For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

JANUARY/FEBRUARY 2022 Volume 26 Number 3

- Is the 'space race' for real and how long will it last?
- Country focus: the DRC's tax controversy
- Opinion: powering the farms of the future

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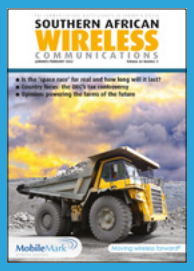

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CONTENTS

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KADIUM

Zimbabwe's regulator backs Telecel following outages

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) backed beleaguered operator Telecel to remain in business after the company experienced outages on its networks.

POTRAZ director-general Gift Machengete said the regulator is confident Telecel will remain in business as long as it is able to gain foreign currency for payments.

Data from the regulator comparing Q1 of 2017 to 2021 showed Telecel's total mobile revenue dropped. It also showed the state-owned operator saw a sharp decline in the share of revenues against rivals.

However, Machengete said the watchdog is confident Telecel will overcome its troubles.

"We do not believe Telecel will collapse, their operating licence is intact and they have enough subscribers and running services to sustain their operations," he added. "Should any mobile network provider decide to stop operations, they are mandated to give ample notice to allow subscribers to move to another network and to also allow subscribers to exhaust their airtime, SMS or data balances."

He added telecoms companies are prioritised for foreign currency provisions by the Reserve Bank of Zimbabwe.

The vote of confidence comes after Telecel rebuffed rumours it was shutting down operations after customers experienced severe outages across the country, stemming from expired licenses which have now been paid for and renewed.

However, a Telecel spokesperson told local media that the operator is seeking funding from several initiatives, as it suffered from rising inflation which has resulted in "spiralling operational costs" which cancels out revenue increases.

DRC gov puts end to controversial tax

The government of the Democratic Republic of the Congo is putting a definitive end to the Mobile Handset Registry (RAM) tax, a charge on the credit consumption of phones recorded in the Mobile Device Register.

What was viewed as an unpopular charge, the tax comes to an end March 1, 2022. By then, the database will be updated and the parameters reset, announced Kibassa Maliba the Minister of Posts and Telecommunications. The decision was taken by decree at the Council of Ministers on Friday, February 18.

The Autorité de Régulation des Postes et Télécommunications (ARPTC) introduced the tax September 24 2020 to finance the fight against the sale of counterfeit phones and theft.

Civilians had been insisting on the cancellation of this annual deduction of USD$1-US$7 on telephone credit recharges.

Not only was the move unpopular, this fee has aroused the suspicion of the opposition, which accused the government of operating outside the legal framework provided for this purpose. The Observatoire de la Dépense Publique (ODEP), a local NGO, revealed that the RAM tax was not included in the 2021 and 2022 Finance Laws. It claims that US$266m would have been collected through this channel in an opaque manner.

This claim was denied by government minister Kibassa Maliba, during his explanations to Congolese deputies, reported that US$25m had been collected by the end of September 2021. Faced with the insistence of a Parliament not convinced, the government had initially removed the tax only on cell phones with SIM of 2nd generation (2G), the most used in the country.

The RAM tax will now be definitively abolished on 3, 4 and 5G devices from the beginning of March. Some members of the opposition are calling for an investigation to trace the funds collected for just over a year.

SA: six qualify for spectrum auction

South Africa's telecoms regulator ICASA said all six applications it had received from telecom firms have qualified to participate in a radio frequency spectrum auction.

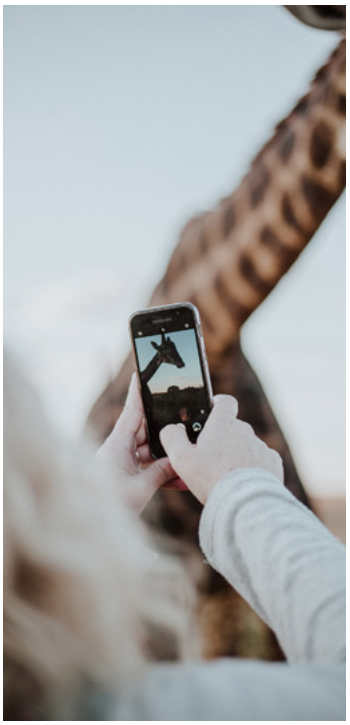
The watchdog said MTN, Vodacom, Telkom, Cell C, Rain Networks and Liquid Telecoms are the qualifying bidders in a process that has been slowed by years of legislative delay.

"We can officially proclaim the forthcoming March 2022 spectrum auction as an unparalleled milestone in our country's communications history as this will be the first ever spectrum auction held on our shores," Keabetswe Modimoeng, chairperson of ICASA, said in a statement.

Operators have waited for years for ICASA to release spectrum licences that are needed to lower data costs, roll out 5G and add network capacity as data demand has surged and smartphone adoption continues to grow.

The watchdog scheduled a bidder seminar February 28, which were set to be followed by mock auctions from March 1 to 3 with the individual bidders.

Thereafter, the auction stage will commence on March 8, with the main online auction taking place from March 10, ICASA said.



Mastercard rolls out 'Tap on Phone' tech in Africa

Mastercard has joined forces with payment products and services company Network International to roll out Tap on Phone technology across Africa to expand digital payment acceptance, targeting SMEs in the region.

They are working closely with governments, financial organisations, fintech firms and the wider business community to create opportunities for SMEs across the region, the companies said.

The Tap on Phone technology will be powered by Mastercard Payment Gateway Services, giving an estimated 500,000 SMEs in the Middle East and Africa the ability to accept payments through a smartphone.

Network International and Mastercard say that in an omni-channel environment where consumers increasingly want more choice to pay the way they choose, Tap on Phone is an innovative and welcome addition to the payment ecosystem.

The companies have a long-standing partnership, bringing together Mastercard's expertise in payments and technology, and Network International's digital payments capabilities that have a focus on security and innovation.

"Small businesses are crucial for systemic economic recovery, and by connecting more SMEs to digital commerce tools and affordable payment acceptance solutions, we are putting in place a strong foundation that can facilitate sustainable growth," said Gaurang Shah, senior vice-president, head of products, EMEA, Mastercard.

Eutelsat generates €47.7m in revenue from Africa

Eutelsat Communications, the commercial satellite business, generated €47.7m in revenue from its business operations in Africa, according to its first half (H1) 2021-2022 results.

According to the report for the six months ended December 2021, the company's total revenue declined by 9% year-on-year (YoY) to €572.2m, versus the €628.5m recorded the previous year.

The company's EBITDA margin was recorded at 76.1% and the H1 2021-2022 results showed that Eutelsat's total revenue across all geographical markets declined, including a slight 0.4% revenue decrease in Africa from €47.9m reported in the same period last year.

Furthermore, the firm recorded sustained progress in its fixed broadband strategy and growing momentum, particularly in Africa, driven by increased partnership agreements.

Within the period under review, a multi-year, multi-Gbps wholesale capacity contract was secured with Globacom, Nigeria's second-largest telecom operator, and a service agreement with Vodacom Tanzania, the country's leading telecommunications company. Eutelsat also signed a contract with Intersat for the entire capacity covering the Gambia and Guinea Bissau.

One of Eutelsat's critical priorities for FY 2021-2022 is to maximise the cash generation of the heritage businesses, deliver growth in connectivity verticals, and ramp up Konnect Africa operations.

"The first half has seen a number of important commercial and operational milestones, notably with the entry into service of EUTELSAT QUANTUM, strong progress on our Fixed Broadband roll-out, the cementing of our position in OneWeb and the receipt of the first tranche of our C Band proceeds," said Eva Berneke, chief executive officer of Eutelsat Communications. "Newly at the helm, I am impressed by the technical expertise, asset quality and long-term commercial traction within Eutelsat.

"Although we have mechanically revised down our medium-term revenue expectations on the back of delayed availability of capacity, I am confident we have the elements in place to enable us to return to growth from FY 2023-24 and continue to deliver long-term value to our shareholders."

Eutelsat plans to launch EUTELSAT 36D in Africa, a planned new generation multi-mission geostationary telecommunications satellite ordered from Airbus.

Helios Investment Partners exploring Africa's MoMo market

Helios Investment Partners (HIP) is exploring the mobile payments segment in Africa, according to the private equity firm's co-founder and managing partner.

In an interview with American newswire Bloomberg, Tope Lawani, said an "ongoing dialogue" is being maintained to figure out how his firm can help telecom operators leverage their mobile and digital payment platforms.

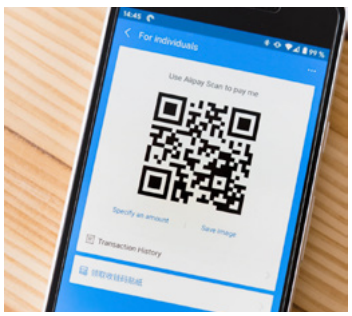
"There is a desire to carve out these businesses, and we have been in continuous dialog with such players," Lawani said in an interview, without naming specific firms. "Companies are trying to find ways of letting these units flourish and not essentially be suffocated by the traditional parts of business."

He added that telecom companies are currently "trying to figure out ways to let these [fintech, ed.] units thrive and not be essentially stifled by the more traditional management elements. These are strategic investment opportunities for HIP that will help further strengthen its portfolio of telecom businesses.

Helios has unveiled its interest in the fintech business of telecom operators at a time when the digital and mobile payments sector is experiencing growth in Africa, driven by the coronavirus pandemic. Prior to the arrival of Covid-19, MoMo was more concentrated in east Africa (Kenya and Tanzania) while the west and other parts of the continent favoured cash.

Airtel Africa opened its capital to Mastercard last year, while MTN Group is looking to finalize plans to spin off its mobile and financial business by the end of March.

Currently, HIP is in the process of raising $US1.25bn for future investments. In the mobile and digital payments sector in Africa, the company is aware of the development of new revenue streams such as consumer credit from which telecom operators can derive new revenues.



Telecom Egypt extends its network reach through SEA-ME-WE 6 cable and provides it a unique crossing route over its distinctive infrastructure

Cairo, 22 February 2022: Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, announced that it is extending its reach through the Southeast Asia-Middle East-Western Europe 6 (SEA-ME-WE 6) subsea cable, as part of the cable's consortium. The new cable will cross Egypt over the company's distinctive infrastructure through trans-Egypt's new geo diversified crossings and landing points from the other cables in the SEA-ME-WE family.

With the rising demand for connectivity coupled with the dynamic digital transformations that are triggering higher levels of data transfers from Asia to Europe, SEA-ME-WE 6 provides an additional layer of diversity and resilience for the high traffic density route between Asia and Europe, strengthening the overall network of each consortium partner. The added flexibility means service providers in the consortium can rapidly scale capacity, protect traffic from faults, and lower total cost of network ownership. The system is expected to be completed by the first quarter of 2025.

The construction has commenced on a 19,200 km-long submarine cable system connecting multiple countries between Singapore and France. The SEA-ME-WE 6 system has more fiber pairs and over double the capacities of existing SEA-ME-WE cables over its overall path. It will offer one of the lowest latencies available between Southeast Asia, the Middle East, and Western Europe, transferring more than 100 terabytes per second, the equivalent of 40,000 high-definition videos each second.

The SEA-ME-WE 6 consortium includes Bangladesh Submarine Cable Company, Bharti Airtel Ltd. (India) Dhiraagu (Maldives), Djibouti Telecom, Mobily (Saudi Arabia), Orange (France), Singtel (Singapore), Sri Lanka Telecom, Telecom Egypt, Telekom Malaysia, Telin (Indonesia), and Trans World Associates (Pakistan).

The Managing Director and CEO of Telecom Egypt, Mr. Adel Hamed, commented:

"Our participation in SEA-ME-WE-6 is another key milestone towards our goal to diversify our submarine infrastructure and improve our global reach. We are honored to work alongside renowned global partners to contribute to improving user experience and serve customer demands for premium connectivity services in cable–landing countries. We are also pleased to provide the new cable that serves as the shortest and most reliable link between Asia, Africa, and Europe as it connects the Red and Mediterranean Seas. For years, we have succeeded in revamping our international infrastructure and increasing the geodiversity of our assets to keep pace with the rising global demand for uninterrupted high bandwidth services."

