining in control of the data they share. Only 12% say they do not worry about this. Yet most are not achieving true control over the data they share with apps and services.

The top three factors that consumers say provide a sense of control all centre around abstaining from sharing information where the user does not feel comfortable. This isn't true control, and it presents a challenge for the mobile industry as it makes it difficult to build new data-based technology like AI, recommendation engines, advertising, or mobile intelligence.

Despite the concerns consumers have about data sharing, there is only muted interest in personal information management systems. The general feeling is that the tech companies should protect their data and privacy, not the consumer should have to take control themselves.

The key findings are that trust in data sharing is weak; increased mobile use is accompanied by heightened data sharing concerns; users still lack knowledge of tools and services that could help them; data abstinence is how users assert control; social media and big tech and driving concerns; and muted interest in personal information management systems.

"The number of trojans targeting personal banking information in mobile devices has doubled to 9%, putting millions of users around the world at heightened risk of having their personal financial and credit card information stolen."

The report also offers some key lessons for the mobile ecosystem industry, including not to be complacent; systems built on data are at risk of underperforming or failing; users still need to take more active control; dramatize benefits beyond addressing risk; and social media giants must show care for users, not just data.

"Nothing is clearer than the words and actions of mobile users. Trust in data sharing is weak. Yet, there are surprising elements in that many users are finding that their perception of an immediate threat is much reduced," said Dario Betti, CEO of MEF. "There is a form of decay in the system that is not easy to view from a distance – data abstinence. The quantity and quality of information that is shared in the system is deteriorating. The study shows that 67% of users globally, avoid sharing their personal data, and only 12% of users say that they do not worry about control of their data."

Meanwhile, the latest **Nokia** *Threat Intelligence Report* has found that IoT botnet Distributed Denial of Service (DDoS) traffic, originating from many insecure IoT devices with the aim of disrupting telecom network services for millions of users, increased fivefold over the past year.

This sharp increase, also supplemented by the increased use of IoT devices by consumers around the world, was first noticed at the beginning of the Russia-Ukraine conflict but has since spread to other parts of the world, with botnet-driven DDoS attacks being used to disrupt telecom networks as well as other critical infrastructure and services. The number of IoT devices (bots) engaged in botnet-driven DDoS attacks rose from around 200,000 a year ago to approximately 1 million devices, generating more than 40% of all DDoS traffic today. The most common malware in telecommunication networks was found to be a bot malware that scans for vulnerable devices, a tactic associated with a variety of IoT botnets.

The report also found that the number of trojans targeting personal banking information in mobile devices has doubled to 9%, putting millions of users around the world at heightened risk of having their personal financial and credit card information stolen.

"The key findings in this report underline both the scale and sophistication of cybercriminal activity today," said Hamdy Farid, senior vice president, business applications at Nokia. "A single botnet DDoS attack can involve hundreds of thousands of IoT devices, representing a significant threat to networks globally. To mitigate the risks, it's essential that service providers, vendors, and regulators work to develop more robust 5G network security measures, including implementing telco-centric threat detection and response, as well as robust security practices and awareness at all company levels."

Data Centres and the Future of Digitalisation in Africa

Data centres are the backbone of the digital world, powering the operations of businesses across industries. Africa is poised to become a key player in this market as the world becomes more digital and the demand for data centres rises.

Vertiv sees huge potential in Africa's market and is positioning itself as a company that can provide quality solutions and services for this segment, together with the assurance that comes with its wellknown brands and its long history in the industry.

Comprehensive solutions to enable digitalisation

Vertiv provides a wide range of solutions that enable businesses to leverage the power of digitalisation. By connecting physical infrastructure to the digital world, Vertiv enables customers to unlock the potential of digitalisation, big data, Artificial Intelligence, and the Internet of Things (IoT), bringing together hardware, software, analytics and ongoing services to enable its customers' vital applications to run continuously, perform optimally and grow with their business needs.

Vertiv's portfolio of power, cooling and IT infrastructure solutions and services - which extends from the cloud to the edge of the network - solves the most important challenges facing today's data centres, communication networks and commercial and industrial facilities.

Within the Europe, Middle East and African (EMEA) region specifically, Vertiv has 10 manufacturing locations, in excess of 65 service centres, five customer experience centres, over 650 service field engineers and more than 100 technical support personnel in place.

A long-term commitment to the continent

As outlined in 2009 by Donald Kaberuka, the then-President of the African Development Bank Group, a long-term investment in the region from investors and those who wish to do business here is vital for Africa's growth[1]. Vertiv has been present locally for a number of years now and with our new 'Africa for Africa' project, we are strengthening this position further.

The initiative is planned to forge even closer partnerships with local clients and we are enabling this by creating a new internal structure that focuses strongly on leveraging local skills and knowledge within our team, as well as setting up offices close to customers that incorporate Customer Experience Centres - as undertaken recently in both Kenya and South Africa, for instance.

We have also officially opened our premises in Johannesburg, South Africa, which is Vertiv's head office for Africa, and are assessing the opportunity to open more offices in the future.

Unpacking 'Africa for Africa'

With regards to customer expectations, I believe that the following requirements are key:

- Understanding the local environment and specific customer needs;
- Providing quality technical advice across the whole timeline of the project; and
- Delivering reliable after-sales support.

From discussions with our customers and partners in Africa, we understood they are concerned about current lead times, currency challenges (devaluation and availability) but also limitations on local skills. However, we are ready to deal with any challenges, and exceed customer needs, through such positives as the following:

- Our team of Vertiv experts being based as close to our customers as possible, currently in Cairo, Egypt; Casablanca, Morocco; Lagos, Nigeria; Johannesburg, South Africa; and Nairobi, Kenya;
- Local solutions and application engineering, operations and services teams providing expert support across whole project timeline;
- The fact that each office is equipped with the latest technology in our Customer Experience Centres, which provide various courses and education platforms for presales, sales and service certification;
- A local product development team and manufacturing facility in South Africa to allow for localisation/ customisation and speed of delivery; and
- Our wide network of certified partners on both the sales and service sides.

Moving forward

The growth of the data centre market in Africa presents an opportunity to spur economic growth in many other sectors across the region. As data centres continue to expand, they will create new possibilities for employment, both directly and indirectly, in a number of different verticals including education, government, healthcare and construction, allowing companies to accomplish tasks with greater efficiency and flexibility.

The unpredictability of the environment in which we operate can be difficult - for example local challenges in terms of network implementations, skills shortages, security concerns in certain areas, or even the ability to reach installation point - and yet overcoming these trials provides me with encouragement and energy for the future.

It is extremely rewarding to see the strength of the team we have built in Africa emerging. Without this group of passionate people, our success would not be possible. ■

Wojtek Piorko, Managing Director Africa at Vertiv, discusses the company's commitment to supporting Africa's digital growth

[1] *http://www.g7g20.utoronto.ca/books/pittsburgh/kaberuka.html*

eSIM technology: the next generation of IoT connectivity

Marc Sauter, head of IoT product management, Vodafone Business

There's no doubt that businesses understand the importance of digital transformation; adopting new technologies and digital tools to enhance productivity and increase both customer and employee satisfaction. For many businesses, IoT has been crucial for survival, helping to manage assets and business operations, develop new products and services or improve efficiency in the supply chain.

IoT solutions are flexible enough to meet the needs of a range of different sectors so no matter what industry you're in, it has the power to transform your business. The great thing about IoT is that it can be integrated in many ways and continues to evolve alongside other technology solutions to fulfil customer demands. At the core of a cellular IoT solution is the SIM card, and like any other technology, SIM cards have developed to meet customer needs and use cases in both consumer and IoT markets.

Virtualisation of the SIM card

The SIM card is an integrated circuit that securely stores the subscriber identity number (IMSI) and the sensitive network authentication keys. The SIM, in a combination of hardware and software, provides secure identification and authentication for subscribers onto mobile networks (2G, 3G, 4G, 5G, LPWA).

Its main feature is to encrypt all the communications between the customer equipment and the operator to ensure that each user gets access to the contracted communication service and to support the integrity of the billing process. Mobile network users also recognise SIM cards as a key security element to choose the mobile network technology for the communication of their products.

Traditionally, SIMs have been available as a plastic card with a chip. Over the past decade, the SIM has evolved and is now available in different form factors and grades to meet the different requirements (such as size, memory, temperature range, etc.) from different use cases (e.g., automotive, utilities). The latest development is called an embedded SIM (eSIM or eUICC).

The eSIM is simply a capability that enables SIMs (of any type) to switch from one MNO to another without the need to physically change the SIM. The change of connectivity provider is done over-the-air (through a process called remote SIM Provisioning – RSP). With eSIMs, the profile of a chosen provider can be installed, activated, or changed via an encrypted communication over a mobile network, meeting the highest customer safety requirements.

What does this mean for IoT customers?

As products have a longer lifetime, eSIM capability removes the difficulty and cost to physically access and replace soldered SIMs. The flexibility of switching operators gives customers flexibility, enabling new use cases. eSIM capability is usually deployed in combination with automotive and industrial SIMs because of the longer lifetime of products, and the difficulty and cost to physically access and replace soldered SIMs. To remotely provision an eUICC, it is necessary to have some software loaded in a server, called subscription manager (SM).

The eSIM functionality allows the IoT customers to change the connectivity provider in cases such as the end of the contract, or using an alternative provider if the coverage is not good. The eSIM also enables new uses cases such as to manufacture off-the-shelf IoT devices with an initial connectivity provider that can be changed to another provider depending on where the service is going to be used. Or the option to add highly regulated markets to the customers footprint by using a single connectivity supplier that enables the switch to a local supplier to comply with the local regulation.

This capability will drive adoption of IoT, make it easier to deploy IoT solutions, and is opening new use cases and applications that were not possible before.

Creating new standards for eSIM

According to the GSMA, there is good progress being made in the adoption and awareness of eSIM technology. Related to IoT, we believe that about 25% of overall SIMs today are eSIMs and that eSIMs will grow with a 30% CAGR.

The GSMA has developed a standard that has been accepted by most of its member operators around the world. This allows the intrinsic 'digital signature' content of a SIM card to be downloaded 'over-the-air' (OTA). So, eventually most SIMs will be eSIMs with OTA switching capability.