About Telecom Egypt

Telecom Egypt is the first integrated telecom operator in Egypt providing all telecom services to its customers including fixed and mobile voice and data services. Telecom Egypt has a long history serving Egyptian customers for over 160 years maintaining a leadership position in the Egyptian telecom market by offering its enterprise and consumer customers the most advanced technology, reliable infrastructure solutions and the widest network of submarine cables. Aside from its mobile operation "WE", the company owns a 45% stake in Vodafone Egypt. Telecom Egypt's shares and GDRs (Ticker: ETEL.CA; TEEG.LN) are traded on The Egyptian Exchange and the London Stock Exchange. Please refer to Telecom Egypt's full financial disclosure on ir.te.eg

For more information, contact:
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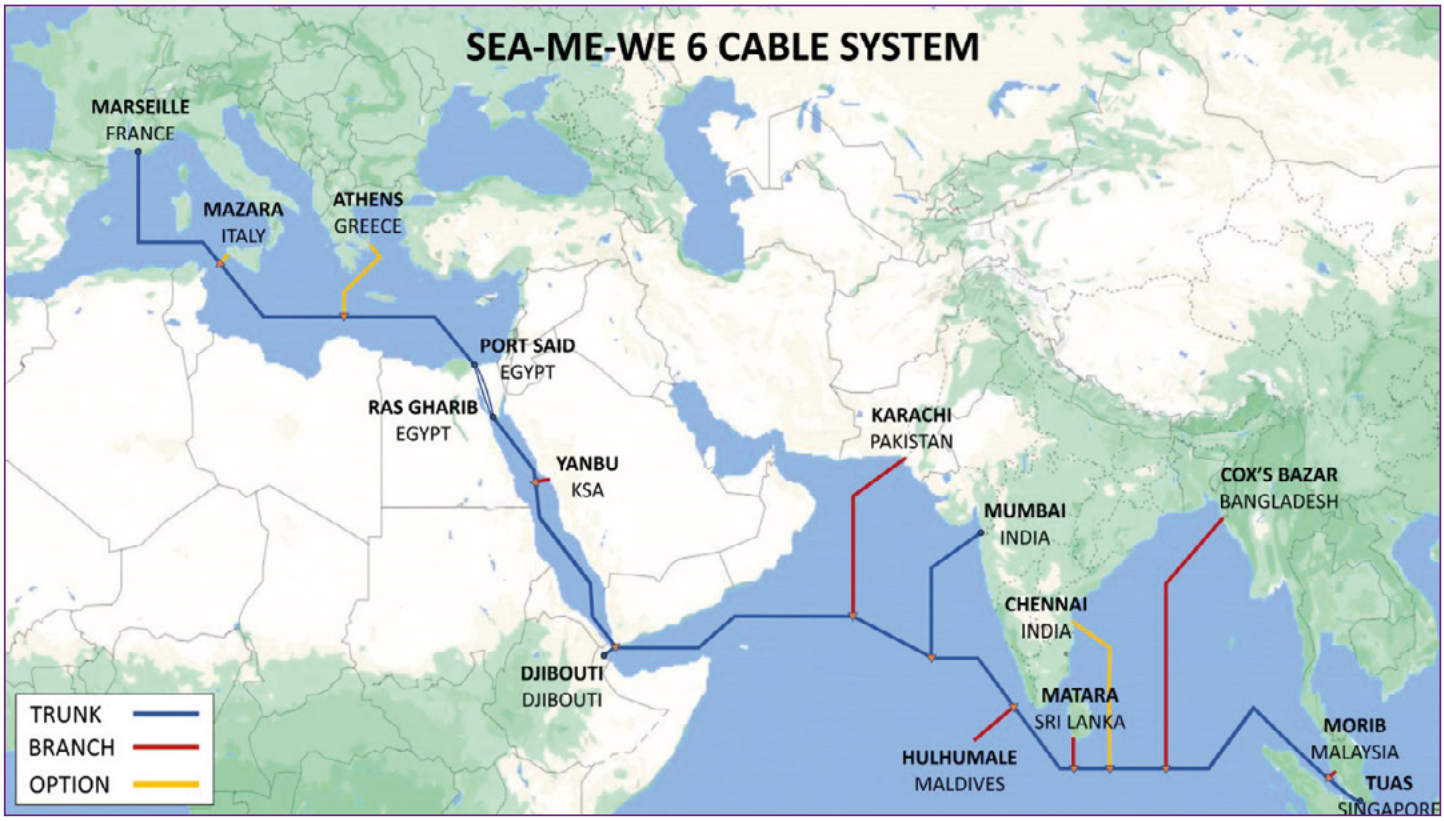

EU to fund African telecom development

The European Union (EU) announced US$170bn in aid package to Africa during a two-day conference – a large percentage of which will be devoted to building telecom development across the continent.

It was announcement at an event that that brought together EU leaders and 40 African counterparts and is part of the Global Gateway plan unveiled last year as the EU's answer to China's Belt and Road infrastructure initiative.

The assistance will go toward a broad range of projects, such as green energy initiatives, disaster relief and the improvement of the public health infrastructure. However, one area the EU is especially focused on is telecommunications.

Thierry Breton, the European commissioner in charge of the internal market, told reporters that a US$6.8bn high-speed EU satellite communication network will also include Africa. The network bolsters coverage in the continent, leading to economic development, which in turn will help the EU.

Margrethe Vestager, executive vice president of the European Commission, the bloc's executive branch, announced a substantial support package for Nigeria's digital economy when she visited the country in February. She also emphasised a "human-centric, democratic governance framework" for the technology.

A number of authoritarian governments in Africa limit or block internet use and so EU leaders are looking to project democratic values, such as freedom of expression and communication, together with the economic aid.

Starlink secures licence in Mozambique, begins expansion in Africa

Starlink, the satellite-based internet network of South African billionaire Elon Musk's US company SpaceX, has been licensed as a satellite-based Internet provider in Mozambique.

The National Institute of Communications of Mozambique (INCM) said that it had awarded the company the operating title, which was officially handed over February 23. According to the regulator, the arrival of Starlink "will bring enormous benefits to the information and communication technology ecosystem in Mozambique.

With a constellation of about 2,000 satellites, Starlink will offer its satellite services in Mozambique in complement to local providers. "The data transmission service provided by Starlink will complement other services available in the market, without replacing existing technologies," the INCM statement said.

With its arrival in Mozambique, Starlink is beginning its African expansion as part of its parent company SpaceX's ambition to bring broadband everywhere on the planet, even to the most remote and landlocked areas as demand for broadband connectivity has accelerated since 2020 across the world due to the Covid-19 pandemic. By 2021, the company had begun negotiations with regulators in some African countries, including South Africa, Nigeria and Zimbabwe, to obtain the necessary approvals to provide its satellite connectivity services in those countries. Prior to Mozambique, the service was only available in beta form in 16 countries, none of which were in Africa.

Elon Musk

With the INCM operating license, Starlink is expected to help bring high-speed Internet access to more people and businesses in Mozambique. Starlink's African expansion also opens the door to a new market where it hopes to win new customers. In Mozambique, Starlink will be competing with such well-known companies as SES, Intelsat, Eutelsat, Yahsat, Inmarsat, Iridium and OneWeb.

Econet switches on Zimbabwe's first 5G network

Econet Wireless Zimbabwe launched its 5TH Generation network technology (5G) in the capital Harare -the first in the country, with 10 more base stations expected to be set up in the capital during the next two weeks before expanding to other parts areas.

5G succeeds 4G (LTE), 3G(UMTS) and 2G (GSM) network systems at super-fast speed, lower latency and has ahigh capacity system among other advantages.

The group said it should have deployed 22 base stations country-wide by the end of April.

Speaking at the launch of the 5G network in Harare, Econet Chief operating officer, Kezito Makuni said the coming of 5G technologies will open up many possibilities in the digital development of the country.

"This is a key digital infrastructure that will further Zimbabwe's position and promote more digital innovation to keep us competitive as a world digital hub," said Makuni.

Despite 4G having ushered in smartphones by facilitating multimedia messaging, the technology had its own limitations in terms of capacity and speed.

Makuni said the group is in the process of ensuring more base stations for the 5G technology.

Econet was the first to take up available spectrum for trials after the regulator, Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) availed the resource as part of its National 5G Roadmap drafted in 2018.

POTRAZ said it will avail more spectrums to telecoms operators in the next 24 months for 5G deployment to speed up the transition.

Mascom launches 5G sites in capital

Mobile network operator Mascom has launched four 5G sites in Botswana's capital Gaborone as part of plans to roll out 111 sites across the country before year-end.

The nation's minister of transport and communications Thulagano Segokgo said 5G is part of accelerators, including artificial Intelligence, cloud computing, big data and IoT, used to catalyse the digital economy for the country.

"Digital transformation is broadening and mixing business boundaries in all sectors, which will increase both diversity and uncertainty. With 5G's network design concepts and integrative capabilities, it's possible to combat these uncertainties," Segokgo added.

Botswana's healthcare sector is one of several that stand to benefit from 5G, according to the minister. That is because advanced wireless communications and information processing technology can streamline medical diagnosis and better allocate and share medical resources and data.

Mascom chief executive officer Dzene Makhwade-Seboni said that donnectivity drives socioeconomic digital transformation and with its unprecedented connectivity capabilities, "5G will take us and our society to a whole new level". He continued: "It is bound to revolutionise industries and enhance customer experience and advance us as a nation towards the achievement of our fourth industrial revolution ambitions."

Airtel enters into agreements with Helios

Airtel Africa has entered into memorandum of understanding agreements for the potential sale of its tower assets in Gabon and Chad, to Helios Towers, an independent telecommunications infrastructure company in Africa.

According to a statement released by the former, in Gabon Airtel Africa and Helios Towers have extended their memorandum of understanding arrangement, with completion still subject to the latter obtaining a passive infrastructure licence.

The memorandum of understanding arrangement relating to tower assets in Chad expired, and Airtel Africa and Helios Towers mutually agreed that this would not be renewed.

Elsewhere, Airtel said the Malawi assets agreement continues to progress and the deal is expected to be closed in the first half of 2022.

A provider of telecommunications and mobile money services, Airtel has a presence in 14 countries across Africa.

Attacks against mobile devices down, says report

There has been a noticeable decline in attacks against mobile devices in African countries over the last year, as bad actors are consolidating their efforts and shifting their focus to more complicated, dangerous and profitable threats.

This was one of the findings in Kaspersky's Mobile Threats in 2021 report, which found that

in South Africa last year, local users faced 38% less mobile malware attacks than the previous year, and other countries have seen even more dramatic changes of their mobile threat landscape. Mozambique saw a 48% decrease, followed by Botswana (58%), Nigeria (59%), Ethiopia (69%) and Ghana (76). The only countries where the share of attacks increased was Angola, where mobile malware grew by 12%.

Kaspersky said this dynamic mirrors the global trend, as attackers tend to invest less and less into the mainstream threats that are successfully neutralised by modern security solutions.

Instead, they are turning their attention to new mobile malware that has become increasingly complex, featuring new ways to steal users' banking and gaming credentials, as well as other strands of personal data.

Moreover, experts also attribute the overall decline of mobile malware in 2021 to the enormous wave of attacks seen at the beginning of lockdown in 2020 as users were forced to work from home.

Tatyana Shishkova, a security researcher at Kaspersky, says while there have been fewer mobile attacks in general, the ones the company is seeing have become more complex and harder to detect.

"Cyber criminals tend to mask malicious apps under the guise of legitimate applications, which can often be downloaded from official app stores," she added.

Clickatell secures R14bn in funding

South African chat commerce business Clickatell has secured R1.4bn in funding, the company said.

The company sits within the chat economy and boasts 7.7 billion users compared to 4.7 billion internet users. Since its launch, Clickatell boasts one of the largest messaging-as-a-service footprints globally and fastest growing mobile pre-paid networks, serving more than 28 000 companies across 960 mobile operators in more than 220 countries and territories

This fintech powers businesses to connect, interact and transact with consumers anytime, anywhere in chat. Clickatell's platform powers mobile messaging/ CPaaS (Communications Platform as a Service) and payments within chat.

"In 2019, Clickatell was the first to launch chat banking, bringing banking services functionality to chat channels," said Pieter de Villiers, co-founder and chief executive, Clickatell. "Our successes would not be possible without the trust and collaboration of our customers, some of Africa's largest and most successful companies in the world. We look forward to working with businesses and financial institutions across the continent to enable Chat Commerce, the future of digital commerce and engagement. Soon, every consumer in Africa will engage family and friends via chat plus connect, interact and transact with the brands they love through their favourite chat platform."

Clickatell serves more than 10,000 customers, many of which are Fortune 500 companies and leading global brands such as Coca Cola, Deloitte, GT Bank, Booking.com, GoDaddy, IKEA, Novartis, Standard Bank, Tangerine, Telegram, US Foods, Visa, Zipcar, Capitec and others.

Pieter de Villiers

Smile Telecoms winds down

Smile Telecommunications – the group founded by black empowerment entrepreneur Irene Charnley – is being wound down, which can see debt owed to a number of SA authorities funders, together with the PIC, extinguished within the transaction.

Founded in 2007 by Charnley and Mohammad Wajih Sharbatly of the Saudi-based Al Nahla Group, Smile has cell telecoms operations in Nigeria, Tanzania, Uganda and the Democratic Republic of the Congo, the place it has entry to high-value spectrum. It is integrated in Mauritius with a head workplace in London.

Throughout the course of Smile's 16-year existence, the Authorities Workers' Pension Fund (GEPF) by way of the Public Funding Company (PIC) dedicated US$100m in a 50/50 fairness and mortgage break up; the Industrial Improvement Company of SA (IDC) $60 million, made up of a US$20m mortgage and US$40m share subscription settlement; and the Improvement Financial institution of Southern Africa (DBSA) a mortgage of US$50m.

AFR-IX telecom signs landing party agreement with Telecom Egypt for Medusa submarine cable

Barcelona, 4 March 2022: Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, and AFR-IX Telecom, a Barcelona-based infrastructure and telecom operator, signed a landing party agreement for the landing of the largest Mediterranean submarine cable system, Medusa, in Egypt. The agreement was signed during the Mobile World Congress 2022 in Barcelona by the Managing Director and CEO of Telecom Egypt, Mr. Adel Hamed and Norman Albi, CEO of AFR-IX Telecom and Medusa.

Medusa is an 8,760km long submarine cable system with 24 fiber pairs and a capacity of 20 Tbps per fiber pair that is planned to connect the northern and southern shores of the Mediterranean Sea. The cable will have 16 landing points in several Mediterranean countries, such as Portugal, Morocco, Spain, Algeria, France, Tunisia, Italy, Greece, and Egypt.

Telecom Egypt, as the partner-of-choice for major global submarine cable owners, is providing the international community with state-of-art infrastructure across Egypt and the globe to over 140 landing points in more than 60 countries. The company has invested extensively in its submarine cable infrastructure, which is the shortest and most reliable crossing path between Africa, Asia, and Europe. Additionally, Telecom Egypt is working on multiple layers of its infrastructure diversity, such as establishing new submarine landing stations and crossing routes as well as investing in new systems and solutions that cater for the rising global demand for international bandwidth.

Medusa is a new generation submarine cable and follows the open cable standard. As such, the project aims to respond to the current challenges of submarine connections, which are establishing new routes to diversify and decongest data traffic, gaining capacity with greater number of fibers per cable, and promoting open access to all European landing stations.

The Managing Director and CEO of Telecom Egypt, Mr. Adel Hamed, commented:

"We are pleased to introduce additional connectivity to Egypt through the Medusa submarine cable system, which will increase diversity in the Mediterranean basin.

Telecom Egypt and AFR-IX Telecom signed a landing party agreement for the landing of the largest Mediterranean submarine cable system, Medusa, in Egypt. Medusa is an 8,760km long submarine cable system with 24 fiber pairs, which is planned to connect the northern and southern shores of the Mediterranean Sea.

We believe this agreement will be the beginning of more upcoming collaborations with AFR-IX telecom."

CEO of AFR-IX telecom, Norman Albi, said:

"The agreement with Telecom Egypt is key to the project as Egypt is an essential transit route for submarine cables due to its privileged position between Europe, Asia, and Africa. It is a very valuable connection to link East to West and North to South. With Medusa, we will also contribute to diversifying traditional routes such as those that land in Alexandria or Suez."

About AFR-IX Telecom

AFR-IX telecom is a private Barcelona-based and European capital company. AFR-IX telecom infrastructure investments include the new Barcelona Cable Landing Station – a neutral digital port – which starts operations in 2022 Q3 and aims to provide open access cable landing services to subsea cable operators for a neutral, safe, and secure landing in Barcelona.
Additionally, AFR-IX telecom is a licensed telecommunication operator in Portugal, Spain, USA and in multiple African countries as South Africa, Nigeria, Ghana, DRC, Mali, Burkina Faso, Sierra Leone, Niger, and Cameroon. It has the most reliable and largest Metro Ethernet Pan African Network and offers global coverage services to Africa.

About Telecom Egypt

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For more information, contact:
The investor relations team
Email: **investor.relations@te.eg**

Orange credits Africa 4G gains for growth

French mobile giant Orange credited its positive full-year performance to its Africa and Middle East units, which have been the main contributors to growth for the French telecoms group.

Group chairman and chief executive Stéphane Richard (pictured) said the growth and dynamism in Africa have been "remarkable" with over 44 million 4G customers to date generating mobile data growth by 25%.

Africa and the Middle East saw a 9% revenue boost to €1.6bn in Q4 2021, the performance was driven by double-digit growth in retail services which saw quarter-to-quarter double-digit growth, as the fourth quarter saw a 10.8% increase (Q3 saw a 15% growth rate).

For the full year ending 31 December, the regions saw a 10.6% revenue increase to €6.3bn. Meanwhile, earnings before interest, taxes, depreciation, amortisation and special losses (EBITDAaL) increased 16.8% for the full year to €2.2bn and operating margin grew two points due to strict cost control.

Orange said mobile data and fixed broadband were the most attractive customer offerings with a growth rate of 25.2% and 23.5% respectively.

"With my mandate as chairman and chief executive drawing to a close in the coming weeks, it is with pride that I look upon everything that we have accomplished over these past twelve years," said Richard. "I am confident about Orange's future, that of a solid company that has shown itself capable of capturing new growth opportunities while at the same time strengthening its network leadership."

Revenue for the overall group increased a marginal 0.5% to €11.1bn (£12.6bn), while EBITDAal is lower by the same rate to €3.1bn but this was in line with targets with expectations for it to rise by 2.5% to 3%.

Talking fraud

Dario Betti, CEO, Mobile Ecosystem Forum (MEF)

Identity and authentication in Africa

It's time to review your organisation's approach and how it fits the world outside, writes Dario Betti, CEO, Mobile Ecosystem Forum (MEF).

The wave of digital transformation triggered by the pandemic has changed many organisations quickly – from governments to restaurants, organisations are now getting digitally ready. How has that impacted Africa? The region has seen a bout of growth with Fintech – an industry without some strong fundaments on identity and authentication is not a stable construct. There is some good news here, but a lot of work to be done still. There are some important considerations to be made at a global level too.

African markets have embraced biometrics solutions. These are those solutions that measure a person's unique physical characteristics; usually fingerprints, face or eye recognition. They do not require high digital literacy which can be positive in some parts of markets but usually require a more advanced or specialised device. Solutions like that are more common for government use or as gatekeeping, where an office or institution may check digitally identity. For instance, in Zimbabwe the Public Service Commission (the government / civil service) implemented a biometric index of its workers. The scheme captured the fingerprints, DNA, iris and retina patterns of every official within government. It was announced in 2018 and rolled out in 2018. It showed that 3,000 salaried workers were non-existent. However, this large deployment has not yet been a truly digital identity solution – yet a welcome first step showing good results for the nation.

Many countries' laws on biometrics are still not truly ready for the digital age. However, there are already 24 countries with laws and regulations to protect personal data. We have often commented at MEF on the South African POPI (Protection of Personal Information) and found it as an advanced literature.

Unsurprisingly though, mobile remains the major identity solution for African countries. Many people in Africa still lack identity numbers or other forms of formal identification, yet now all aspects of daily life are converging to mobile. People are accessing services and curating a digital identity through their phones, and this trend is already particularly strong in financial services where many use mobile wallets.

Take the mobile money success in Kenya, m-Pesa. This can show an example of success in Africa, but also how it is important to keep on innovating on authentication. Safaricom in 2017 gave merchants access to photo identification technology. This was an attempt to limit fraud on its payment platform. Special, pre-programmed smartphones were given to m-Pesa agents to verify the identity of customers. These handsets allowed comparison via an app of the photo taken of the user the moment of SIM registration. M-Pesa's success made it more vulnerable to the attention of criminals and fraudsters.

In 2020, in Tanzania it became compulsory to register each SIM card against the biometrics of the users. In a successful move, the government found a way to distribute an equivalent to a digital ID card to the mass market linked to biometrics, effectively based on a mobile phone.

There are many mobile solutions to authenticate, and in Africa just as in Europe, one-time passwords – or codes sent to a nominated/registered phone number are growing in importance. The use of these services also allows to reach users who are not on data networks, or do not want to spend money on data access. Two Factor Authorisation (2FA) is now a mandatory requirement in most jurisdictions across Africa. Most of the banks and payment service providers across the continent have met this requirement with SMS OTP.

Myriad is a company that specialises in authentication for the African market and have championed the commonly used USSD channel. USSD is a signalling message presented temporarily on a phone screen. The content is not stored in the phone; it is a string of content or a menu of up to 182 characters. It is available on old 2G devices as well as smartphones. This old GSM standard provides a basis for digital banking.

Security in personal data/ authentication and identities is hardly an Africa only problem. In 2015, global fraud amounted to US$3tn. By 2025 the figure from fraud and cybercrime will reach US$10.5tn. The implication is that identity and access management to services are now the trojan horse for fraudsters worldwide.

What is the role of mobile in these personal data and authentication scenarios? Mobile is a truly personal service, always present and mass adopted: it has carved a role as an identifier. What is emerging is firstly a pronounced move towards device-based technology and using the hardware device itself to authenticate the user and produce a result, such as face ID or fingerprints. Secondly, it is the role that the mobile operator can play by using the unique assets of a mobile device and knowledge of the SIM. One application of leveraging the SIM is 'Mobile Connect' which has been very successful in India. A solution like this could be asking users to confirm a PIN code via their/phone SIM.

The solutions are still widely fragmented though; it should not be surprising that overall authentication is a fragmented market. The level of security that is required by each action is different and the level of acceptable ease of use for authentication or verification. To approve a large bank payment, you might want to use a highly secure one and are happy to wait a few more seconds but to check your medical records or pay for your groceries you might have expectations on security and immediacy.

Finally, we are seeing significant growth in approaches that are independent of either the device or mobile operator which can be used when a device may be unavailable – such as lost or out of a coverage area. A mobile identity (as well as other biometrics) would be maintained through a cloud-based interface or another distributed means of authentication.

Safaricom confident over Ethiopia despite conflict

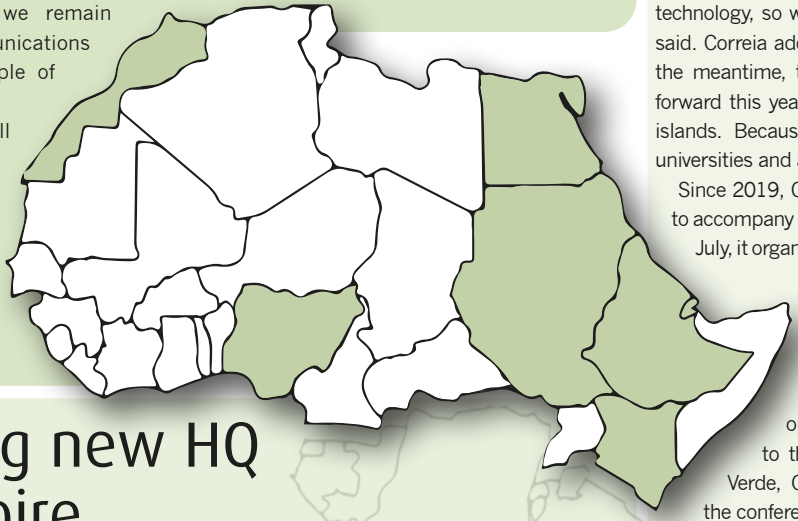
Kenyan mobile operator Safaricom is confident of its plans to operate in neighbouring Ethiopia - despite the ongoing internal conflict - and has stipulated a Capex investment target of US$1.5bn-US$2bn in the first five years.

The news came as the company announced its target in its H1 FY22 results, although it did concede that the conflict could delay plans to begin operations by mid-2022, according to its licence.

"We are looking forward to launching commercial operations as projected, while cognisant of the current evolving political conflict in Ethiopia, as we proceed with our plans adapting to and assessing the situation as it evolves," said Peter Ndegwa, chief executive officer, Safaricom. "We hope for a fast and peaceful resolution to the current situation and we remain committed to taking telecommunications and digital services to the people of Ethiopia," he added.

The Ethiopian government is still intent on opening up the economy as it sees a large population (115 million with a median age at 17 years), growing GDP per capita (average at 7% over the last seven years) as some of the metrics that hold promise for telecommunications growth.

Safaricom said Ethiopia's low penetration of services - with telecommunications at 43% and mobile financial services at less than 2%, makes it an attractive market.



CVTelecom waits on gov decision before investing in 5G

Cabo Verde Telecom Group (CVTelecom), island nation Cape Verde's incumbent telecom operator, is waiting for the government to confirm whether China, the US or Europe will provide the country with 5G equipment before it begins investments in the next-generation technology.

That is according to João Domingos de Barros Correia, the director and chairman of the board of CVTelecom Group, who was speaking to Portuguese news agency Lusa.

"The state will have to make a certain concession, it will have to clarify what it wants in terms of 5G technology, so we can make the best decision," he said. Correia added that if the partner is chosen in the meantime, the company will be able to move forward this year with pilot projects "on the tourist islands. Because 5G brings a lot to tourism, in universities and also in port areas".

Since 2019, China's Huawei has positioned itself to accompany Cape Verde in the adoption of 5G. In July, it organised a conference on fifth-generation (5G) networks in the capital Praia. It was in partnership with the multisectoral Economic Regulation Agency (ARME). The technology company took the opportunity to present its expertise to the deputy prime minister of Cape Verde, Olavo Correia, who was present at the conference.

CVTelecom sees in 5G an asset to contribute to the socio-economic development of the country, in addition to the growth of its revenues, which were posted at more than 1.8 million euros in 2020; a growth of 10.5% compared to 2019.

MTN building new HQ in Côte d'Ivoire

MTN Group has launched the construction of a state-of-the-art headquarters for MTN Côte d'Ivoire, as well as the start of a local trial of 5G services in the port city of Abidjan.

After the conclusion of the Côte d'Ivoire-South Africa Business Forum in which MTN participated, a foundation stone-laying ceremony was held at a site at the Akwaba Business Park in Port Bouët, a suburb of the city.

The event was attended by South African president Cyril Ramaphosa and Ivorian prime minister Patrick Achi.

"The construction of this head office is indicative of MTN's long-term commitment to Côte d'Ivoire," said MTN Group chairman Mcebisi Jonas, who led the MTN delegation alongside group president and chief executive officer Ralph Mupita.

The latter added: "Our strategic intent is to provide leading digital solutions for Africa's progress, and our presence here today illustrates the importance of MTN Côte d'Ivoire to the Group's overall portfolio."

MTN Group owns 58.8% of MTN Côte d'Ivoire, which is one of three mobile operators in the country and with a market share of circa 35%.

At the end of June 2021, it had 13.7 million subscribers, of whom 4.9 million were active data users..

Airtel Uganda to list part of its capital

Airtel Uganda is preparing to list part of its capital on the Uganda Securities Exchange (USE), the local stock exchange and said that "discussions are underway internally" on the move.

David Birungi, Airtel Uganda's public relations manager, said the telecom company will inform the public about the details of the deal once the discussions are complete. The operator will have to publish, among other details, the price of the shares to be sold, the process of acquisition by local investors, the timetable of the whole IPO operation.

Airtel Uganda's proposed IPO comes about a month after rival MTN Uganda offered 4.47 billion ordinary shares at USh200 (US$0.057) per share. The company eventually raised USh535,939,900,000 (US$152 million) during its initial public offering (IPO), which ran from October 11 to November 22, 2021. The company officially went public December 6.

Under new rules established by the government in 2019, officially effective in 2020, any telecom licence renewal will see the affected operator to list up to 20% of its capital on the stock exchange within two years of acquiring the new operating title. Airtel Uganda paid US$74.6m in December 2020 to continue operating in the country for 20 years. According to regulations, the company "must be in good standing" by the end of this year.

Monty Mobile rescues Gambia's Comium

Monty Mobile, the UK-based VAS telecom solutions provider, intervened to save Gambian mobile operator Comium from permanent closure.

After long negotiations and mediations, buyer "achieved a healthy and peaceful financial and legal reconciliation" between Comium and the Gambian authorities. It has finalised a full debt restructuring in addition to a settlement of all unresolved fees for both years 2020 and 2021, along with safeguarding a source of living for more than 150 families.