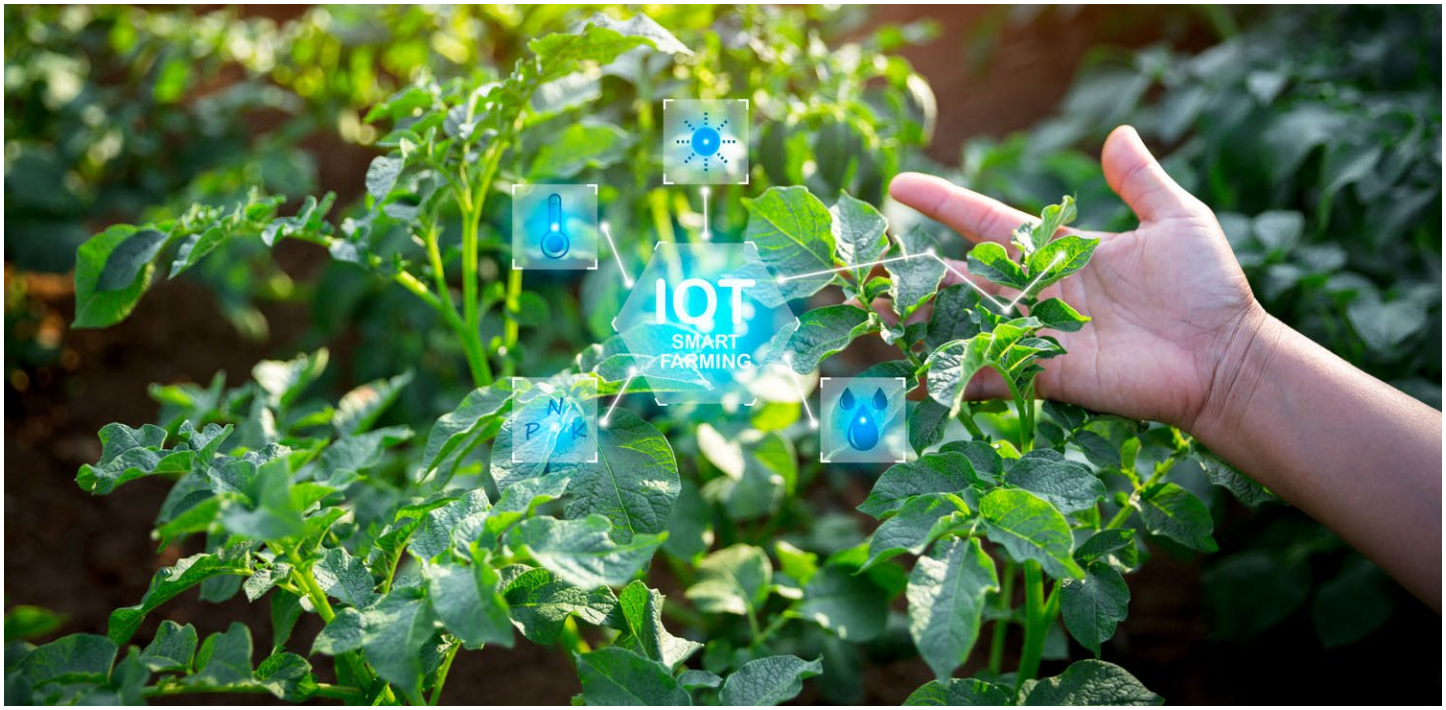
The future of business connectivity

eSIMs are also crucial for industries looking to improve their sustainability practices. The streamlined production and distribution process for eSIM technology will have a more positive impact on the environment. As they do not require plastic packaging like traditional SIM cards, businesses will be able to reduce unnecessary waste and carbon emissions.

Businesses can rely on a global IoT network to deliver benefits and results. Most platforms are built to be scalable, accommodating growth and upgrade necessary requirements for businesses.

eSIM technology will increase the need for connectivity management platforms (CMPs) to help manage the state and levels of complexity on the platform. IoT management will be simplified for organisations – giving visibility and control of IoT devices anywhere. The entire IoT infrastructure will be centralised on one platform with transparency around the data and diagnostic of the devices.

With a resilient platform available from the touch of a phone, businesses can save money with secure and reliable data connectivity for all critical business applications on the IoT platform, which will help them to respond quickly to opportunities and threats. ■



How is IoT driving wireless communications?

IoT is enabling fantastic new applications that deliver huge benefits to businesses and consumers across the globe. In support of widespread IoT rollout, wireless connectivity coverage is evolving in turn - Amy Saunders asks the experts to elaborate

The Internet of Things (IoT) is taking the world by storm. According to Statista, industrial IoT (IIoT) revenues in Africa alone are expected to expand at a compound annual growth rate of 17.5% to US$16.81 billion over 2023-2028. With such hefty revenues being generated, where and how is IoT being utilised across Africa today?

IoT in Africa

IoT is being widely utilised across Africa to support the continent's unique opportunities and needs.

"From improving agriculture yields to conserving endangered species, enabling electrified mobility to generating electricity off-grid," outlines Jeremy Potgieter, regional director Africa, Eseye.

IoT use has increased drastically in Africa over the last 5+ years, particularly as mobile networks become more robust and 4G and similar technologies are rolled out more widely, opines Christopher Baker-Brian, CTO and co-founder, Bboxx. "IoT is being used in remote sensor applications, in vehicle tracking and to help monitor and control pay as you go applications, from solar home systems to water pumps and other devices where remote location, tracking and switch on/off of the device based on payment status is important."

While in some cases there are just a handful of communities acting as test cases, IoT can enable people to live their lives in closer proximity to the natural world.

"Take agriculture," continues Potgieter. "Sensors and connected devices are used to monitor disease within crops, temperature, water supply and soil quality, ultimately helping farmers to make informed decisions about harvest and reduce food waste. Solutions could also be employed in livestock monitoring, helping farmers to track animal health and behaviour remotely."

Because modern mobile connectivity is the 'default' connectivity method across many African countries with good coverage, it has enabled many IoT opportunities, shares Hein Koen, director, SIMcontrol.

Transportation is one: "most goods transport in Africa is by road, due to poor rail networks. Coupled with security risks in many countries, IoT solutions are leveraged for fleet management, vehicle tracking, and logistics optimisation. Real-time data from tracking devices and sensors enable businesses to track vehicle location, monitor fuel consumption, and ensure the safety of cargo loads," says Koen.

Continuing, Koen adds security as another key application for IoT. "Many African countries experience high crime rates. IoT security technology has seen wide adoption and many such security solutions are being developed in Africa, such as cash handling, ATM monitoring,

smart alarms, cable theft sensors and other smart security solutions."

Water scarcity is another example of a problem that IoT is helping to solve. Some 780 million people worldwide don't have access to an improved water source according to the Centres for Disease Control and Prevention. Water systems are continuously installed but 65% break within the first two years, which adds to the mounting problem in the most remote and disadvantaged communities.

"Eseye supports eWATERpay, which brings affordable clean water to those in need. This solution uses Eseye's AnyNet Secure, AWS connected cellular technology to ensure that pumps are usable and maintained 24/7," adds Potgieter. "Here, connectivity supports regular upkeep of systems, ensuring that water is available for those who need it at all times."

The adoption and implementation of IoT across Africa varies in different regions due to factors including infrastructure availability, technological readiness, policy, and financial resources. Nonetheless, IoT is gradually making its way across the continent – in some regions more than others.

"In our experience, most system integrators developing IoT solutions are in South Africa," adds Eric Ménard, vice president strategy and business, Astrocast.

Transforming the face of a continent

The African continent is experiencing rapid urbanisation, population growth, and increasing connectivity, creating a favourable environment for the adoption of IoT.

While it's true that, in terms of current actual volumes, IoT in Africa is much smaller than on any other continent, the explosion of pay as you go financing and the need to manage expensive assets in remote areas continent mean growth rates are very exciting over the next decade, with tens of millions of devices set to be deployed, according to Baker-Brian. "We have seen year-on-year increases in our portfolio of remotely managed IoT solar home systems since we first started deploying them in 2015."

Indeed, given the challenges faced across the continent - limited infrastructure, access to services, and resource constraints – IoT offers opportunities to improve various aspects of life and business operations.

"From improving agricultural productivity to enhancing healthcare access, IoT solutions have the potential to make a significant impact in Africa," says Koen. "Additionally, the growth of reliable mobile connectivity where fixed infrastructure did not exist, and the increasing availability of affordable devices contribute to the rising demand for IoT solutions. Especially in the specialist security sector, many IoT solutions are being developed in Africa."

From solar power and wind farms to smart cities fuelled by renewable resources, IoT is changing the face of Africa for the better, agrees Potgieter: "to give one example, SolarNow is harnessing solar power to provide energy to off-grid communities. By doing so they are decentralising control to local communities, reducing investment in centralised infrastructure and helping to reach net zero. This solution also replaces dangerous kerosene lamps with a solution that is remotely monitored from the safety of the AWS cloud."

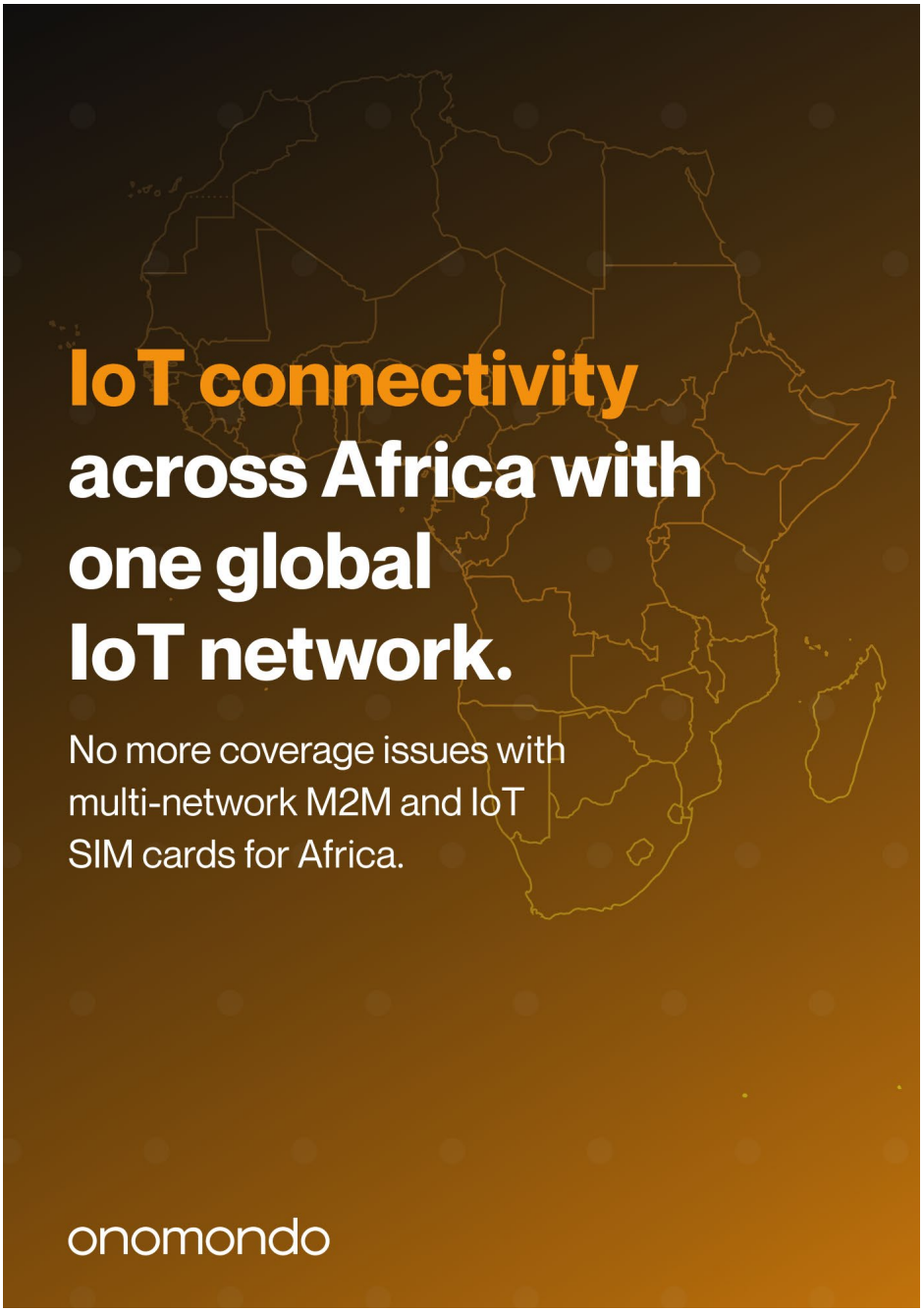
By providing decentralised access to energy, financial services, and healthcare, IoT provides Africans with the option of maintaining rural lifestyles without suffering as a result, adds Potgieter. "This is a benefit to communities across the globe, but particularly in Africa where centralised infrastructure can sometimes be less developed."

Ménard believes that IoT is helping to reduce the digital divide in many rural and farming areas across the world, especially in rural African communities. "Further, SatIoT is enabling organisations to not simply embark upon innovative thinking, but confidently and rapidly assess the impact and achieve continuous improvement. Critically, it will play a vital role in supporting the next generation of value driven business strategy, environmental change, and government policy."

Balancing application requirements

A range of connectivity options is available to empower IoT – cellular, Low Power Wide Area Networks (LPWAN), satellite, and WiFi – however, the choice of technology varies based on the specific requirements of IoT applications, such as range, data rate, power consumption, and deployment costs.

"Due to the lack of fixed line infrastructure and associated WiFi connections, GSM, 3G, and 4G connections are the main connection types that we see growing across the African continent," says Baker-Brian. "Over the last 5+ years, mobile coverage has improved dramatically, driven by the growth in mobile money payment systems and



the widening adoption of smartphones on the continent, which has pushed operators to improve coverage rates and connection reliability, especially in more rural areas — although in some markets high speed data connections (3G+) remain a challenge. Bboxx uses 2G connectivity solutions, working with MNOs."

Koen agrees that the most utilised connectivity technologies for IoT are either cellular: "GSM mobile networks provide wide coverage and are already established across the continent. They are used for applications that require low to high data transfer rates, such as basic sensor monitoring up to remote CCTV monitoring. Most IoT devices in Africa use 2G, 3G or 4G mobile network data connectivity," or narrowband IoT (NB-IoT); "NB-IoT is a LPWAN technology that enables long-range communication with low power consumption. It is suitable for applications that require low data rates, long battery life, and deep indoor penetration, such as smart metering and asset tracking."

These connectivity technologies are utilised because they offer a balance between coverage, power consumption, data rates, and cost-effectiveness, making them suitable for various IoT applications in Africa, adds Koen.

With the increasing affordability of satellite capacity, combined with the expansion of lower cost low Earth orbit (LEO) satellite constellations coming into play, satellite IoT (SatIoT) is becoming more of an enabler across the continent.

"Satellite IoT (SatIoT) is becoming increasingly depended upon – with farmers benefiting from this technology in Kenya and South Africa, where large herds of livestock are located in regions that have no reliable cellular network access to monitor them," says Ménard. "In these cases, connectivity to a SatIoT-based collar enables farmers to track livestock remotely - tracking movement patterns and enabling the creation of geo-fences to detect when livestock has drifted into areas they should not be. Traditionally, solutions like this would have been unaffordable. However, cost effective SatIoT access is changing this for farmers."

In support of IoT

IoT is changing the face of connectivity in Africa, pushing the boundaries of network optimisation, security, and data management. Indeed, with millions of IoT devices now connecting with African networks, MNOs are placing a larger importance on providing reliable services for these devices.

"Investment into network reliability is increasing, especially in larger cities, which has a knock-on impact on wireless communication provision," says Baker-Brian.

IoT is driving the need for more robust and scalable wireless communication networks. Demand for bandwidth is set to skyrocket alongside the proliferation of IoT devices and applications across the continent.

"IoT devices generate vast amounts of data that need to be transmitted over wireless networks. This data includes sensor readings, status updates, and various other information," explains Potgieter. "As a result, the demand for bandwidth and data transfer rates has surged, prompting wireless communication providers to upgrade their networks to support higher speeds and greater capacity."

Accordingly, network optimisation has become increasingly paramount for service providers to ensure quality of service (QoS). "IoT applications often require reliable connectivity with low latency and high network availability," says Koen. "To meet these requirements, wireless communication providers are optimising their networks to accommodate the specific needs of IoT devices. This includes deploying small cells, enhancing coverage in remote areas, and improving network capacity to handle the increased device density."

As we've seen in the latest Nokia Threat Intelligence Report (reviewed in our Talking Research column on page 15), IoT botnet Distributed Denial of Service (DDoS) traffic, originating from many insecure IoT devices with the aim of disrupting telecom network services for millions of users, increased fivefold over the past year. As such, ensuring the security and privacy of IoT networks and data becomes paramount.

"Connectivity service providers offer secure managed private APN services on top of local mobile network infrastructure to ensure robust security measures including encryption, authentication protocols, and continuous monitoring for potential vulnerabilities," says Koen.

As IoT continues to evolve, wireless communication providers will play a crucial role in enabling the seamless integration and connectivity of IoT devices, supporting the growth of connected ecosystems. These expanded, upgraded, and secured networks also provide knock-on benefits to other applications in the wireless communications sphere, and deliver new high-speed services to users in metro and rural areas, helping address the digital divide. ■

The next steps in bringing broadband to Africa

Broadband utilisation rates are on the rise across Africa, affording a significant positive impact on standards of living and nationwide economies. But how can rollouts be accelerated, and are MNOs doing enough? Amy Saunders asked the experts

Approximately 43% of Africa's current population of around 1.4 billion people have access to the internet. While sub-Saharan Africa has shown the highest growth rate in internet penetration over the past couple of years, greater investment must be made in connecting the unconnected.

"Broadband is expanding very fast in Africa, thanks to the deployment of multiple technology networks in almost all countries," says Jocelyn Karakula, CTIO, Orange Middle East & Africa. "In Africa, the expansion of broadband typically goes together with that of mobile technology. The massive deployment of 4G over the past few years has enabled a real boost for broadband services. 5G will reinforce this capability to offer very high-speed services, specifically in dense areas."

However, "while increasing internet access and related infrastructure can have a profound impact across the continent, Africa still remains far behind the rest of the world in terms of fibre network and broadband connectivity, spectrum, and data centre processing resources," says Angélo Gama, CEO of Angola Cables.

Indeed, there are several factors limiting wider availability of broadband in Africa today, identified by Gama and Karakula:

Lack of infrastructure: Many parts of the continent lack the necessary physical infrastructure, such as fibre optic cables and cell towers.

Limited investment: Limited investments are being made in broadband infrastructure - especially 'last mile' network connectivity. While there have been considerable investments by hyperscalers and others into increasing international bandwidth through new cables, too few investments are being made into localised networks.

Rising costs: Broadband infrastructure development and deployment can be expensive, especially in remote or rural areas. The costs are often carried over to the consumer. In Africa, some of the prices for internet connectivity make it unaffordable for many people or businesses, especially in areas with low population density.

Poor power supply: Loadshedding has reached alarming proportions which is having a negative effect on business and on consumers. The long periods of loadshedding are also impacting the ability of MNOs to keep their cell towers operational and the networks connected.

"Electricity, especially in South Africa; or rather, the lack thereof, is stopping wireless rollouts in its tracks," states Danny Ben-Simhon, regional sales director, ME & Africa, Siklu. "It becomes difficult to utilise street light furniture or any other site acquisition, and make sure you've got power available always, especially during loadshedding – sometimes up to a total of 10-12 hours a day. On top of this, theft of the batteries, amongst other things, is hindering this further."

Regulatory barriers: Some African countries have regulatory barriers that make it difficult for private companies to invest in broadband infrastructure. This can include strict licensing requirements or restrictions on foreign ownership.

Spectrum allocation and costs: Gaining access to sufficient radio spectrum, in the appropriate bands, and at the right cost, is proving challenging. In many countries, access to affordable spectrum remains a problem, bringing complexity in addressing both users and usage growth, especially in dense areas.

Device costs: The cost of devices is still too high on the continent, leading, in most countries, to a penetration of 4G smartphones below 50%. Similarly, the affordability of 5G devices for fixed and mobile users represents a challenge.

"Africa is enormous and therefore the prime factor limiting broadband is the cost of backhaul being a function of distance from the core network PoPs," adds Justin Farnell, business development manager, FibrePoynt. "There is a significant national backhaul limitation, especially outside of the metros. Agility in the regulatory environment will play a huge role in removing barriers to entry for new innovative entrants to offer competition in a market where only few companies are offering backhaul services."

Balancing the books

Ensuring continent-wide broadband availability is no mean feat, especially given the low spending power typical of some of the more remote and rural populations.

Orange Middle East & Africa has made digital and financial inclusion a key priority - "for rural areas, this means adapting our models and our network configurations to the specificities of each country, partner with players who are very familiar with local ecosystems, and benefit from the latest progress in technology (low-power equipment, pure solar power generation, etc.)," explains Karakula. "On top of this, internet and broadband adoption will be facilitated with an adapted support to local populations, to help them benefit from these new services, adapted to their expectations."

FibrePoynt, meanwhile, is exploring the use of pre-existing networks to reach a wider audience throughout the rural African regions. "One key (fixed wireless) strategy is to unlock the latent capacity of many of the government owned networks across Africa," outlines Farnell. Tanzania has spent hundreds of millions of dollars rolling out a national fibre network that is chronically underutilised, due to the lack of a cost-effective last mile solution. "FibrePoynt see a major opportunity here in rural areas where the residential household density is high. Likewise in South Africa, Sentech is looking to leverage the national network of Broadband Infraco and bring affordable connectivity to the rural areas of the country."

Indeed, there are several strategies which are expected to help increase connectivity in less profitable regions of Africa. Service providers can partner with governments or NGOs to secure funding and support for broadband infrastructure development in remote and rural regions, while PPPs can help service providers to share the cost and risk of deploying infrastructure in areas with low population density.

"Another approach is to work with local communities to establish community networks," says Gama. "This involves setting up small-scale infrastructure, such as wireless hotspots or mesh networks, that can provide connectivity to the local community. These networks can be more cost-effective and sustainable than traditional network infrastructure, and they can be managed and maintained by residents."

Service providers can also explore innovative business models to make broadband more affordable and accessible to users in remote and rural areas. This can include pay-as-you-go models, or shared infrastructure models, where multiple service providers share the same network infrastructure, explains Gama.

Moreover, as well as utilising standard mobile spectrum, "there are a number of specialised wireless providers that are commercialising TV white space spectrum, to deliver high speed connectivity into remote areas," adds Farnell.

"A combination of technologies, and a combined effort, especially with efforts and involvement from local and overseas governments in terms of investment are required to make a real change," concludes Ben-Simhon.

Fibre vs satellite

Both fibre and satellite technology have a role to play in delivering broadband to the African continent, although each technology has its own advantages and limitations.