Under the terms of the deal, Comium will proceed its operations under Monty Mobile's investment expertise and consultancy proficiency. The new owner said it aims to upgrade Comium's existing network with ground-breaking technology by providing subscribers with advanced products and solutions, paving the way towards 5G networks technology.

This step will support the progress of Monty Mobile's mission towards integration of the world's community integration.

Monty Mobile has a history of working with a number African operators. In recent years it collaborated with Somtel of Somaliland for the implementation of two value-added services: My RBT (ring back tone) and missed call alerts.

It has also partnered with 9mobile of Nigeria and Glo Ghana, both of which chose Monty Mobile as their preferred international A2P SMS hub.

Chad's government negotiates lower internet rates with operators

The Chadian government is negotiating lower internet rates with telecom operators, in a bid to make services more accessible in a country which is among the nations with the most expensive prices in Africa.

Exchanges were held to this effect in January between the minister of posts and digital economy, Idriss Saleh Bachar, with the managing directors of the cell phone companies Moov Africa and Airtel Chad, Mohamed Dkhissi and Djibril Tobe.

Moov Africa's website shows that a 1 gigabit (GB) prepaid mobile Internet package is charged at CFA1,000, which is valid for 24 hours.

For the less affluent, a 200 megabits (MB) package valid for 24 hours costs CFA400. At Airtel, a package of 200 MB valid for 24 hours costs CFA500 and 1 GB costs CFA1,500.

These rates are quite expensive compared to those charged in neighbouring Cameroon, where Orange offers a package of 100 MB valid for 24 hours at CFA100 and CFA1,000 for 2 GB. This is the same rate at the competitor MTN.

During discussions, with Dkhissi and Tobe, Bachar said that the tariff proposals already made to the ministry are neither brilliant nor beneficial to Chadians, both in terms of price and duration of validity. He asked representatives of Moov Africa Chad and Airtel Chad to make further adjustments.

Vodacom Group gets green light for majority stake in Vodafone Egypt

Vodacom Group of South Africa has won the backing of its shareholders to acquire 55% of Vodafone Egypt from Vodafone Group to the tune of R41bn (US$2.7bn).

The buyer plans to issue 242 million new ordinary shares at R135.75 per share to finance 80% of this investment, while the remaining R8.2bn will come from its cash resources, the company said.

"This is an exciting and important step for Vodacom, as the acquisition of Vodafone Egypt will allow us to transition from a telecommunications company to a technology company," said chief executive officer Shameel Joosub.

The deal forms part of Vodacom's strategy to strengthen its presence in Africa and once completed, it will offer the company new growth opportunities beyond its key markets in sub-Saharan Africa. Vodacom will therefore benefit from Vodafone Egypt's financial services platforms, which concentrate more than 80% of the unbanked Egyptian population.

Vodacom Group said it expects the deal to be completed before the end of its 2021 fiscal year (March 2022).

SAP appoints new president of EMEA South region

SAP's EMEA South region, which comprises Africa, will be headed by regional president Emmanuel Raptopoulos, the group said in a statement.

He succeeds Claudio Muruzabal, who has been promoted to president of SAP's global cloud success services organisation.

Raptopoulos will report to Scott Russell, head of the customer success unit and member of the SAP executive board.

"The voice of our customers is loud and clear," said Russell. "They want to transition to and transform in the cloud for rapid innovation, exceptional experiences and next-level business outcomes.

Raptopoulos added: "EMEA South's next decade will be driven by cloud growth, anchored by our purpose, people and partnerships, and I am honoured to take on this new role. "The region represents a dynamic market for SAP, as agile organisations are transforming their businesses into intelligent and sustainable enterprises via the cloud."

As well as Africa, SAP EMEA South also encompasses southern Europe and the Middle East.

SA's telecoms off to promising start following number portability finalisation

South Africa's telecoms sector is off to a promising start in 2022 with the finalisation by the Independent Communications Authority of SA (ICASA) of the number portability framework and the provision of a firm commencement date.

This is according to South Africa's Independent Service Providers' Association (ISPA) which has for a decade and a half been calling for the full implementation of number portability. That call was finally heard and ICASA December 15, 2021 published the relevant Number Portability Regulations in the Government Gazette.

Most importantly, ICASA proclaimed that the Number Portability Regulations will come into force on March 7, 2022. From this date local businesses, NGOs and call centres can change to a different service provider without having to change their 0800, 0860 or 087 number.

Further good news is the fact that ICASA also finalised the technical details of how number portability will actually work in its amendments to the Ordering System Specification.

"This welcome news also signals to business and consumers the necessity of holding off on entering into further long-term agreements with providers," said ISPA regulatory advisor, Dominic Cull. "This is because the full implementation of number portability will soon see greater competition in providing telecoms services when it comes to non-geographic phone numbers."

He added that "the new two months will be an opportunity to investigate deals and determine if you're getting the best service and value offering from your incumbent provider".

Prior to ICASA's December 2021 announcement the issue around number portability was that while one million geographic numbers and eight million mobile numbers had been ported in SA, it remained impossible to port non-geographic numbers used by local businesses, non-profit organisations and consumers for toll-free, shared-cost, premium rate and Voice over Internet Protocol (VoIP) services (numbers starting with 0800, 0860, 0861, 0862 and 087).

This delay has now been dealt with and industry and the Number Portability Company (NPC) stand ready to port non-geographic numbers from March 7.

MTN SA makes two new appointments

MTN South Africa has named Michele Gamberini its new chief technology and information officer (CTIO), while Megan Nicholas has taken on the role of managing director at MTN Supersonic, the network operator's fibre and broadband ISP.

Gamberini joins from Telecom Italia (TIM Group) where he gained 25 years of experience across the business at TIM Italy and most recently Global Group CTIO.

"Having worked in Italy, Spain, Greece and supported Brazilian technological choices, Gamberini had the unique experience of preparing the network evolution ahead of the 2004 Olympic Games in Athens," MTN said in a statement. "He holds a master's degree in electronics engineering."

MTN SA's chief executive officer Charles Molapisi added: "MTN SA has established itself as the benchmark for what network quality should be while also driving massive and compelling enhancements in the IT space. As we work toward our Ambition2025 strategy which is anchored on building the largest and most valuable platform business, I believe that Gamberini's wealth of experience will have a notable contribution towards enhancing our technology functions as well as providing a network that is second to none to all South Africans."

Commenting on his appointment, Gamberini said: "I am delighted to be joining such a high-performing business and a team within the technology and information systems environment that have proven themselves to be amongst the best in the world. I am most looking forward to continuing and growing the exceptional work the MTN network team has delivered over the years," Gamberini added.

Nicholas is an internal appointment, having last worked as general manager for residential.

"As part of our ongoing commitment to grow our Supersonic business in this ever-changing environment, we consider this appointment as one of the strategic levers," Molapisi added.

Nicholas said: "I am very excited to be leading the execution against our 2025 strategy to 'own the home' and I believe that Supersonic is an important contributor to achieving that ambition."

PowerX appoints Green as non-executive director and strategic advisor

PowerX, the company that delivers large-scale data analytics and artificial intelligence (AI) to boost the performance of mobile towers, has named Charles C Green III (Chuck Green) as director and strategic advisor.

The company said Green's appointment reflects his belief that AI innovation is a vital need for the tower industry. "It will help agile, highly skilled tower teams adapt to fast-changing needs, including the ever-growing demand for 4G / 5G connectivity and the requirement to manage the environmental effects of this fast-paced growth," the firm added.

Green was founding CFO and EVP at Crown Castle International from 1997-2001, the first Tower Company established in the world and the first listed on the New York Stock Exchange. He also co-founded Helios Towers Nigeria (HTN) in 2005 and was advisor and non-executive director for 10 years.

In 2009, Green co-founded and held the positions of CEO, then executive chairman for Helios Towers Africa, the pioneer of tower sale leaseback transactions in Africa, now listed on the London Stock Exchange.

"Chuck is a highly successful pioneer of the tower industry with a track record of building top class tower businesses that is second to none," said William Mitchell, non-executive chairman at PowerX. "We are excited at the complementary skills that Chuck brings to the PowerX team."

Billionaire Masiyiwa retires from Econet

Zimbabwean telecommunications billionaire and founder of Econet Wireless Zimbabwe, Strive Masiyiwa, has retired from the company he started almost 30-years-ago to focus on new opportunities.

Masiyiwa, 61, who has been on Econet's board since establishing the company in 1993 will retain his more than 50% stake in the company that he listed on the Zimbabwe Stock Exchange in 1998.

The "vision caster" has moved on, Douglas Mboweni, chief executive officer at Econet told reporters in the capital, Harare. "He has stepped up and there are more portfolios he has to attend."

Since listing, Econet's subscribers have risen to 13.2 million from 32,000 and – at the time of writing - the company is valued at US$1.1bn.

"It is through his leadership, dedication and perseverance that the company has grown to become one of Zimbabwe's largest and most successful businesses," the company said in an emailed statement.

Masiyiwa, whose telecommunications company operates in Africa and Europe, has clashed with Zimbabwe's government on numerous occasions, which he has seen as pursuing policies detrimental to his wireless business.

In 2020, authorities accused Econet, which dominates the mobile-money transactions industry, of fuelling black-market currency trading and money laundering, accusations the company denies. Prior to that the company was in a four-year long legal battle with the government before obtaining an operating license in 1997.

Away from the world of telecommunications, Masiyiwa currently sits on the boards of video streaming giant Netflix and the Bill and Melinda Gates Foundations.

He is also the African Union's special envoy on Covid-19 and oversees the AU's Covid Task Force that secures coronavirus vaccines for the continent.

Talking critical

Ken Rehbehn principal analyst at CritComm Insights, contributing principal analyst for Omdia

Land mobile radio options expand in Africa

Even as high-speed mobile cellular data services expand, the tremendous utility offered by simple push-to-talk voice communication is tough to beat. In the 2021 edition of Omdia's Licensed Mobile Radio Report, the installed base of these handheld portable and vehicle-mounted radios continues to expand. The lurking question, however, is what changes are in store as push-to-talk over cellular gains traction in the years to come.

Land mobile radio spans a variety of radio technologies, ranging from simple analog systems to complex, computer-driven digital trunked networks. But at its core, the land mobile radio market is focused on a fundamental goal: simply and efficiently getting a voice transmission to a group of listeners. For the user, the key to simplicity is a single button that initiates the voice transmission.

Push-to-talk simplicity wins

The simplicity of push-to-talk means that a user does not have to unlock a screen, look up a number, or make multiple button taps when initiating a conversation. This feature makes push-to-talk the preferred voice communications tool for enterprise teams on construction sites, airfields, bus fleets, and other dispersed work activities. All users need to hear the same message, and push-to-talk makes this possible. Likewise, in public safety agencies, the simplicity of push-to-talk is an essential feature that aids police and fire operations.

Land mobile radio (LMR) systems deliver the push-to-talk capability with narrowband radio signals in the spectrum below 1 GHz. As a narrowband technology, data transmission capabilities are minimal. Digital LMR systems such as TETRA or DMR support data transmission, but only as short messages. Older analog LMR systems are voice only, with no data functionality. For heavy data sessions supporting graphics, cloud applications, or video, users must turn to LTE or 5G mobile broadband technologies.

Analog begins to fade

Omdia's Licensed Mobile Radio Report tracks the market dynamics for push-to-talk radio communications. The 2021 edition concludes that the installed base of LMR users continues to grow, even as shipments slipped during the COVID era. Omdia found more than 53 million LMR active users at the end of 2020, an increase of 1.7% from the prior year.

Significantly, Omdia found 65.4% of the total 2020 installed base were digital subscribers. These users will continue to grow, increasing by 35.8% in 2025. The reason for the growth is the efficiency and expanded features enabled by digital land mobile radio systems.

Africa remains analog as digital grows

The challenges of geography and economy make analog the dominant land mobile radio technology across northern and southern Africa. Still, modern cost-optimized digital technology such as DMR is becoming popular as systems get refreshed. TETRA also plays a role for security services that require the enhanced security features provided by the technology.

While push-talk-over cellular is slow to emerge across the African continent, the technology is gaining a foothold. In South Africa, hybrid TETRA and LTE devices are now deployed with the Johannesburg public safety agencies.

LTE and 5G disruption

Though land mobile radio systems have proven valuable tools for group coordination, the data limitations and high deployment costs are forcing enterprises and governments to shift from narrowband to broadband technologies. For enterprises, a variety of push-to-talk over cellular solutions are available that operate over mobile LTE networks. Government users are turning to a standardized mission-critical push-to-talk over cellular technology that incorporates quality of service, priority, and preemption.

Unfortunately, however, a shift to LTE presents a particular challenge to public safety operations. The ability for users to communicate with nearby users, even when the network is not reachable, is paramount but not available with today's LTE devices.