"In Africa, we can expect to see both fibre and satellite technology being used to improve internet penetration across the continent," says Gama. "Fibre will be the preferred option for densely populated areas, while satellite technology will provide connectivity to remote or hard-to-reach areas."

There are two purposes to fibre, asserts Karakula: backhauling of mobile sites, which becomes a 'must-have' in dense areas, covered with 4G and soon 5G technologies; and fibre-to-the home/office, which provides the very high broadband (VHBB) experience (large bandwidth, low latency) for customers and enterprises.

Fibre will play a big role in metro areas, "even in rural areas, if you can get the community to buy into the concept, and involve them as well," asserts Ben-Simhon. "Otherwise, the cables and other infrastructure will just be vandalised and/or stolen, whilst thieves are looking for copper. You need the community to protect the infrastructure, by making them part of the roll-out, as salespeople, local community reps, and skills transfer."

Farnell agrees that fibre is having a massive impact on delivering broadband in Africa's cities and towns. "Trenching over long distances is uneconomic, but the introduction of aerial fibre in urban areas has significantly cut deployment costs," he explains. "Wireless solution providers are now taking the fixed fibre capacity from a shopping centre on main street, and connecting lower income surrounding neighbourhoods, with high gain directional WiFi antennas to provide coverage in the last mile. Uncapped home router offerings of R200 per month are now possible, addressing a significant segment of the residential market that would otherwise not be feasible to cover with fibre."

Satellite has had limited applications for delivering internet services in Africa to date, being up to 100 times more expensive than fibre. However, with the emerging low Earth orbit (LEO) constellations, the usage of satellite could evolve drastically.

"Depending on the cost of the technology and its operational cost, this new generation of satellites should be used to address multiple models (mobile backhauling, WiFi spots, direct to the home/office) and expand broadband coverage in Africa," says Karakula.

Ben-Simhon, meanwhile, says that LEO satellites will play a major role for smaller areas that are far away from major metros or the nearest fibre PoP, where it is not worth deploying long distance backhaul into.

Gama believes that Starlink remains 'hugely unaffordable' for most people in Africa. "Starlink has already connected several African countries, including Mozambique, Rwanda, and Mauritius, with 19 more African countries scheduled for 2023 and 2024," he says. "However, South Africa, the continent's largest internet-consuming nation, is not one of them. This is a result of South Africa's current prohibitive procurement policies which dictates that locals should have a majority shareholding in companies."

Farnell, however, says that "the Starlink service at $110 a month, whilst still out of the reach of most African consumers, should be a game changer. African WISPs are now rapidly deploying and reselling these 100Mbps links across Nigeria, Rwanda, and most recently Zambia."

The role of MNOs

Given the costs involved in fibre and satellite coverage, are MNOs key to driving broadband availability? The jury is divided…

Mobile networks will remain the main factor for broadband expansion in Africa, asserts Karakula. "5G will not only offer broadband, but also a full set of advanced services. As such, MNOs are key for driving this broadband challenge. At the same time, fibre is already a real factor of acceleration in some specific areas (such as places with high density), and satellite will complement this expansion even more."

MNOs will continue to lead the expansion of broadband across Africa given their network footprint and marketing reach, says Farnell. "Whilst fixed wireless LTE/WiFi routers are the preferred delivery method in homes and small businesses, the smartphone is, and will remain the connectivity device of choice, for most people in Africa."

Indeed, Huawei projects that central and southern Africa will see the fastest growth of smartphones in the world this decade; "MNOs are ideally positioned to bundle compelling fixed mobile broadband packages, boosted by the roll out of 5G and a plethora of fintech applications to drive digital adoption," asserts Farnell.

"MNOs are playing an increasing role as they expand their own networks, which in turn assists in providing more connectivity to more citizens," says Gama. "With this being said, MNOs will only make investments where they are guaranteed to make a return or provide a benefit to their existing networks. It is more a case of business economics and costs rather than just increasing capacity in areas that are sparsely populated in parts of Africa."

Ben-Simhon, however, believes that MNOs could stand to do more: "I think MNOs are key in the sense of pushing the latest technology, but it is not to say that they will, or will for everyone, or even will past what is a mere marketing campaign," he explains. "They are in a way, 'trying,' but more trying to look good with so-called dropped data prices and community projects. They are not really interested in the lower LSM areas, as far as I know. They are expanding, ever so slowly, and even moving into 5GHz for home internet, but it is still too costly for most households to afford."

Do you have boots on the ground in Africa? Are MNOs doing enough to bridge the digital divide and bring 5G to the masses? Get in touch today to share your experiences…

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Challenges of maintaining remote VSAT systems

Nimrod Kapon, founder and CEO, Oasis Networks

We live in a world where connectivity is an essential part of our everyday existence. Very small aperture terminals (VSAT) play a key role in connecting people and organizations and are vital in remote or rural areas where terrestrial communications infrastructure is scarce or non-existent. One of the benefits of VSAT is that it is independent to local networks so is not affected by blackouts or other shutdowns. The lack of any other kind of reliable communications networks can mean that VSAT systems are literally a lifeline for those people relying on them. It is therefore critical that VSAT sites are well-maintained and functioning properly.

However, installing, maintaining, and trouble-shooting these sites can prove extremely challenging, precisely because of their location in remote and often hard-to-reach areas. Difficulties arise because of a variety of factors such as limited infrastructure and access to resources, technical issues, cultural and local considerations, limited communication networks, and weather-related issues. These challenges can have a significant impact on a VSAT operator's ability to maintain a reliable and well performing network. What can operators do to overcome these difficulties so that vital connectivity is maintained, and any downtime minimised?

Limited infrastructure and access to resources

One of the main challenges of maintaining VSAT sites is the physical location of the terminal. With VSAT systems installed in isolated or difficult to access locations, it can be difficult for engineers and technicians to access the site to perform necessary maintenance tasks and carry out repairs. Equally, it can also be problematic to transport supplies and resources to the site when a problem is identified. This is especially complex in areas with poor transportation infrastructure.

It's not unusual to have to transport equipment by motorbike, all-terrain vehicle, or to trek through waterways and even swamps to reach extremely remote sites. This was certainly the case with

one project that we completed in the Democratic Republic of Congo. To get to the site involved crossing the border from Bangui, Central African Republic, then travelling some distance by pickup before carrying equipment by hand over a bridge. We then had to make the last part of the journey to the site by canoe through a waterway. As extreme as this sounds, this sort of journey is fairly typical. This sort of thing obviously results in delays in getting technicians and equipment to the site to carry out installations, testing, and to make repairs.

Technical challenges

VSAT sites can also be impacted by a variety of technical issues, in part because the equipment can be complex and requires specialised knowledge and expertise. Issues encountered can include antenna misalignment or failure of the modem or other components. These issues tend to be difficult to diagnose and repair remotely, so technicians need to be on-site to troubleshoot and fix the problem. If the equipment fails, it can be difficult to identify the issue.

Technicians need the necessary skills and experience to perform maintenance, testing and repairs. Otherwise, the result is longer downtimes and a reduced level of service for the users of the VSAT network.

Cultural and local considerations

There are obviously huge cultural differences between one region or country, and another. Recognising and appreciating these differences is an important aspect of effectively maintaining VSAT sites. Regulations can differ from region to region, and although less formal, codes of conduct and communication can also differ significantly, and are equally important. Engineers need to adapt how they work, depending on local needs. Local people have inside knowledge and know the best channels to get things done.

When we were working on a project installing a repeater in South Angola, we used a map to identify a mountain location that looked to be a good place for the installation. That mountain also happened to be a holy place for the Mocabashi community, so we had to seek their approval before progressing with the installation. We also had to rely on the Mocabashi community to help us hike up to the summit of the mountain so that we could test coverage. What's more, to ascend the mountain, we had to work with the Mocabashi people and use machetes to cut our way through the spined trees.

Working with local people is what makes things happen quickly. This is true whether the site is remote, or easier to access such as when situated in a bustling city, as some VSAT sites are. Having strong local connections makes it easier to locate necessary resources such as materials, tools, workers and even specialists like welders. Failure to go through the right local channels can at best, create significant barriers and delays, and at worst, cause animosity and tension, which can prevent a project from being completed.

Limited communication

It's common for there to be limited or unreliable communication at the remote VSAT sites, as well as when on route to the sites. This can make it difficult to get updates to or from the main office. There have been times when engineers have had to travel across difficult terrain by four-wheel drive vehicles or motorbikes and lines of communication have gone down for days on end because there has been no GSM signal. If vehicles break down or other crisis happens, without GSM signal, there is often no other way to communicate the problem back to base, so engineers are reliant on local people to help them resolve the issue.

Weather-related issues

Weather can be problematic for satellite services, with rain fade and weather attenuation both impacting on service delivery and quality. Weather-related issues don't stop there. For VSAT sites in areas with extreme temperatures or severe weather conditions such as high winds, lightening, and heavy rain, there are additional challenges to overcome. VSAT systems are often installed in areas where they are exposed to the elements, such as on rooftops or in open areas. This can make them vulnerable to damage from wind, rain, and other extreme weather. These conditions can not only damage the terminal and associated equipment causing disruption to service, but in the event of weather-related damage, can also make it more difficult for engineers to reach the site to carry out tests and repairs.

Many regions have a wet season and during that time, travelling can be very complicated. Roads that are drivable by vehicle for much of the year can quickly turn impassable after a deluge of rain. These kinds of issues need to be taken into consideration when planning deployment because what might look like a reasonable straight deployment when planning on paper, can become significantly more complicated when weather is factored in. In Angola, we helped a customer to plan its deployment better, to consider local knowledge about how the rainy season would advance. It made sense to start in the north and then rush to the south, in a race against the rain, before roads turned impassable.

Boots on the ground

To overcome many of the challenges associated with accessing and maintaining the equipment at these hard-to-reach sites, service providers often rely on a network of local technicians who are familiar with the local environment and can access the site more easily. Having boots on the ground in this way rather than relying on engineers travelling from another part of the world really makes a huge difference. Not only are you saving on travel time and costs, but you are also able to take advantage of local knowledge which gets things done quicker and more smoothly.

Local teams can be trained to perform all aspects of installation and maintenance tasks, such as cleaning the antenna, checking and replacing cables, and troubleshooting and repairing issues with the terminal. Using local teams in this way doesn't mean that quality is compromised. Providing local engineers are fully supported, trained well and an effective QA system is in place that facilitates continuous improvement, high standards can be maintained across all locations and regions. Using local teams also has a positive impact on their communities because by empowering them to improve community wide access to information and communication technologies, they are also helping to close the so-called digital gap.

VSATs play a vital role in connecting people and are an essential part of our modern communication infrastructure. By making use of local teams, and engaging closely with local people, VSAT operators can keep networks connected and ensure maintenance and troubleshooting of those hard-to-reach areas is done efficiently. ■

Enhancing network performance for Orange Cameroon

Orange Cameroon commenced operations in Cameroon's telecommunications space in 1999 and has been a major player in providing communication services. The operator has deployed fixed wireless broadband infrastructure extensively, making it one of the country's foremost service providers.

Assessing the challenges

The constantly evolving internet space has required the Ministry of Post and Telecommunications (MINPOSTEL) and the Telecommunications Regulatory Board (TRB) to continually engage operators and ISPs to standardise their services.

Frequent interruptions in service because of poor performance of existing network infrastructure, high latency and poor monitoring views of the network were the setbacks faced by Orange when it came to managing the network. Orange needed to ensure performance by adopting an appropriate fixed wireless broadband solution that would be efficient in spectrum utilisation, robust, and able to curb latency.

Adopting fixed wireless

Orange Cameroon was introduced to Cambium Networks' ePMP platform by Greenline Technologies, a value-added distributor with a presence in more than 10 African countries. A 45-day trial was completed during which seven links of several products across the ePMP access point and subscriber portfolio and 450b subscriber modules were installed by SIS Networking - a telecommunications system integrator - with the details of installation.

Prior to installation, the LINKPlanner design tool was used to plan the network, and the results guided the engineers on the field to execute the survey and the installation. The monitoring and maintenance process was made even easier with the use of the cnMaestro NMS which gives a 360-degree view of the network.

The outcome of the trial was Orange ordering a significant number of links of the F300-19R subscriber module. ePMP is part of the Cambium ONE Network, which simplifies operations by providing one secure IT experience, transforming the network from a collection of disparate parts to a unified architecture. The platform integrates WiFi, switching, network security, SD-WAN and outdoor fixed wireless infrastructure into a single framework managed by cnMaestro cloud management.

Next Steps

Orange Cameroon envisions increasing its infrastructural deployments by integrating other Cambium Networks products into the network. The deployment of wireless solutions is quickly accelerating, and easy-to-deploy solutions such as Cambium Networks stands out in the technology space.

"Orange Cameroon is impressed with the link as the capacity and performance achieved is satisfactory. This platform will sustain increasing demands in capacity needs for years to come," said Abdallah Nassar, network engineering and development director, Orange Cameroon. ■

Globacom: building Africa's biggest and best telco network

Globacom, Nigeria's largest integrated technology service provider, wanted to expand its network and enhance service delivery to its customers. Toward its goal of building Africa's biggest and best telecommunications network, Globacom selected Ceragon and its cutting-edge IP-50E millimetre wave solution.

Expanding network reach

En route to becoming Africa's biggest and best telecom network, Globacom needed to further expand its network reach, significantly increase its network capacity, and enhance customer service delivery. The solution needed to be applicable for long-haul, high-capacity metro and access network scenarios, and 5G-ready. Globacom wanted to do this while achieving rapid rollout and time to market and minimising total cost of ownership. The operator also was interested in avoiding fibre optic cable cuts, which can lead to service outages, customer loss, and high repair costs.

Gearing up for 5G

Ceragon provided Globacom with a customised turnkey solution featuring Ceragon's high-capacity IP-50E E-band radio product. The flexible solution covers long-haul rural, high-capacity metro, and access network connectivity. This enables the operator to not only enhance its existing subscribers' quality of experience (QoE) but also to expand its reach and further grow market share.

The IP-50E E-band solution supports ultra-high capacity of 10Gbps over the air, with an upgrade path to as much as 20Gbps, as needed. Ideal for 5G links in urban areas, the solution allows extended E-band reach without compromising on availability due to its unique multiband capability, where E-band is combined with an additional microwave connection.

Ceragon's solution helps Globacom prevent fibre cut issues as the operator will use Ceragon's IP-50 E-band solution to provide metro backhauling instead of fibre (and at times as a backup to fibre).

"We believe that our partnership with Ceragon will help in our desire to build the most robust, advanced telecommunications network," said Globacom. "Ceragon's field-proven solutions and services allow us to quickly and reliably ramp-up our 4G and future 5G network and capacity needs, while minimising our overall Total Cost of Ownership (TCO)."

In a testament to the upgrade, by leveraging Ceragon's technology, Camrail – which operates passenger and freight traffic between the two largest cities in Cameroon and several smaller cities – was able to achieve reliable and stable connectivity, with uninterrupted use of its onboard signalling system. That answers the pressing need to increase safety and operational efficiency along its rail tracks, thereby allowing business growth, reduced unemployment, and enhanced personal welfare for the general population. ■

EXFO offers new field-testing tools for fibre link validation

EXFO has announced its new D-Series of OTDR solutions, advanced field-testing tools that deliver highly accurate measurements to characterise and validate fibre links. These tools support critical fibre deployments and network operations in FTTH and RAN mobile networks, as well as data centres.

EXFO's new OTDR series combines several advanced and unique features within a single solution to bring dramatic efficiency gains to OTDR field tests. These advanced field-testing tools enable versatility and flexibility, critical to field technicians for fibre network construction, activation, and maintenance.

Continuous testing of critical fibre links often results in worn device connection ports over time, which can degrade the quality of test results – an issue that can only be addressed by returning the device to the manufacturer for repair. EXFO's D-Series features an optical port connector health monitoring wizard, and field-swappable optical port connectors that can be simply replaced in the field once worn. This patented innovation allows operators and contractors to benefit from EXFO's optical performance throughout the entire life of the product without the extra cost and down time linked to returning units for changing worn connection ports. This translates into significant cost of ownership savings.

EXFO's D-Series OTDR also combines both optical link mapping and power measurement (optionally a dual-channel PON power meter) through the same optical connector port, allowing technicians to move between power checking to troubleshooting mode without having to disconnect the fiber under test to swap to a separate power meter unit. This feature again substantially improves testing efficiency.

EXFO's OTDR D-Series is part of a full ecosystem that connects to EXFO Exchange, a collaborative cloud-based software platform that unifies, automates, and optimises field-testing, reporting, workflows, troubleshooting processes and more. All test plans, data and reports can be stored, shared, and analysed collaboratively in real-time, bringing yet more field-test efficiency.

EXFO's OTDR D-Series features five models. Three are dedicated OTDR models in EXFO's MaxTester range, the 715D for last mile, the 720D for PON/access, and the 730D for PON/metro. Two further models are swappable FTB modules, the 720D for PON/access, and the 730D for PON/metro.

IIoT gains ultra-robust SPE and USB 3.2 Gen 2 connectors

Fischer Connectors has released ultra-robust Single Pair Ethernet (SPE) and USB 3.2 Gen 2 connectivity solutions to meet the specific requirements of Industrial Internet of Things (IIoT) applications in rugged environments.

With the increase in sensor density, actuators, and controllers in Industry 4.0 and IIoT operational settings, high power levels and massive amounts of data must be securely and efficiently managed through ultra-fast transmission lines with cables running over long distances. Miniature connectors and cables are needed to interconnect smaller and smaller devices and sensors in areas that are sometimes confined and hard to access. Connectivity must be ruggedised to resist shock, vibration, extreme temperatures, water, and corrosion when exposed to demanding environmental and chemical conditions, both indoors and outdoors.

To address these challenges, Fischer Connectors has developed new high-speed data and power connectivity solutions combining Single Pair Ethernet and USB 3.2 Gen 2 high-speed protocols with the rugged, high-density, and miniature features of its flagship product lines. They enable space-saving and cost-efficient integration in industrial automation and robotics, chemical plants, food processing, automotive production lines, outdoor sensing, and unmanned systems.

The Single Pair Ethernet solutions from the Fischer Core and Fischer UltiMate™ Series allow for 1Gbps data transfer per IEEE 802.3bp - 1000Base-T1. Exceptionally rugged, they outperform other suppliers' SPE solutions in terms of security, durability, as well as environmental and mechanical performance. Fischer SPE is compliant with MIL-STD norms (through Fischer UltiMate™) and offers 10,000 mating cycles, three locking mechanisms (push-pull, screw, quick-release), and hermetic sealing in addition to IP68/ IP69 ratings. SPE is also featured in the ultra-miniature Fischer MiniMax™ connector in 'size 06' (Ø 10 mm receptacle).

The demand for USB 3.0+ protocol is high in Industry 4.0 operations, as it offers high data transfer rates with low latency for IIoT control applications, nearly twice the power output than USB 2.0 (900 mA vs. 500 mA), better power efficiency due to lower consumption in idle state, and larger bandwidth. Fischer MiniMax™ connectors with USB 3.2 Gen 2 allow for 10Gbps data transfer, offer additional power contacts up to 8 A, and are half the size of some competitor connectors with similar speed but no power.

Mobile-first security platform offers dynamic protection from emerging threats

Zimperium has launched the Zimperium Mobile-First Security Platform, which unifies Zimperium Mobile Threat Defense (MTD) - formerly known as zIPS - and Mobile Application Protection Suite (MAPS), delivering powerful new features for teams who bear security responsibility across the entire mobile security spectrum.

Through a single pane of glass, customers now have centralised access to and management of both Zimperium's mobile application security and endpoint security solutions, providing them full mobile coverage to dynamically adapt to emerging threats.

The launch comes at a time when attacks against mobile devices and apps are increasing exponentially. Our world is becoming increasingly mobile, and the Bring Your Own Device (BYOD) trend that exploded during the pandemic has become a staple of business operations. At the same time, mobile applications are being used for everything from banking to managing medical devices and have become a critical part of many enterprise's business models. Unfortunately, this has opened the door to new attack vectors across devices and apps and has created an expanded, distributed attack surface for enterprises to manage and secure.

The Zimperium Mobile-First Security Platform uniquely combines capabilities across mobile threat defense (MTD) and mobile app security (MAPS) such as centralised management and access to device and app security through a single interface on any cloud and on-premises; protection for all devices against critical mobile threats; privacy-by-design to protect employee privacy on both corporate and BYOD devices; pervasive risk management for apps to find risks in apps you develop and third-party apps used by employees; advanced in-app protection to prevent reverse engineering, protect cryptographic keys, and create self-defending apps; an enhanced mobile ecosystem with enterprise integrations; deep forensics and enhanced search capabilities to enable advanced threat hunting.

In-building 5G augmented with indoor antenna from HUBER+SUHNER

The SENCITY Occhio Plus indoor antenna from HUBER+SUHNER offers mobile network operators a faster and more reliable way to ensure high data throughput in 5G frequency range in buildings.

The antenna provides coverage in buildings such as airports, train stations, shopping malls and sports stadiums which are hard to reach with traditional macrocell solutions. The latest addition to the HUBER+SUHNER antenna portfolio, the omnidirectional antenna builds on the SENCITY Occhio to offer high performance with a MIMO 4x4 configuration in 5G sub-6GHz frequency range from 617MHz to 6GHz.

The SENCITY Occhio Plus utilises the HUBER+SUHNER-exclusive smart connect-system which enables safe and secure installations. The self-locking adaptor and quick-lock feature make installations simple and efficient, saving time and, in turn, money.

"The SENCITY Occhio Plus combines contemporary design with innovative engineering to achieve discreet placement with

low visible impact, as favoured by interior designers and architects," said Cristina Olimpieri, product manager at HUBER+SUHNER. "It addresses the growing need for increased data rates inside buildings."