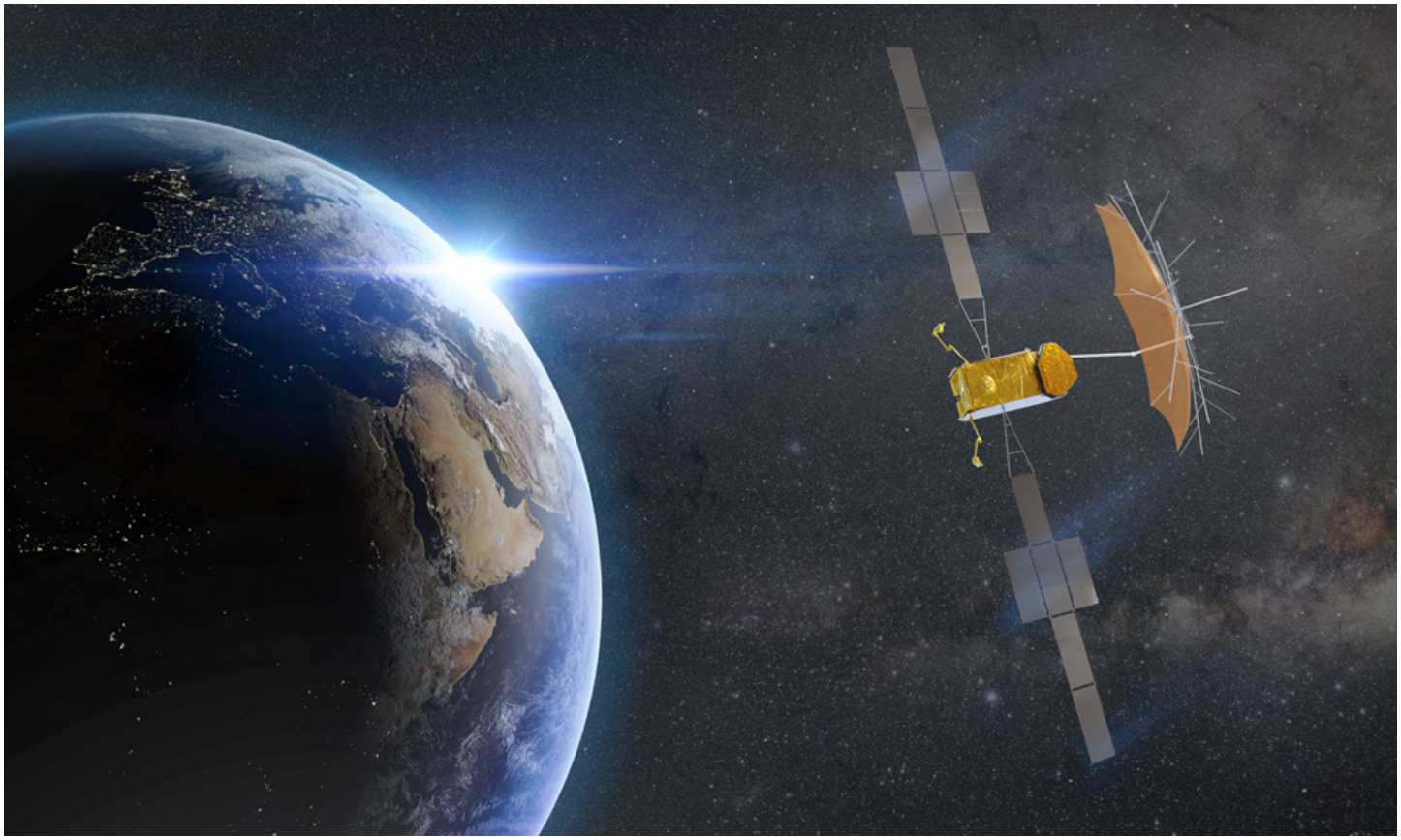
Though the 3GPP standards effort that created mission-critical push-to-talk included the proximity services feature as a direct mode alternative, the capability has not entered the market. This gap means that the shift towards LTE and 5G depends upon hybrid push-to-talk devices that can handle LTE and a legacy LMR radio technology. Most major LMR device suppliers now provide hybrid options.

As the options for land mobile radio expand and users contemplate a future shift towards LTE and 5G communications, the fundamental need for simple group voice communications remains. For many years, and in many parts of the world, narrowband land mobile radio coverage will remain the foundation for enterprises and public safety.

Middle East & Africa – the future

Omdia projects that this region will continue to adopt digital communications technology, and by 2025 it will be one of the most digitized regions in the world, with 95% of LMR users converting to digital.

In 2020, the Middle East and Africa was one of the LMR shipment markets that was most affected by the global pandemic and it experienced considerable decline in all the technologies including Cost Optimized Digital technology, TETRA shipments, P25 and TETRAPOL. Omdia projects a recovery from this market and forecasts it to reach above pre-pandemic levels by 2024.



Is the 'space race' real? If so, how long will it continue?

In recent years, the night sky has changed faster than at any time in human history. But, are we really at the dawn of a space race and will the trend continue in 2022 and beyond? By Robert Shepherd

Readers of a certain age will remember a very different "Space Race" from their youth. You know, the 20th-century competition between Cold War adversaries the United States and what was then the Soviet Union to achieve superior spaceflight capability? For younger readers, the two superpowers were racing to put the first man in space and on the moon.

Decades later, while Russia is focusing more on terra firma and limiting NATO's sphere of influence, countless satellites continue to enter the cosmos at an incredible rate. Add to that the fact billionaire entrepreneurs Sir Richard Branson, Jeff Bezos and Elon Musk have all unveiled space strategies in the past year – be it internet connectivity, space tourism, or just


Amit Somani, Yahsat

"We are witnessing a revolution of sorts, involving an increasing number of players – small start-ups, or larger players, either well-established players such as Yahsat or Inmarsat, or new entrants such as Elon Musk and Jeff Bezos"

"Africa is one of the world's most competitive markets, as no fewer than 20 active operators have wide-beam satellite coverage of the region"

going up there because they can – it has been described by media and those in the industry as a modern-day space race.

Casimir Berthier Fotso Chatue, CEO and founder, Afrikanet Group and GOSAT eAfrica Telecommunications, a satellite internet services provider, says the industry was considered to be static in terms of technology improvement over the last two decades. However, he says, there has seen a huge transformation over the last five years when better results and stability on hardware saw the explosion of several satellite operators investing on new GEO HTS (Hight Throughput Satellite) to provide ka-band and on LEO satellite to offer more speed and low latency.

"Our business has shifted from providing corporate C-Band or ku-band based on big conventional antenna size above 1.80 or 2.40m to very compact antenna size around 74cm only, with 5 times more capacity throughput, more speed and indeed low cost," Chatue adds. "We had to change our business model and bid on B2C of our service offer instead of just banking on B2B for corporates."

Chatue argues that partnerships his company has forged since it started operations in 1999, with the majors ka-band Satellite owner leaders in UK and in the EU, puts it in "a very favourable position" to continue getting the best satellite service type for its community in Africa. "The broadband speed demand in our African market is growing two times every year and today, with our customer bases around the 12 African countries that we serve, we are excited with what is coming next on the LEO/OneWeb and LEO/Starlink Elon Musk that will provide nearly 100 times more speed and this will allow us to get the best without compromising our position as independent broadband service providers," he says.

"Using greater bandwidth, combined with greater power and unlimited beam routing that can match demand second-by-second, even the most congested areas will experience enhanced connectivity"

To list all the about to be and recently launched satellites – from the last 12 months alone – would require yards of text, but some have secured more press coverage than others.

Musk's SpaceX-operated Starlink is arguably the most talked satellite service in consumer media, but the one that has been described by industry luminaries as the world's "most sophisticated commercial communications satellite" is Inmarsat's I-6 F1.

"Inmarsat has provided global coverage for many years and has put our most concentrated capacity in both L- and Ka-bands over Africa," says Peter Hadinger, chief technology officer, Inmarsat. "I-6 F1 launched in December 2022, will continue this commitment - serving most of Africa and all of south Asia plus the Asia-Pacific region. Inmarsat will publish I-6 F1's coverage map once it is operational in early 2023. I-6 F2 will be launched in early 2023 and will cover all of Africa - further increasing our capacity there."

But why is there so much hype surrounding it?

"Using greater bandwidth, combined with greater power and unlimited beam routing that can match demand second-by-second, even the most congested areas will experience enhanced connectivity," he adds.

Not only are more satellites being launched at a higher rate than ever before, but they are becoming more sophisticated. Is that the clearest indication that we are now firmly in a 21st Century space race?

"More than a space race, these launches and the plethora of satellite constellations indicates that the use of space-based assets as infrastructure for the deployment of broadband services is starting to become mainstream," argues Ali Ahmed Al-Kuwari president and CEO, Es'hailSat. "The erstwhile space race was driven by more of a military and cold war backdrop but this time around, it is commercial competitiveness combined with national pride that is driving this gold rush."

Sharyn Nerenberg, vice corporate marketing & communications, Hughes, "wouldn't call it a new space race" as much as an imperative to bring broadband to unserved markets. "These are large, unserved markets that can be well served by satellite because it reaches places where cable and fibre cannot," she continues. "Research firm ABI predicts the serviceable addressable market for satellite connectivity in Asia and Africa will grow to 169 million and 54.2 million, respectively, by 2026 – much larger an opportunity than in North or South America (29.1 million and 28.2 million, respectively). Africa and Asia have been important markets for Hughes for many years, as we supply satellite ground system technology to many operators in these markets (for example, Omantel in Oman, NCTS in Egypt, and DTP in Indonesia). Our India subsidiary is the largest VSAT operator in that market, and the changing regulatory climate there is opening up new opportunities for satellite services."

"We had to change our business model and bid on B2C of our service offer instead of just banking on B2B for corporates."

Another big player in the satellite universe is Middle East-headquartered Yahsat, which offers multi-mission satellite in Africa and over 150 countries worldwide.

Amit Somani, the company's chief strategy officer admits "it is a very exciting time for the global space industry," and that from space travel to earth observation to satellite communications, "we are witnessing a revolution of sorts, involving an increasing number of players – small start-ups, or larger players, either well-established players such as Yahsat or Inmarsat, or new entrants such as Elon Musk and Jeff Bezos".

That said, Somani, like Nerenberg, says he "would not consider it a race per se, but an opportunity to use space even more than before to provide critical connectivity to nations, businesses, communities and individuals on a global scale".

He continues: "Thanks to evolutions in technology, space is becoming more affordable, and nations and enterprises are realising the massive potential of space."

According to the latest ITU data, 2.9 billion people remain offline, 96% of whom live in developing countries. What's more, the coverage gap is significant in some regions like Africa where 18 % of the rural population is not covered at all, says Hans Geldenhuys, director, sales-Africa, Intelsat.

"It is therefore necessary to accelerate efforts to achieve digital inclusion at all levels and satellite plays an important role in this," Geldenhuys continues. "Africa is one of the world's most competitive markets, as no fewer than 20 active operators have wide-beam satellite coverage of the region. Also, the African space industry is continuously growing in capacity and investment and we're seeing the emergence of new government space programmes. However, there is a growing connectivity need and

Inmarsat, Starlink and Intelsat's Unified Network, the world's first multi-layer 5G software-defined network, help respond to it."

It's not just the wealthier nations that are behind these satellite launches. Uganda and Kenya have been behind some of the most recent ones. Even Iran harbours ambitions in this space.

So, if it's not a space race per se, why are so many countries investing in the technology all of a sudden?

Richard Swardh, senior vice president premium enterprise and mobile operators, Comtech Satellite Network Technologies believes the want and the need from governments to use space has always been there. "Whether it is for national security interests, earth observation or internet connectivity, what has changed over the last few years is that the cost of launching a satellite has dropped dramatically and there is a greater selection of satellites at price points that are now within reach for more sovereign nations. This is a trend that will continue and we will see more and more countries launch their own satellites."

Martin Jarrold, vice president international programme development, GVF says each country is likely to want to enter this new space race to meet their own particular policy objectives and national requirements (in terms of enhanced communications capabilities, access to nationally relevant Earth observation/remote sensing data, etc.), "and there can be a myriad of facets to this".

Jarrold adds that the number of smaller space-active nations, many more than just 10 years ago when, among African nations for example, Nigeria's space agency, NASRDA, was the continent's leading light in satellite remote sensing with the launch of NigeriaSat-2 and NigeriaSat-X. "With payloads of imagers for earth observation applications such as resource management, mapping and agricultural and disaster management, these two satellites were somewhat prescient of today's even greater need for such orbital assets and have been followed by many other counties in Africa and elsewhere outside of the traditional space nations," he says.

In addition to the small matter of national prestige and competing with their neighbours, Somani thinks there are other elements at play.

"Space is back on national agendas worldwide," he says. "Firstly, from a security perspective, an increasing number of nations are looking to use space to enhance their military capabilities and national security, bringing sovereignty and autonomy in their critical communications. Secondly, from an economic perspective, they know that sovereign satellite infrastructure is required to provide critical communications and fast track digital development."

Lastly, he says, countries perceive the launch and operation of national satellites as important in establishing technological credibility internationally and as a means to showcase national accomplishment domestically, while in parallel nurturing local STEM talent

"This is the most exciting time in the space and satellite industry since the 1960s"

"This – the 'Kessler Syndrome' – describes rendering impractical many space activities and the use of satellites in LEO for generations to come"

that can subsequently lead to other industrial development.

"In even the most advanced nations in terms of telecommunications infrastructure, significant gaps remain, so for those countries with less advanced infrastructure access to broadband is still very poor and therefore the digital divide is an unfortunate reality," adds Somani. "Satellite increasingly is able to bridge this as part of a multi-technology national connectivity strategy and eco-system."

For Al-Kuwari, the rationale behind so many launches "is quite like what was the competitive nature of access to geostationary orbital slots", now governed by ITU and allotted to each country based on their needs.

"Every country wants to plant their flag in what is essentially a global common i.e. orbits both LEO & GEO being used for telecommunication and earth observation services," he says. "Each country wants to exert its sovereignty in terms of its ability to utilise space-based services and not be dependent on any other country for critical communications or remote sensing type services. Not every commercial venture succeeds and more so in a difficult environment such as outer space and time will tell how many projects truly make it to orbit in a sustainable manner."

"Whether it is for national security interests, earth observation or internet connectivity, what has changed over the last few years is that the cost of launching a satellite has dropped dramatically and there is a greater selection of satellites at price points that are now within reach for more sovereign nations"

So far, we have, thankfully, managed the area of space near Earth without major incident -- even when military tests suddenly produce thousands of new bits of space junk.

Al-Kuwari points to the fact that there are an increasing number of government and non-government organisations who are highlighting these concerns. "It is imperative that nations of the world take the onus to not clog space, much like there are international treaties and agreements to ensure that the waters of the ocean are not clogged by any one country's ships or fishing requirements," he adds. "Longer term, the sustainable use of space will ensure that investments made today are not at risk because of debris collisions and that the space resources, which are for all mankind, are utilized in a fair and equitable manner."