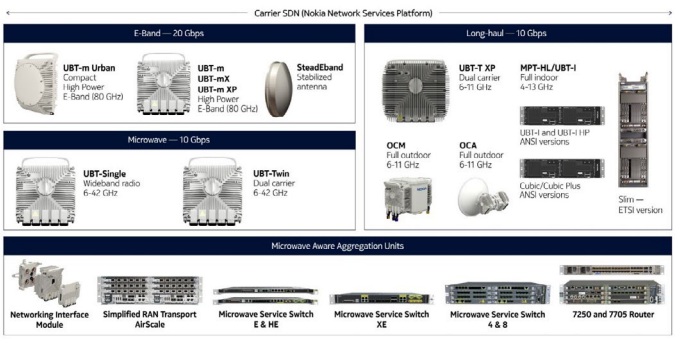
E-band radio delivers premium coverage in dense and rural environments

Nokia has released UBT-m XP, the latest addition to its Wavence product family designed to support mobile operators and enterprises with premium coverage in both dense urban and rural environments.

Nokia's newest E-band radio is a high-capacity outdoor unit with a small, light form factor and the highest transmit power available on the market, ideal for urban microwave transport applications. It is joined in an industry first by the launch of the Nokia SteadEband, a stabilized three-foot antenna that combats common E-band issues, which include tower vibrations and movements due to thermal effects. Combined with the UBT-m XP, it can increase the typical E-band link distance by up to 50%, helping MNOs deliver multi-gigabit 5G connectivity to their customers.

The UBT-m XP is a single ultra-broadband transceiver with an integrated modem and diplexer, offering best-in-class energy efficiency with twice the transmit power compared to the industry average. In recent tests, Nokia demonstrated a 12km-long link using the Nokia UBT-m XP and the SteadEband antenna.

Combining two UBT-m XP units with XPIC will allow operators to reduce spectrum fees, because of frequency re-usage and to go up to 20Gbps with 2000MHz channel spectrum. Additionally, XPIC 2+0 solution can be used to extend the link hop compared to a 1+0 solution, for a given capacity. Combined with Nokia UBT-S and UBT-T radios and a multiband antenna, using Layer-1 Carrier Aggregation, the UBT-m, UBT-mX or UBT-m XP enables the combination of E-band carrier with any additional microwave, achieving a compact, three-carrier solution (single-carrier E-band and two-carriers microwave), either in split-mount (combined with MSS-8 or MSS-HE) or all-outdoor.



Two new CPE devices deliver multi-gigabit connectivity

Broadband network operators can ensure a seamless smart home and business experience for users thanks to the release of two new multi-gigabit Customer Premises Equipment (CPE) devices.

The Iskratel Innbox X24 can operate as a bridge or router, offering a dual-box FTTH setup in both single or multi-operator deployments. In addition to a gigabit Ethernet LAN port, the Iskratel Innbox X24 has a 10Gbps LAN port which supports multi-gigabit speeds of 2.5, 5, and 10Gbps and provides an enhanced user experience. The device has an integrated fibre-termination unit (FTU), simplifying deployment and reducing operational expenditure.

The Iskratel Innbox M92 functions as an agent access point, mesh controller, and can also utilise its gigabit Ethernet WAN to act as a home gateway, excelling in single-box ETTH setups and dual-box setups with FTTH or 5G FWA. While supporting 1,800Mbps cumulative WiFi data rate, Iskratel Innbox M92 delivers full gigabit throughput over dual-band WiFi 6 and two gigabit Ethernet LAN ports. The device hosts the Innbox Premium Application Suite that enhances security and privacy of users and enables operators to increase revenue.

Look out for...

Unifying LiFi with QKD

Quantum technology opens up many new areas of application, however, it also harbours risks. Due to their enormous computing power, quantum computers could undermine even the most modern encryption methods.

In addition to today's quantum computers, quantum imaging and quantum clocks, developments are focusing primarily on quantum communication and quantum encryption for secure and private data communication.

Traditional encryption approaches based on computational complexity will be replaced by novel quantum key distribution (QKD) approaches in combination with post-quantum cryptography. This type of encryption cannot be cracked even with arbitrary time and computational power.

Previous research has focused on long-distance secure data communication for applications in the global data infrastructure, for networking government or military facilities, or for information exchange with satellites. However, the last mile connections to the end user have so far still been served by traditional technologies and remain vulnerable to attack.

To prevent this in the future, the Quantum-based Infrastructure Networks for Safety-critical Wireless Data Communication (QuINSiDa) project was launched. Partners led by KEEQuant GmbH are developing a new approach to secure optical data transmission in wireless networks using light and quantum keys.

Li-Fi allows users to network over short distances using optical signals which do not penetrate walls and can thus be designed for a defined area. Meanwhile, QKD makes it possible to distribute a cryptographic key whose security can be proven.

The QuINSiDa project is the first to combine both technologies into a 'QKD over Li-Fi' system. This makes it possible to carry QKD, which until now has typically been thought of more in a building-to-building scenario, all the way to the end user.

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Indonesia's SATRIA satcoms project to boost island broadband

SpaceX has launched a new Indonesian communications satellite as part of an ambitious project called SATRIA. The $550 million project aims to provide high-speed internet access to schools, medical centres, and thousands of public and government facilities across the island nation.

The satellite is intended to boost broadband access across thousands of islands in the country's vast archipelago. According to Reuters, roughly two-thirds of Indonesia's 280 million population already use the internet, but connectivity is limited in the country's far-flung, underdeveloped eastern islands.

Built by Thales Alenia Space, SATRIA is a public-private project between the government of Indonesia and a consortium led by PT Pasifik Satelit Nusantara (PSN). With 150Gbps throughput, SATRIA will connect some 94,000 schools, nearly 50,000 village offices, other government facilities and thousands of hospitals and medical facilities across the fourth most populous country in the world.

Before SATRIA, Indonesia relied on five domestic communications satellites and four 'foreign' relay stations with a combined 50Gbps of telecommunications bandwidth.

UScellular launches mid-band 5G

UScellular has launched a mid-band 5G network on 3.45GHz spectrum which it predicted will be accessible to 1 million households by the year-end.

The operator plans to light the service in parts of ten US states by the end of the month. By end-2024, it expects to cover 3 million households.

"We view mid-band as the sweet spot of 5G because it provides broad coverage, low latency and fast speeds – enabling more people to connect to what matters most at home or on-the-go," said Mike Irizarry, executive vice president and chief technology officer for UScellular. "As we approach serving 100,000 High-Speed Internet customers later this summer, mid-band will play an important role in furthering the reach and enhancement of that product. We've made it a priority to expand the technology to more communities in the coming years."

The operator is closing in on serving 100,000 internet customers, and mid-band will play an important role in furthering the reach of the service.

UScellular paid more than $579 million for 380 licences in an FCC auction of mid-band spectrum in 2021.

Lynk Global to launch beta satellite-to-phone service with PNCC

Lynk Global notched a commercial launch of its satellite-to-phone service, with Palau National Communications Corporation (PNCC) becoming its first deployment with a mobile operator.

Lynk Global CEO Charles Miller said that the company's initial satellite-to-phone offering will start as a beta service offering periodic SMS in the southwest islands of the Republic of Palau. From there it will be extended across the country's islands to include remote areas and maritime economic zone, offering ubiquitous connectivity. It will also provide backup capabilities if natural disasters impact ground services.

Lynk Global expects additional commercial service launches with other operators over the course of 2023. It holds contracts with 30 mobile operators across 40 countries.

Deutsche Bahn trials 5G on the rails with alternative towers

Rail company Deutsche Bahn (DB), Ericsson, O2 Telefónica, and Vantage Towers are collaborating to develop 5G coverage along train tracks in Germany.

The Gigabit Innovation Track (GINT) project has received Euro 6.4 million funding from the German government to provide high-speed data and phone connections to train passengers from all rail operations.

A test area will be built in Mecklenburg-West Pomerania, trialling tower designs to provide gigabit coverage along a 10km stretch of track. The project is anticipated to require 20,000 new towers across Germany's railway network. Proposals for tower sharing are being discussed to reduce construction time, resources, and costs.

The project will explore alternative tower designs that can be securely attached without costly concrete foundations, reducing construction time and CO2 emissions. It will also conduct 5G testing on O2 Telefónica's 3.6GHz frequencies, which offer fast data transmission but have a shorter range than 4G. The implementation of the Future Rail Mobile Communication System (FRMCS) will also require additional towers operating on a dedicated 1900MHz band.

True Corp targets e-waste

True Corp aims to reduce the amount of electronic waste sent to landfill to zero by 2030, as it kicked off a campaign to encourage customers to drop off used devices at collection points at its retail stores and service centres.

CEO Manat Manawutthiwet stated that one of its goals is to manage its overall environmental impact more effectively.

"True and dtac brands are distribution channels for more than a million mobile phones and devices per year," said Manawutthiwet, adding that the company is aware of its responsibility to manage e-waste in an integrated way based on international standards.

The e-waste project brings together the strengths of our two organisations to raise awareness about recycling and expands collections points to 152 sites nationwide. True is partnering with All Now Logistics and Total Environmental Solutions, which will manage logistics and recycling operations.

Entel delivers 5G to Easter Island

Chile's Entel is now offering 3.5GHz 5G coverage in Rapa Nui, also known as Easter Island.

"The installation of the first 5G antennas in Rapa Nui fills us with pride and is the result of Entel's commitment to deliver connectivity, reaching every corner of the country, to bring the infinite possibilities that technology offers to all Chileans," said Entel general manager Antonio Buchi.

Rapa Nui is one of the most isolated inhabited islands in the world, located in the South Pacific around 3,500km from mainland Chile. TeleGeography reports that Entel has been providing services to the island since 1966, when it launched single channel HF fixed voice services.

Bangladesh: mobile subscribers rebound

Government data shows that mobile subscriber numbers in Bangladesh grew for the second consecutive month in February after falling by more than 4 million in the first half of 2022 due to market leader Grameenphone facing a ban on selling SIMs.

The four operators in the nation added 1.8 million subscribers in February for a total of 182.6 million, following a gain of 600,000 in January, as per data from the Bangladesh Telecommunication Regulatory Commission.

Subscriber numbers in 2022 peaked at 184.5 million in June. Grameenphone was barred from selling SIMs the following month, with the restriction lifted at the beginning of 2023. The operator's subscriber base declined by 5.5 million in H2 2022. During the period, only Banglalink managed to add users (1.4 million), with Robi Axiata losing 130,000 and Teletalk about 60,000 compared with the first half of 2022. The full-year tally was down by nearly 1 million.

Grameenphone added 660,000 subscribers in January and February for a total of 80 million; Robi tallied 55.1 million after adding 740,000; Banglalink added nearly 1.1 million for 40.9 million total; and Teletalk was flat at 6.7 million.

Telekom Malaysia and Maxis join forces for network sharing , expand coverage to 95%

Telekom Malaysia has reached a network sharing deal to access Maxis' LTE multi-operator core network and domestic roaming services.

The agreement allows Telekom Malaysia to use 6,800 sites for LTE core and domestic roaming services, and 10,000 sites for 2G local roaming, which will extend its 4G coverage across the country and increase mobile population coverage to above 95%.

Telekom Malaysia CEO Imri Mokhtar called the move "an important step in the industry's collaborative efforts," adding the partnership will complement its 5G offering.