In any field, walk of life, industry, however, one wishes to describe it, the more entrants not only offer competitions, but also cause market saturation. In other words, there are far too many of them. The term synonymous with satellites in space is "clogging" or too much "space junk".

The average person not familiar with satellites would be forgiven for thinking space has infinite, well, space – but it appears clogging is a genuine concern. After all, the atmosphere near-Earth has finite room for satellites to manoeuvre.

But how much of a concern is it? Or do we need to wait until it's a tangible problem like the amount of plastic in the world's oceans and seas?

Jarrold claims there'a an estimated 170 million man-made objects in space. Most is junk orbiting the Earth at altitudes that threaten humanity's essential access to useful space. With the density of objects in LEO high enough to cause collisions between objects, he opines that this could cause a self-sustaining cascade, risking exponential increase in the amount of space debris as each collision generates more debris and leads to yet more collisions. "This – the 'Kessler Syndrome' – describes rendering impractical many space activities and the use of satellites in LEO for generations to come," he adds.

"The erstwhile space race was driven by more of a military and Cold War backdrop, but this time around, it is commercial competitiveness combined with national pride that is driving this gold rush"

As things become more of a problem, international government intervention becomes the norm - just look at the unsuccessful COP26. However, the satellite universe doesn't seem to be panicking just yet and instead focused on more satellites floating above.

Somani says the fact the number of active satellites has more than quadrupled in the last decade is indicative that "this is only the beginning (of a more heated and crowded atmospheres) – as LEO constellations materialise and new applications and uses cases are enabled, we could see thousands and thousands of active satellites".

Jarrold envisages that the space race will be exemplified in multiple spheres, for example: "In the commercial sphere (in satellite communications and Earth observation), government sphere (in increasing numbers of national space agencies), the military sphere (in various types of anti-satellite – A-sat – technology), the research and technology sphere (in satellite future technology demonstrator projects, orbit-based industrial product development and manufacturing in pharmaceuticals and other sectors), the space resources management sphere (orbital debris removal and other debris mitigations, mission extension missions and automated satellite repair, orbital tow trucking) and not forgetting in the entertainment sphere (multi-million-dollar-ticket sub-orbital joyrides and space hotels)."

Al-Kuwari concurs but warns that as we are starting to see with some of the early SPACs, "there will be a certain reality check" that will have to apply to ventures that are trying to solve a problem that may not exist in the first place. "If stock markets are any indication of the availability of funding, it is obvious that there is a good amount of investment out there that is looking for high growth ventures, something that space-based companies promise," he says. "However, the ground realities tend to be very different and when it comes to getting market access, clearing local regulations and dealing with technology limitations of non-standard telecom equipment, a lot of ideas need more work than is initially anticipated."

Jarrold also argues that the international policy discussion and regulatory environment will also become more "heated" during the next year. "Nations, international agencies and organisations and commercial entities [will] become further embroiled in dialogue about not only long-standing issues concerning spectrum access rights and radio frequency interference issues, but also regulation on orbital debris and mitigating the potential of the 'Kessler Syndrome', as well as attempts to prevent A-sat activity," he adds.

Like the others, Nerenberg says she "would not be surprised to hear about new entrants" because "this is the most exciting time in the space and satellite industry since the 1960s".

There is no doubt the satellite industry has, is and will continue to play a critical role in achieving universal connectivity. Geldenhuys says this is because satellites are uniquely positioned to bring reliable connectivity quickly and cost-effectively to hundreds of Wi-Fi access points and cell sites – no matter how rural or hard-to-reach the location.

"This is why we work closely with governments around the world as we believe that greater public-private cooperation will enable the ability to build a more digitally inclusive society," he adds. "Their perfect understanding of local requirements, combined with our 50+ year expertise, mean that we can deliver connectivity quickly and cost-effectively where it is most needed."

The race has only just begun. ■

Powering farms of the future

Farming is one of the oldest industries in the history of humankind. Chris Mason, VP of sales, EMEA for Rajant Corporation, explains what modern farmers need to make life easier

Over the last 50 years, there has been a rapid increase in the world's population and it continues to expand faster than any other time in human history. For small farmers, herders, and fishermen, who currently produce about 70% of the global food supply, this presents a huge task. Agricultural operations worldwide face mounting pressure to feed an ever-increasing populace, meet stringent sustainability regulations, and overcome a myriad of other modern challenges, all while conserving both farmland and water due to a diminishing natural resource base.

The need to overcome these modern challenges in fast-paced farming environments has never been higher – and the answer lies with precision farming. The global precision farming market is anticipated to reach US$10.23bn by 2025. Still, for it to achieve optimum success, the agriculture industry needs to introduce a network that can make precision farming a reality.

Today's agricultural pressures

The predominant challenge faced by the agricultural industry is finding a solution that creates as much yield as possible while using as few resources as possible. In today's digital age, many industries are embracing technology more than ever to increase efficiency and overcome challenges. By leveraging the Industrial Internet of Things (IIoT) or Industry 4.0 technologies, modern farmers can harness the power of automation to establish precision farming practices.

Precision farming relies upon IIoT devices and other automated equipment to increase efficiency while remaining sustainable. As the devices require minimum human intervention, they can work

day and night to produce a higher yield. Many agricultural industry leaders have already begun embracing this new way of working and the best way of integrating IIoT into agricultural operations is by deploying applications that can drive significant productivity gains to stimulate growth. This approach will ultimately increase precision, reduce waste, and maximize yield. However, farmers need a network that can quickly grow to support more and new IIoT-enabled assets, with increasingly autonomous demands, over time.

The evolution of precision farming

Automation encompasses a broad spectrum of capabilities, making it an accessible option for any size or background of farming operations. With so many different types of IIoT equipment available on the market, it has become easier than ever before to take that first step into precision farming.

For beginners, static and semi-autonomous machinery are excellent options as they are simple to install and have an optimal effect on operations and productivity levels. For example, upgrading tractors with GPS, built-in sensors, and variable-rate technology (VRT) allows the farming vehicles to navigate fields autonomously and work together to till, seed, and plant, ensuring that no arable land or resources are wasted.

For more advanced farms, 100% autonomy is only a stone's throw away. In Japan, a vegetable production operation has gone entirely automated. Production of lettuce and other vegetables is stacked to take up less land, and everything from planting, to watering, to pruning, to harvesting is done by autonomous machinery. The United Kingdom is also investigating autonomous farming with an experimental research farm recently harvesting its first fully automated crop, reaping close to five tons of spring barley.

Navigating networking obstacles

Automated precision farming techniques offer a universal answer to many of the agriculture industry's challenges. However, for some areas, the transition to precision farming is far from straightforward. There are several obstacles that keep traditional farms from adopting automation or relegate them to a low level of automation without the ability to scale their operations.

The main barrier to automation is the lack of connectivity. Farms are typically located in remote, rural areas that lack a strong signal. Equally, in an agricultural environment, networking and automation equipment must withstand extreme temperatures, countless weather events, and harmful chemical sprays. In fact, for those reasons, many farmers view autonomous equipment as a liability rather than an investment. The layout of farms is also limiting, as there is a vast amount of land to cover. Silos, buildings, and heavy machinery can also create signal reflection and refraction, which interrupts communications.

Farms need a network that can overcome these common obstacles to successfully utilize autonomous precision farming applications and enable the IIoT at varying levels. That makes installing a network that addresses these challenges a top priority for farming operations that wish to move up the levels of autonomy and best farming practices.

Achieving agricultural automation

High bandwidth to support the streaming of massive amounts of data and video collected from different sensors and monitoring applications are needed for fully autonomous farms to work effectively. Robust connectivity must also be maintained within a network topology that is shifting from second to second.

Rajant's Living Network solution, powered by a fully mobile and ruggedised private wireless network known as Kinetic Mesh, integrates with legacy infrastructure to drive precision farming automation at every level. Rajant's Kinetic Mesh network becomes more valuable as automation becomes more complex, as it can scale to support increasingly automated operations seamlessly. No matter where a farming operation begins or which level of automation it wishes to achieve, Rajant powers better, more dynamic connectivity than traditional network alternatives.

Equally, it is not only reliable connectivity that Rajant provides. Rajant BreadCrumb nodes are built to withstand the harshest conditions and extreme environments while remaining easy to deploy. So even in the harshest elements, farmers can be confident their network will work effectively. Rajant's Kinetic Mesh network is proven to work effectively in the agriculture industry. The network was successfully utilised at a 480,000+ hectare palm oil plantation spread across remote islands and locations with minimal cellular coverage. Also, it has been deployed to power forest-wide remote monitoring and operational optimization applications at a large eucalyptus farm. Using Rajant's technology, the farm monitored tree growth pace, identified diseases, and improved disaster management.

Making the future of farming possible

No matter the level of automation a farm begins at, precision farming techniques and IIoT devices can be used to overcome today's challenges and make operations more accurate, efficient, and scalable. Solutions that allow digital seeding and fields to be harvested can be used to help meet growing food demands. Planting precisely to utilize every available inch of existing farmland, to avoid further deforestation is simpler. Precision farming will ultimately not only help farmers but, in turn, the population and the planet.

Rajant's Kinetic Mesh technology can move with farm operations to drive IIoT capabilities and enable highly-mobile, highly-secure precision farming practices for any level of automation. With the help of Rajant, farmers can overcome today's challenges to optimize their operations and harvest their full potential. ■

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DRC pressed to eliminate tax on mobile devices

Sébastien de Rosbo,
research manager, BuddeComm

The Democratic Republic of Congo (formerly Zaire) has had a tortuous history since gaining independence. The country's stability has been affected by disputes among rival groups and armed militias, particularly in the far eastern provinces and Katanga. This has resulted in considerable social upheaval, exacerbated by considerable corruption within the government.

The national telecom system remains one of the least developed in the region. The government can only loosely regulate the sector, and since the national telco SCPT has little capital to invest, much of the investment made in infrastructure is derived from donor countries or from the efforts of foreign (particularly Chinese) companies and banks. Efforts have been made to improve the regulation of the telecom sector, with a revised Telecommunications Act adopted in May 2018. However, the practical implementation of the Act's measures remains questionable. Indicative of the character of the market is the levy on mobile devices imposed in 2020. While nominally intended to help address fraud, the levy has been widely condemned by consumers as a tax which has enriched a few. This sentiment has not been helped by the fact that the funds levied through to December 2021 could not be accounted for in government accounts.

Given the limited and decrepit condition of fixed-line infrastructure the mobile network operators have become the principal providers of basic telecom services. More than a dozen new licenses were issued in the early years of the century, but many of the licenses failed to launch services and the proliferation of networks, as well as the poor monitoring of spectrum assets, caused frequent problems with spectrum shortages, interference, and compatibility issues. As a result, the mobile sector entered a period of consolidation, including the acquisition of Tigo Congo by Orange Congo in April 2016, which greatly increased the latter's market share.

The development of the DRC's internet and broadband market has been held back by the poorly developed national and international infrastructure. However, the country was finally connected to international bandwidth through the WACS submarine cable in 2013, while SCPT continues to roll out a fibre national backbone network with support from China. Breakages in the WACS cable have exposed the vulnerability of

Table 4 – Growth in the number of mobile subscribers and penetration rate in the DRC – 2011 – 2026

Year	Subscribers (million)	Penetration
2011	15.645	23.4%
2012	20.093	29.1%
2013	28.232	39.6%
2014	37.103	50.3%
2015	37.753	49.5%
2016	28.889	36.7%
2017	35.366	43.4%
2018	36.471	43.4%
2019	37.123	44.2%
2020	40.798	48.5%
2021 (e)	44.470	52.9%
2022 (f)	47.580	56.6%
2023 (f)	49.960	59.4%
2024 (f)	51.460	61.2%
2025 (f)	52.490	62.4%
2026 (f)	53.540	63.7%

Source: BuddeComm based on regulator data

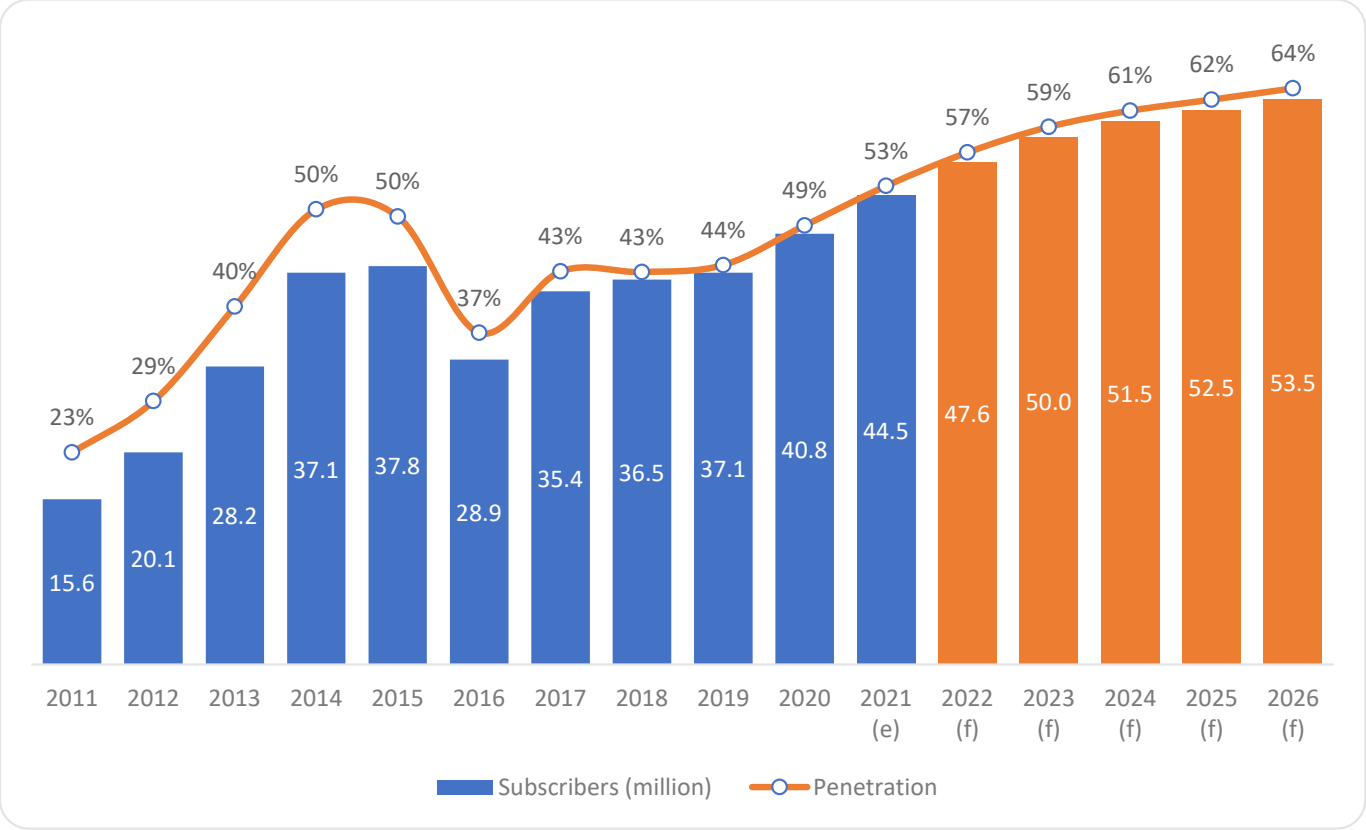
international bandwidth, which is still limited. To address this, Liquid Intelligence Technologies has built a landing station for the Equiano submarine cable, and has also completed a 5,000km cable running through the DRC to link to cable systems landing in countries facing the Atlantic and Indian Oceans.