Maxis CEO Goh Seow Eng noted that industry collaboration is "the right way forward as it will ultimately benefit consumers" with wider coverage through better cost-efficiency and use of resources.

Latin America anticipates IIoT networks

Movistar Empresas and Nokia have announced a strategic alliance to accelerate the digital transformation of companies in the Latin American region through the development of industrial IoT (IIoT) networks.

The alliance will focus on the sectors with the greatest potential in the region, including ports and mining.

Movistar Empresas currently has 5.3 million IoT connections and leads the market in the region with managed IoT solutions in the industrial sector.

The partnership highlights the potential of IoT industrial networks to collect, monitor and analyse key data to boost the digital transformation of businesses, and driving Industry 4.0. These private networks will allow companies to automate and optimise automatic logistics processes, which will generate operational efficiencies, increased productivity and cost reduction, while improving the quality of their products and services.

In addition, they will contribute to making production lines more flexible, as well as permitting better control and remote management of heavy machinery and accident prevention. Sustainability will also benefit, the partners suggest, through the measurement and monitoring of assets in production areas.

Kacific delivers emergency internet services for STCL

Kacific Broadband Satellites Group and Solomon Telekom Company Limited (STCL) have collaborated to reinstate essential nationwide internet services.

Satellites Group (Kacific) reinforced its established partnership with Solomon Telekom Company Limited by restoring connectivity to STCL's affected customers after damage to the nation's domestic undersea submarine cable links operated by the Solomon Islands Submarine Cable Company (SISCC).

Solomon Islands' internet submarine cable was damaged in May when a foreign-flagged vessel dropped its anchor on it, impacting telecommunications services in the provincial centres of Auki on Malaita, Noro in Western Province, and Taro in Choiseul Province.

Kacific, the first provider to respond, offered support within two days of the incident and delivered additional temporary satellite capacity to enable broadband, mobile and landline services for a significant portion of the country. Kacific set up the necessary infrastructure and provided the island nation with a digital lifeline through a short-term satellite connectivity solution of 600Mbps on its Kacific1 satellite.

"Our technical teams have been working tirelessly to restore the services, and we have made significant progress," said Christina Lasaqa, CEO at Solomon Telekom Company Limited. "However, as repairs are expected to take six to eight weeks, the urgency of the situation required immediate action, and we are grateful for Kacific's responsive support. Thanks to Kacific's readiness to support and their rapid deployment of terminals, we can ensure that our customers have access to essential services during this challenging period."

"We quickly acknowledged the challenges that Solomon Telekom was facing with the cable outage, and we understood the urgency of restoring services as fast as possible," said Christian Patouraux, Kacific CEO and founder. "From the very outset, Solomon Telekom has demonstrated an unwavering commitment to our partnership. We're proud to extend our support, providing efficient satellite solutions to reconnect communities at this crucial time promptly. As undersea cable incidents happen quite often in the Pacific, they serve as a stark reminder of the importance of having dependable backup solutions in place. It's important to foster meaningful partnerships to ensure that Pacific nations will not be cut off from the world, with resilient and reliable connections that safeguard against such disruptions."

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Ericsson: 5G growth continues, lead by India's eMBB and FWA adoption

Ericsson's new Mobility Report highlights continuing global 5G growth, with India leading the way.

The June 2023 edition of the Ericsson Mobility Report shows that, despite geopolitical challenges and macroeconomic slowdown in some markets, communications service providers are continuing to invest in 5G.

5G mobile subscriptions are growing in every region and are forecast to top 1.5 billion globally by the end of the year.

Following the launch of 5G services in October 2022, the Indian 5G market is witnessing huge network deployments under its Digital India initiative. 5G subscriptions in India reached about 10 million by end of 2022 and are estimated to account for about 57% of mobile subscriptions in the country by the end of 2028, making it the fastest growing 5G region globally. According to Ericsson, enhanced mobile broadband (eMBB) and fixed wireless access (FWA) are already emerging as the initial use cases for 5G in India.

Ericsson's overall global 5G subscription forecast has been adjusted due to delayed spectrum auctions in several countries and continued difficult macroeconomic conditions. It has now projected global 5G subscriptions to reach 4.6 billion globally by the end of 2028, making up more than 50% of all mobile subscriptions.

Subscriptions for 4G have continued to increase, growing by 59 million during the first quarter of 2023 to 5.2 billion, but are projected to start declining from this year as subscribers migrate to 5G. Globally, around 240 communications service providers have launched commercial 5G services and about 35 have deployed or launched 5G standalone.

The most common 5G services launched by service providers for consumers, says the report, are eMBB, FWA, gaming and some AR/VR-based services, such as training and education.

G+D to expand globally with Sateliot

Giesecke+Devrient (G+D) and subsidiary Pod Group have agreed to cooperate with Barcelona's Sateliot, a satellite communications network operator. This will enable G+D to offer users of its IoT services true global coverage. Whenever a terrestrial cellular connection is unavailable, roaming to a satellite network is automatic.

As a provider of cellular IoT connectivity, G+D subsidiary Pod Group already connects numerous devices across the planet. However, there are areas where there is no or only limited coverage with mobile networks, for example, at sea or in remote or rural areas. G+D is now closing this coverage gap by cooperating with service provider Sateliot, which provides 5G satellite connectivity for IoT.

Sateliot is the first provider to operate a low Earth orbit (LEO) network that uses identical technologies for satellite and cellular connectivity. Unlike other solution approaches, this makes satellite connectivity available at a low cost by extending the coverage footprint of MNOs and MVNOS through standard roaming integration. The LEO network will consist of several nanosatellites with 5G coverage for NB-IoT (Narrowband IoT) in NTN (Non-Terrestrial Network). The first of five nanosatellites this year was sent into space on a SpaceX Falcon 9 rocket on 15 April. Sateliot planning calls for an expansion to 64 nanosatellites in 2024 and 250 in 2025.

Global coverage in G+D's IoT service offering will be ensured by Sateliot's satellite-based IoT connectivity and G+D Pod's cellular mobile network for IoT devices. The IoT devices automatically switch from cellular to satellite communication when needed, without the user noticing. The devices are equipped with G+D's SI -technology. In principle, classic pluggable SIM cards, eSIMs (embedded SIMs) or iSIMs (integrated SIMs) can be used.

The iSIM solutions offer users the greatest benefits. They are characterised by low space requirements, optimised energy consumption, and low costs. In addition, iSIMs score highly in terms of sustainability, which is ensured by the absence of any requirement for SIM slots, additional housings, or use of plastic. iSIMs are therefore increasingly the first choice for secure IoT connectivity in NB-IoT applications.

Users can conveniently manage the SIMs and control all IoT activities via the Pod IoT Suite. They can use it, for example, to analyze data, identify efficiency potential or read off costs.

The potential range of applications for G+D's new solution and service offering, which will be commercially available from the beginning of 2024, is far-reaching: conceivable applications include asset tracking, metering, smart farming and massive IoT applications in general.

"The IoT market is growing dynamically, and with our leading IoT solutions, we already provide global connectivity and efficient lifecycle management for IoT applications," said Philipp Schulte, head of connectivity and IoT at G+D. "The issue of connectivity always remains a challenge. Thanks to our cooperation with Sateliot, we are now opening a new chapter here. Problems with poor network coverage and dead spots will be a thing of the past, thanks to the parallel use of satellite communication. That's why we also see great market potential for the world's first iSIM that uses both mobile networks and LEO-based satellite networks."

"Currently, non-terrestrial networks with proprietary technology offered by satellite operators can only connect to equipment from the same company. This exclusivity increases costs and limits access," said Gianluca Redolfi, CCO of Sateliot. "Sateliot's new technology allows all users to seamlessly and cost-effectively connect to the satellite network whenever they need coverage. This means that any NB-IoT device supporting NTN can effortlessly connect to satellite or cellular networks. We expect this to massively drive the adoption of IoT even in the most remote areas."

India's consumers falling into WiFi exclusion trap

While WiFi penetration in Tier-I and Tier-II cities is considerably high at 74%, many consumers are falling into a WiFi exclusion trap, according to Consumer Unity and Trust Society (CUTS).

Calling the inability to benefit from a home WiFi connection, due to cost, awareness and availability constraints as a WiFi exclusion trap, the study said many consumers had been unable to install WiFi as a result.

The study comes at a time when the government is deliberating on whether to reserve the GHz spectrum band solely for mobile internet like 5G or for WiFi use. It pointed out that of those who did not have a WiFi connection at home, it was found that 63% wanted to explore the possibility of installing it.

"Although most families in rural areas had the first dimension of the digital divide, i.e. physical access to an internet-connected device, many family members, particularly women in the family did not have a material access to such devices. The study thereby recommends efforts to extract consumers from this trap," said the report.

It also advocated for WiFi at newer bands being made available. "It can help extract those in the trap by providing more public WiFi access points, reliable and multiple connections with additional bandwidth and by leveraging potential for enhancement of income generation," read the report.

The study also found 49% consumers preferred 6GHz over existing 5GHz and 2.4GHz, based on technical parameters of each band. Control over the 6GHz band is hotly contested by telecom service providers such as Reliance Jio and Bharti Airtel, and WiFi providers, because mid bands provide a balance between wide coverage and capacity, which is critical for the rapid and cost-efficient deployments of 5G. 6GHz is also the last remaining mid-band spectrum range where city wide coverage can be provided with mobile networks.

Mobile UK: digital inclusion requires more than just enhanced network provision

Around 21% of UK adults only access the internet with a smartphone and 1.5 million UK households now access the internet at home via a mobile, not a broadband connection, according to a report into digital exclusion by Mobile UK, the industry body for the UK's MNOs.

The report, 'From Exclusion to Inclusion – How mobile connectivity can further narrow the digital divide' emphasises the growing importance of mobile connectivity and the need for better government policy.

Statistics in the report show that 6% of households have no access to the internet while 4.2 million adults have either never used the internet or have not used it in the past three months.

"Evidence shows that mobile connectivity is directly linked to better life outcomes. People digitally excluded are, however, at risk of experiencing less effective healthcare, educational barriers, greater living expenses and lower earnings," states the report.

Two-thirds of the population now have 5G in their area and the government's recent Wireless Infrastructure Strategy sets out a target for standalone 5G coverage in all populated areas by 2030. In addition, the Shared Rural Network is working towards extending 4G coverage to 95% of the UK landmass by the end of 2025.

The report finds that digital exclusion cannot be addressed solely with better network provision and says there are varied factors which contribute to limited access, to the internet, a lack of skills and low confidence in accessing and safely using online services.

The report recommends creating a new digital inclusion strategy and enabling investment to ensure connectivity is kept affordable; but acknowledges the investment capability of mobile operators is challenged by declining average revenue per user. Mobile UK's investigation calls for the Government to implement a framework to narrow the investment gap, incentivise activity and ensure a positive landscape for improving mobile infrastructure. Mobile UK wants to see accessible and mobile-friendly websites as standard as 71% of smartphone users say it is more difficult to complete a form on a phone than a laptop.

Winity and Hughes announce prepaid mobile internet pilot

Winity, which entered the Brazilian mobile market in 2021, and Hughes have announced a pilot project involving prepaid mobile internet in remote areas.