The country's first commercial LTE networks were launched, albeit geographically limited, in May 2018 soon after LTE licenses were issued. Mobile operators are keen to develop mobile data services, capitalising on the growth of smartphones usage. There has been some progress with updating technologies, with Vodacom DRC having upgraded much of its GSM network to 3G by late 2021.

Key developments:

- Orange Money develops its service in partnership with Flash International;
- NuRAN Wireless opens sites in partnership with Orange;
- Vodacom DRC management is transferred to Vodacom South Africa under a reorganisation plan;
- Liquid Intelligence Technologies is licensed to build the Equiano cable landing station;
- Helios Towers completes major tower infrastructure upgrade;
- Report update includes operator data to Q3 2021, the regulator's market data to March 2021, updated Telecom Maturity Index charts and analyses, assessment of the global impact of Covid-19 on the telecoms sector, recent market developments.

Chart 12 – Growth in the number of mobile subscribers and penetration rate in the DRC – 2011 – 2026



Source: BuddeComm based on regulator data www.budde.com.au

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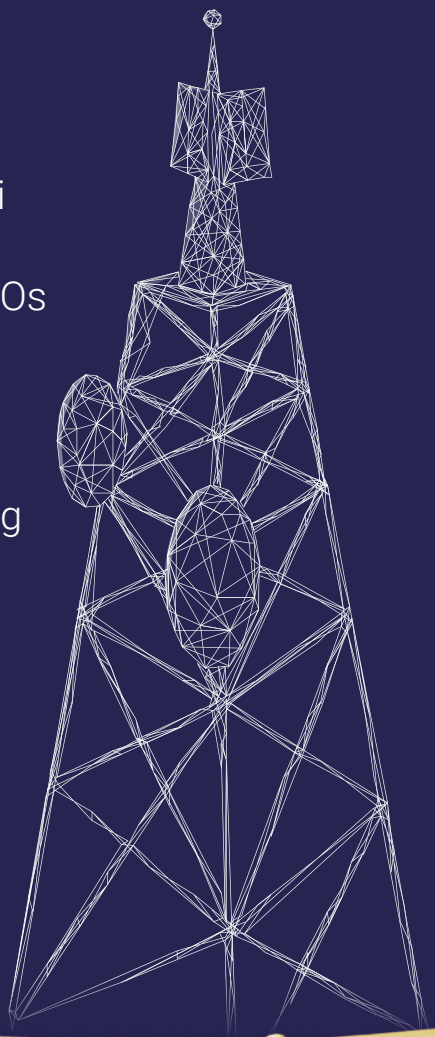

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www.towerxchange.com/meetup/meetup-mena

Mining tools HERE

HERE Technologies, the location data and technology platform has partnered with Swedish gear-maker Ericsson to provide the global mining industry with custom mapping capabilities.

The mining industry is in rapid modernisation phase, with smart mining operations projected to increase threefold until 2025. A key driver of this transformation is the access to private cellular networks, enabling safer, more productive, and more sustainable mining operations, through reliable and low latency connectivity. Ericsson's high-performance 5G private networks are purpose-built for mining operations. A business can deploy an on-premise cellular network for its exclusive use. For mining this includes facilities in very remote areas and underground tunnels, both of which are not typically within public cellular range.

The combination of Ericsson connectivity and HERE location services, the companies say, "deliver true smart mining capabilities, from mapping private terrain, to pinpointing and navigating assets in real-time". By using location data to build continuously updated private maps on the Here location platform, mining companies can create a canvas to improve operational efficiency and safety. The living map can then be used to search or track, and deploy routing powered by HERE, as well as custom-built applications and services.

"We are partnering with HERE because of the breadth of their location services – ranging from mapping to routing, positioning and asset tracking," says Thomas Norén, head of dedicated network and vice-president at Ericsson. "Combining our advanced private network solutions with HERE services will give mining firms a head start on their digitalisation journey."

Gino Ferru, general manager EMEAR and senior vice-president at HERE Technologies, adds: "We look forward to increasing the productivity and safety of the mining industry by bringing location services to Ericsson's customers. With our private mapping capabilities, we enable mining companies to unleash the power of their location data in many important use cases." *here.com*

'High-end routers'

German network-infrastructure and security supplier LANCOM Systems is expanding its range of routers. The new high-speed business routers LANCOM 1926VAG-5G and LANCOM 1900EF-5G for the first time combine 5G mobile communications with state-of-the-art SD-WAN. They alternatively operate on a G.fast or fibre-optic gigabit connection, or with a cable modem. The 5G module guarantees maximum availability for both routers. The routers are optionally managed highly automatically by means of software-defined networking (SDN). They are ideal for installations with high bandwidth requirements at medium-sized companies, public institutions, or branch infrastructures.

With high speeds and low latency times, the new 5G standard supports a wide range of applications. The new high-end routers from LANCOM optionally use their 5G module as a backup in the event of failure of their wired access, or even as a high-performance stand-alone primary connection. They also offer improved bandwidths through load balancing on the network. They are ideal for temporary Internet connections, such as for seasonal pop-up stores, or for high-performance mobile access at construction sites. Extensive company premises in large-scale industrial scenarios are ideal for campus networking, i.e. closed cellular networks with their own 5G infrastructure. This "private 5G" guarantees exclusive access with maximum capacity, availability, and data security for business-critical data traffic.

The 5G module used in the new LANCOM routers also supports LTE in case a 5G network is not (yet) available on location. The prevalent 5G and LTE frequencies are supported, including the new 5G frequencies in the 3.5-GHz range and dynamic spectrum-sharing with 4G. This guarantees high-performance and stable connectivity for uninterrupted business operations both in today's non-stand-alone 5G cellular networks and future stand-alone 5G networks.

According to the vendor, the LANCOM 1926VAG-5G is the first 5G router on the market with two integrated VDSL Super Vectoring modems for an overall 2 x 300 Mbps. Alternatively, it operates using one of the two modems at up to 1,000 Mbps on G.fast, or on fibre-optic connections by means of an SFP port. It also operates with any external DSL or cable modem via WAN Ethernet.

On the LAN side, four Gigabit switch ports provide a comprehensive range of connectivity options for network devices. Two ISDN and four analogue interfaces ensure that existing telephony components seamlessly integrate into all-IP scenarios.

Apparently, the LANCOM 1900EF-5G dispenses with physical telephony interfaces and, with its Gigabit Ethernet WAN ports, connects directly to high-speed fibre-optic networks and external modems.

For this model, too, LANCOM offers a number of optional SFP modules: The new LANCOM SFP-GPON-1 module enables direct fibre-optic connection to a GPON (Gigabit Passive Optical Network). The LANCOM SFP-AON-1 module supports the connection to an AON (Active Optical Network). Both modules save you the need for a separate provider modem, including of course the necessary cabling and power supply. *lancom-systems.com*

'Breakthrough next-gen VSAT platform'

Comtech Telecommunications unveils Comtech Elevate, which it describes as "a breakthrough next generation" very small aperture terminal (VSAT) technology solution. The company also reckons it's designed to meet the evolving communications demands of a broad range of markets.

Comtech Elevate "is a smart software-defined VSAT solution bringing together the best of Comtech's Heights Dynamic Network Access (H-DNA) and its UHP MF-TDMA waveform flexibility and efficiency". It features a new D-RAM ("Dynamic Return Access Modes") protocol with seamless switching between H-DNA and MF-TDMA waveforms using the same pool of bandwidth and data throughput in both Forward and Return channels. The Comtech Elevate solution, Comtech says, is designed to enable private or shared VSAT networks of any size and topology, "has unlimited potential" for future development and can be deployed for every application imaginable. The solution's features also include the ability to scale from very small networks to very large networks, such as supporting more than 500,000 remote sites, as well as compact remote VSAT handling up to 200,000 packets per second. In addition, Comtech says this product has "an advanced and highly efficient Network Management System that can support a rich variety of Operations Support System (OSS) and Business Support System (BSS) interfaces.

"Our new Comtech Elevate VSAT platform delivers unprecedented network flexibility and scalability to support a broad range of applications and markets, from broadcast and government to mobility and enterprise, using a single intelligent system," says Michael Porcelain, chief executive officer and president, Comtech. "Elevate is the next step in Comtech's long-term plan to exploit the growing business opportunities in the satellite ground station market. *comtech.com*

Software-defined Wi-Fi 6E AP triples Wi-Fi capacity, adds 6 GHz support

Cambium Networks introduces its new XE series Wi-Fi 6E software-defined access points with intelligent migration assistant in all three Wi-Fi bands (6, 5 and 2.4 GHz). The company says its software-defined radios (SDRs) enable cost-efficient migration to the newly available 6 GHz band, with its multi-radio architecture scaling to support high device density deployments.

"The expansion of Wi-Fi into 6 GHz opens up a lot of capacity we can take advantage of across our campus wireless network. It will help in particular in dense areas like lecture halls and libraries," adds Donna Hayden, chief information officer at Alcorn State University. "Cambium Networks' new Wi-Fi 6E access points are a great fit for campus environments and enable us to strategically move to 6 GHz over time."

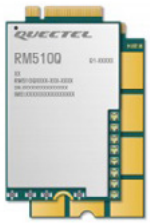
Cambium Networks says its Wi-Fi 6E solutions enable network operators to not just add support for 6 GHz to their networks, but to optimize how and when it is used. Service providers and enterprises such as education, hospitality, healthcare, public venues, and more will benefit from the new clean spectrum, enabling more streaming video, voice and data experiences that expand and improve their customer service.

The access points were developed with Qualcomm's Networking Pro integrated Wi-Fi 6E platform. *cambiumnetworks.com*

Optimised for IoT applications anywhere in the world

RM510Q-GL is a sub-6GHz and mmWave M.2 5G IoT module measuring 52.0mm × 30.0mm × 2.3mm, which, Quectel reckons meets the 3GPP Release 15 specification and is optimised for IoT/eMBB applications anywhere in the world. It supports both standalone (SA) and non-standalone (NSA) modes and also supports LTE category 22 connectivity. The RM510Q-GL is compatible with Quectel's LTE-A category 6 module EM06, category 12 module EM12, and category 20 module EM20, enabling customers to migrate from LTE-A to 5G.

The module optionally features integrated GNSS (GPS/GLONASS/BeiDou/Galileo) "for rapid and precise positioning", while integrated eSIM optionally allows remote account provision without needing to open the device. The RM510Q-GL supports nearly all major carriers worldwide and is ideal for globally deployed mobile devices including industrial routers, industrial PDAs, rugged tablet PCs and digital signage. *quectel.com*



New tool suite enabling dense deployments and satellite connectivity for LoRa

Semtech Corporation brings to market a software upgrade for LoRa integrated circuits (IC) and gateways that significantly increases network capacity, robustness to interference and enables a low power and reliable direct data links from sensors to satellites. The software enhancement, the company says, can be leveraged by second generation LoRa ICs to enable the LoRaWAN standard new data rate, Long Range Frequency Hopping Spread Spectrum (LR-FHSS), recently ratified by the LoRa Alliance.

"As the smart cities trend continues to proliferate globally, the new capability is a step for Semtech's LoRa platform toward massive Internet of Things (IoT) deployments in densely populated areas," says Marc Pégulu, vice president of IoT product marketing for Semtech's wireless and sensing products group. "In addition, the enablement of direct IoT to satellite services revolutionizes the industry with affordable ubiquitous connectivity for remote areas, ultimately creating a smarter and more secure planet."

The new suite of tools will be specifically enabled on Semtech's LoRa transceivers: SX1261, SX1262, LoRa Edge™ platform and the V2.1 gateway reference design. For LoRaWAN networks where V2.1 gateways are deployed, operators can enable the new capability with a simple gateway firmware upgrade. In addition to expanded capacity, LoRaWAN networks will be more robust in harsh radio conditions (deep indoor) and in some regions will offer the possibility to increase terrestrial coverage. *semtech.com*

Look out for...