The project - RuralChip - uses 700MHz spectrum won by Winity at auction in 2021. Ericsson, Nokia, and Algar Telecom are among the partners for the project.

The proof of concept is taking place in Presidente Juscelino and Cururupu, both in Maranhão state. In Presidente Juscelino, the access network provider is Ericsson. In Cururupu, the technology is provided by Nokia. Algar Telecom provides the network core along with charging, provisioning, NOC, and data centre services.

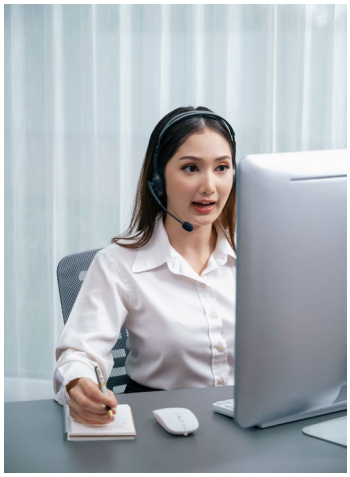
Both sites will make use of Hughes' high-capacity satellite backhaul solution, an LTE site and a Winity network core, effectively creating a 4G network to serve RuralChip customers in the areas covered.

The plan is to refine the solution for a future deployment at scale throughout the country, making possible the digital inclusion of thousands of people and the economic development of these regions, in line with Winity's business plan, which is to go to where no other operator has reached before.

Winity plans to build 5,000 cell towers by 2029 and to establish itself as Brazil's first wholesale operator.

SK Telecom utilises AI for call centre security

SK Telecom (SKT) has signed a deal to use security company Pindrop's AI-based voice authentication technology in its call centres to reduce customer consultation and wait times, with plans to commercialise the service by combining it with its own technology.



SKT began piloting the cloud-based service in 2021 and recently verified its effectiveness through evaluations with customers. The company said that the technology can "identify a user's unique voice and authenticate an individual" after a "simple" conversation "without additional authentication." It added the service can register voiceprints with a "maximum accuracy of 98 per cent" and is "widely used by many global companies" including Verizon and BT.

In addition to its call centres, SKT will deploy the service on devices requiring personal authentication including access control and biometric security.

SKT expects the voice recognition technology to be used for authentication across applications including vehicle access and online shopping.

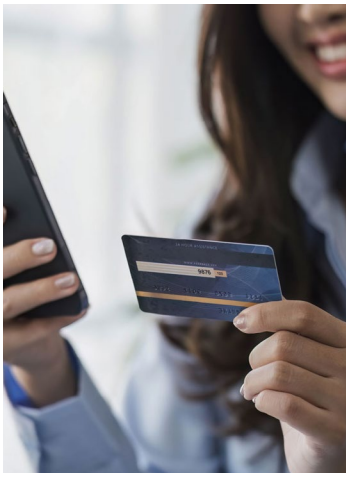
Solomon Islands gain M-SELEN mobile money

Our Telekom has launched its highly anticipated mobile money service, M-SELEN.

Funded by the government of Australia and supported by the United Nations Capital Development Fund (UNCDF), M-SELEN is now available in all Our Telekom offices around the country, bringing banking services to previously underserved areas and providing thousands of Solomon Islanders with access to affordable, reliable, and secure financial services.

Our Telekom suggests that M-SELEN is expected to have a transformative impact on the lives of Solomon Islanders, unlocking economic opportunities, promoting financial literacy, and empowering communities to build a more prosperous future.

"The National Financial Inclusion Strategy's mission is to increase financial services access points from 870 to 1,115 while increasing the number of individuals with a formal financial services account from 283,000 to 400,000, of which 50% must be women. We therefore need innovative solutions like mobile money to achieve this strategic intent," said governor of the Central Bank Luke Forau.



Q&A

Utpal Bhowmick, senior sales director, Middle East & Africa, Hughes Network Systems

Who was your hero when you were growing up?

Like most kids who grew up in the 90s in India, I absolutely idolized the cricket player Sachin Tendulkar! He is one of the world's best cricket players, and whether or not you follow the sport, he was a huge inspiration to so many people. He showed us what you can achieve by putting in the hard work and even at the peak of his success, he always displayed such humility and a great attitude.

What was your big career break?

I can honestly say my big break was when I started working at Hughes Network Systems. Prior to Hughes, I worked for a big equipment provider, so it was a big transition to move into the satellite niche within the telecommunications industry. It was a welcome challenge to step into this role and a great opportunity. I feel very fortunate to be part of an innovative company like Hughes with such a long and rich history in the satellite industry – we've been at this for over five decades now! While I've only been here about five years, I can now say I am thoroughly entrenched in this industry and can't imagine working elsewhere.

What did you want to be when you were growing up?

I always knew I wanted to be an engineer. My dad was an engineer and I've looked up to him my whole life so it was ingrained in me that I would eventually become an engineer. I am proud to have completed my engineering degree at one of the top schools in India. Although I'm not using my technical engineering skills every day, I am still an engineer at heart! I am a self-proclaimed technology geek, and my engineering degree comes in handy as I help companies design innovative and flexible connectivity solutions across the Middle East and Africa.

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

I'd love to share a meal with Prince Charles, especially now that he has been promoted to King Charles! I've been following him over the last few decades and its very cool to watch him come into his own style as he's been in the royal spotlight. I admire all the work he's been doing to promote sustainability and the preservation of nature.

> "I'd love to share a meal with Prince Charles, especially now that he has been promoted to King Charles! I've been following him over the last few decades and its very cool to watch him come into his own style as he's been in the royal spotlight."

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

My father gave me this advice a long time ago and it still rings true. He told me – 'the harder you work, the luckier you get.' I've carried this mantra with me throughout my professional and my personal life, from school to post grad and as my career continues to progress. I try to reflect this every day in my attitude and my work ethic, and I've seen the payoff that comes from working hard.

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

I really love technology so I think I would still be in the IT field in some capacity. If I could combine my technology skills with a way to give back in the education or healthcare space, that would suit my interests well. On a lighter note, I also love traveling – so maybe in my dreams I could be a travel blogger or influencer!

> "Honestly, I'm much more of a jazz fan. I grew up listening to Indian pop and Bollywood music. But if I had to choose, I'd align myself much more with the Beatles and their boys next door image. I'm not edgy enough to choose the Rolling Stones!"

The Rolling Stones or the Beatles?

Honestly, I'm much more of a jazz fan. I grew up listening to Indian pop and Bollywood music. But if I had to choose, I'd align myself much more with the Beatles and their boys next door image. I'm not edgy enough to choose the Rolling Stones!

What would you do with £1 million?

First and foremost, I think the best thing to do would be to invest most of the money for my family's future and my children's education. I'd take some and travel the world, and then I'd take the rest and donate it. I'm already very involved with Child Rights and You (CRY) in India, so I'd love to be able to give back even more to the underprivileged children who need support.

What's the greatest technological advancement in your lifetime?

Without a doubt, the internet! The dot com boom was just starting when I was in college, and I've seen first-hand how the internet has dramatically changed every single aspect of our lives. It has impacted our ability to stay connected, to book appointments, to travel the world, to bank online – just about everything we do these days relies on the internet. I can't imagine how we would have survived the past few years without the internet as our lifeline. And it's so interesting to see the next generation of the internet emerging with AI and ChatGPT – I can't wait to see what is yet to come. ■

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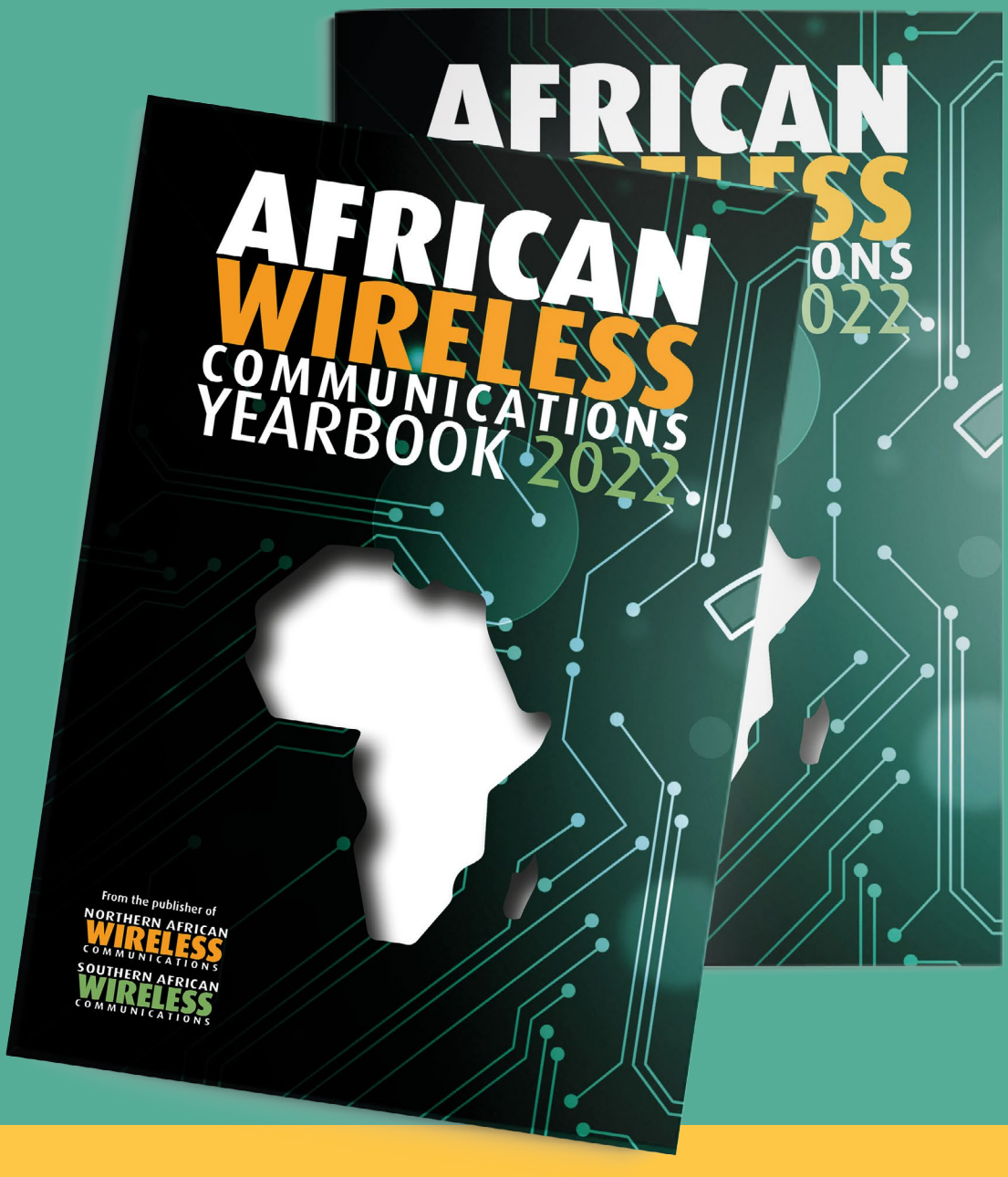

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