Tracking inside moving car via 5G IoT nanosatellite

5G satellite operator OQ Technology successfully completed the in-orbit commissioning (IOC) of its Tiger-2 nanosatellite and is ready to begin customer demonstrations.

The company said it is already in talks with several potential customers interested in using the company's satellite-based 5G IoT services and will start commercial services for "latency-tolerant" low-power devices beginning this year.

"Completing the IOC phase and the successful tests with our terminals in remote locations was a crucial step to start generating revenue via the satellite and progress the constellation with more satellites to be launched in early 2022," said Omar Qaise, founder and CEO, OQ Technology. "In addition to potential customers, we are also negotiating with cellular chip partners to scale up the satellite access capability to existing cellular IoT chips globally. Our next step is starting service demonstrations with our potential customers and their use cases."

OQ also tested and calibrated its working terminals in different fixed and mobile environments in the desert and for indoor usage. During tests, OQ sent the terminal's GPS location to the satellite from inside a fast-moving car without having a direct line of sight to the sky. Even when buried in the desert sand, the terminal was still sending signals to the satellite, making it ideal for many agricultural applications. While the high level of signal to noise ratio surpassed OQ's high expectations.

"Being able to track our terminals even indoors and covered by soil adds further possible services that we can offer to our customers," Qaise added. "It opens the door for many potential use cases other satellite operators cannot provide. Over the next few years, OQ Technology is planning to launch a constellation of 72 satellites, providing 5G IoT and machine to machine (M2M) communication."

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Airlines cancel flights to US due to AT&T and Verizon's 5G rollout

Emirates, Air India, ANA and Japan Airlines are just some of the airlines that cancelled some flights to the US due to recent rollout of C-band 5G over concerns it could potentially interfere with some instruments, particularly on Boeing 777 aircraft.

The move comes as cell carriers, federal agencies, airlines, and airplane manufacturers struggle to reach an agreement on policies regarding how the rollout should be handled. The situation has continued to evolve as AT&T and Verizon switch on their C-band, but the situation has worsened.

ANA said it received specific guidance from Boeing, adding that "Boeing has announced flight restrictions on all airlines operating the Boeing 777 aircraft." Japan Airlines also initially said Boeing told it that "5G signals for US mobile phones, which will begin operating in the US on January 19, 2022, may interfere with the radio wave altimeter installed on the Boeing 777.

However, the airline later changed its guidance, saying it "received confirmation from the FAA (Federal Aviation Administration) that there is no longer a problem with the operation of the Boeing 777 and we will resume service to the US mainland with Boeing 777 from January 20".

ANA has updated its advisory with similar language, saying that it was

returning to "the normal schedule based on FAA notification that there is no safety issue with the operation of Boeing 777 aircraft to the U.S. airports that we serve".

However, Emirates and Air India had not changed their guidance and the FAA had not publicly released an updated statement before Northern African Wireless Communications went to press.

Albania's antitrust body clears sale of 80% of Albtelecom to Hungary's 4iG

Albania's competition authority approved the sale of 80.27% interest in Albtelecom held by Cetel Telecom to Hungarian IT service management company 4iG.

The competition authority has endorsed the agreement for concentration in Albania's telecommunications market, it said in a statement.

4iG said last month it signed a final agreement to buy the majority stake in Albtelecom and expects the transaction to close in January.

Calik Holding, Cetel's parent company, will acquire a 3.2% stake in 4iG as an institutional investor. The value of the transaction was not disclosed.

After the transaction, Albania will continue to own a minority stake in Albtelecom through the ministry of finance and economy, which holds a stake of 13.78%, and the Albanian Post, which owns 2.47%, 4iG noted at the time. The remaining 3.48% stake is distributed among individuals.

Established in 1912, Albtelecom is the largest provider of landline telecommunications services and the third largest mobile operator in Albania. Albtelecom generated revenues of €57.9m (U$65.6m) and earnings before interest, taxes, depreciation, and amortisation (EBITDA) of €17.4m in 2020.

Musk activates Starlink satellites to give Ukraine satellite broadband

SpaceX founder and billionaire Elon Musk has activated Starlink, his commercial internet network, in war-torn Ukraine, with "more terminals en route," he said.

The operator has thousands of Starlink satellites in orbit, which allow Starlink to beam broadband services around Earth, without the need for fibre-optic cables. The satellites could keep Ukraine online if its internet infrastructure is damaged by Russia's attacks.

Musk's move came in response to a plea by Ukraine's first vice prime minister and minister of digital transformation Mykhailo Fedorov, who called for help on Saturday, February 26 as Ukraine fought off an invasion and sustained cyberattacks by Russian forces.

Tweeting directly at Musk, Fedorov said: "While you try to colonize Mars — Russia try to occupy Ukraine! While your rockets successfully land from space — Russian rockets attack Ukrainian civil people! We ask you to provide Ukraine with Starlink stations and to address sane Russians to stand."

In response, Musk said: "Starlink service is now active in Ukraine. More terminals en route."

While extremely costly to deploy, satellite technology can provide internet for people who live in rural or hard-to-serve places where fibre-optic cables and cell towers do not reach. Furthermore, the technology can also be a critical backstop when hurricanes or other natural disasters disrupt communication.

Musk said January 15 that SpaceX had 1,469 Starlink satellites active and 272 moving to operational orbits soon.

Argentina takes agricultural IoT into space

Argentina is the latest country to join the market for satellite-supported internet of things (IoT) services in agriculture by launching its first pico-satellite.

Created by Innova Space, it was launched from the SpaceX platform at Cape Canaveral in the US late last week.

The General San Martín pico-satellite (named after the 18th-century military commander) will enable agricultural companies in provinces or areas without internet access to apply IoT technology to optimise production.

It is understood the project is being funded by the Mar del Plata Neutron start-up accelerator run by Grupo Núcleo, a partner of the Argentine Chamber of Electronic, Electromechanical and Lighting Industries (CADIEEL).

The pico-satellite project was designed to be exportable and can contribute to the process of substituting imports of equipment and services, according to a government-supplied press release.

The term picosat is usually applied to artificial satellites with a wet mass between 0.1 and 1 kg. In this case the PocketQube satellites weigh around 1kg and measure approximately 50cm x 50cm x 150cm.

Productive development minister Matías Kulfas said the Latin American country is making a strong commitment to the development of the satellite sector. The ministry has allocated approximately US$480,538 to the pico-satellite project.

The launch is expected to be the starting point for a constellation of 100 pico-satellites to be sent into space over the next three years.

Fibre optic cable set for Arctic Ocean

Finnish company Cinia and Alaska's Far North Digital have partnered in a joint effort to build a fibre optic cable system, which will link Europe and Asia through the Arctic.

Reports in Iceland say it is hoped that the work will be completed in 2025, with "the land of fire and ice" expected to be connected to this system.

Cinia is a networks, cybersecurity and software solutions provider, while Far North Digital is focused on telecommunications infrastructure development.

The planned cable system is intended to speed and improve the security of telecommunications between nations. If it goes ahead, it will run from Japan, via the Northwest Passage, to Europe with landings in Alaska and the Canadian Arctic.

The cable will then run along Baffin Island, past Greenland toward Iceland, and from there to Northern Norway, via land to Finland, and then to Ireland.

The 14,000 km cable system will greatly reduce the optical distance between Asia and Europe, thus minimising signal latency, according to reports. The project is estimated to cost approximately (US$1.15bn).

Apart from Iceland, the various connections planned along the route, include remote places in Alaska, Canada and Greenland. The ambition is to provide remote areas with good internet connection.

Chinese telco exits Canada

Chinese telecommunications firm CMLink has ceased its operations in Canada, after parent company, state-owned China Mobile, refused to comply with a Canadian government directive to divest its stake in the subsidiary.

China Mobile has been on a US government investment blacklist since June 2021 due to its ties to Chinese military and surveillance sectors. President Joe Biden's executive order means Americans and US institutions are banned from investing in the company.

This has led to concerns in neighbouring Canada that the Chinese government could leverage the company to undertake espionage.

A suit filed by China Mobile requesting a stay on the divestment order was rejected by the Canadian Federal Court. This led to the operator shutting down CMLink entirely rather than divest.

This move by the Canadian government is part of a broader ongoing push in the US and Canada to decouple from China's economy in key security and technology-related sectors. Expect this push to continue, as it is broadly supported by most US and Canadian political stakeholders.

China Mobile had a presence in Canada for coming up to six years.

IHS expands further into Brazil with US$315m towers agreement

IHS Holding is further expanding its presence in Brazil with a US$315m deal to buy São Paulo Cinco Locação de Torres (SP5), a unit of Grupo TorreSur (GTS).

The deal will add 2,115 masts to its Brazilian network of about 7,000 along with secondary fibre network.

"The acquisition of GTS' SP5 portfolio will be our fifth transaction since we entered the region two years ago and is a testament to our continued commitment to serving the connectivity demands of Latin America," said Sam Darwish, IHS Towers chairman and chief executive officer (CEO). In the SP5 portfolio there are 2,115 sites strategically located across Brazil, increasing the attractiveness of IHS' portfolio to our customers whether in Brazil or across our Latam operations."

Jimmy Eisenstein, GTS chairman and CEO, added: "The sale of our SP5 portfolio represents the culmination of our strategy to create an important infrastructure business focusing on historically under-served regions of Brazil. Since our acquisition, our team has driven strong organic revenue growth, proving the critical role of SP5 to the market and resulting in an excellent return for our investors."

IHS's October 2021 initial public offering raised about US$378m to fund growth, though the stock has since slumped 45% to almost halve the company's value to US$3.8bn

at the time of going to press. The group, which has a mostly African telecom-tower portfolio, acquired South African towers from MTN Group in November in the region of US$410m. IHS went public last year with a New York share sale.

The deal is subject to regulatory approvals and is expected to close in Q1 2022.

Orange Belgium acquires 75% stake in telco Voo

Orange Belgium acquired an almost 75% stake in Voo SA, a telecom and cable operator in Wallonia and the Brussels region.

The transaction gives the entire company an enterprise value of US$2bn), at a price that is 9.5 times Voo's earnings before interest, taxes, depreciation, amortization and synergies, according to a statement.

"This acquisition reinforces Orange's leadership in convergence in Europe",

Mari-Noëlle Jégo-Laveissière, executive vice president for Orange Europe operations said in the statement. Orange said this year that it was actively looking at M&A options across Europe.

Voo, owned by regional telecom firm Nethys SA, runs the cable network in the Walloon region and part of the Brussels region. It offers fixed and mobile telephony, broadband internet and television services.

Nethys will retain a minority stake, with the closing of the deal expected in 2022, subject to approval from the European Commission.

A previous attempt to sell Voo to Providence Equity Partners was blocked by a commercial court in Liege in April last year, according to to reports in European media.

Intelsat and partners bring emergency connectivity to Tonga

Intelsat, the integrated satellite and terrestrial network operator, in cooperation with Telstra and Spark deployed emergency communications services to support humanitarian aid to Tonga and the archipelago for Digicel Tonga and Tonga Communications Corporation.

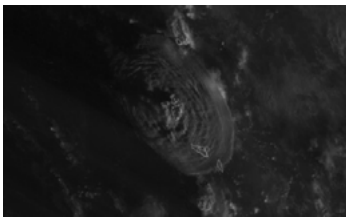
The undersea volcano, Hunga-Tonga-Hunga-Ha'apai, erupted Jan 15, 40 miles north of Tonga's capital, Nuku'alofa. The volcanic explosion and subsequent tsunami knocked out the undersea internet cables, disconnecting the region of 100,000 as residents sought higher ground with the onslaught of rising water and dangerously high waves.

Intelsat is providing space-based broadband connectivity on Horizons 3e and Intelsat 18, while partners, Telstra and Spark, are providing the ground infrastructure, including VSAT hubs at their teleports, uplink, internet access and remote kits.

The services provided are now fully provisioned expanding broadband and voice services.

Additionally, Intelsat is providing services in conjunction with Optus to the New Zealand Defence Force, who will provide humanitarian support in Tonga.

"Communications infrastructure is essential to assisting the residents, coordinating medical staff and providing supplies, clean food and water and basic human needs," said Intelsat CEO Stephen Spengler. "Our hearts go out to the residents of Tonga and all impacted by this devastation, and we're working with our partners to play a role in supporting the community in their time of need."



Credit: National Environmental Satellite Data and Information Service (NOAA)

In 2019, Tonga lost internet access for nearly two weeks when a fiber-optic cable was severed. Intelsat helped restore the island's connectivity by providing satellite capacity on Horizons 3e and Intelsat18 at that time.

Telefónica reaches redundancy deal with unions

Telefónica has reached an agreement with labour unions to cut around 15% of its domestic work force via voluntary redundancies in a plan estimated to cost it €1.5bn this year.

The Spanish operator's plan to cut around 2,700 jobs in an increasingly competitive market early this year will yield annual savings of more than €230m from 2023, it said in a filing to the stock market regulator.

"The impact on cash flow generation will be positive in 2022 as will the booking of savings, since the employees will leave during the first quarter of 2022," the company added.

Telefónica said the programme is open to all those born in 1967 or earlier and with at least 15 years of employment at the company. However, it will limit the percentage of departures from some areas.

Initially, the company intended to spare business units dedicated to cybersecurity, marketing and artificial intelligence, though unions opposed. The company intended at first to offer a package to about 1,800 workers.

Telefónica is Europe's third-largest telco and employs 18,500 people in Spain. The redundancies follow similar moves by rivals Vodafone and Orange in recent months.

Globally, Telefónica employs nearly 114,000.

Wind Tre upgrades fibre backbone to 600G with Nokia

Italian telco Wind Tre has entrusted Finnish tech giant Nokia to deploy a new fibre backbone in Italy.

The fibre-optic backbone network will support 600G wavelengths and will feature redundant nodes in a wave router configuration, a mesh structure and GMPLS-based restoration.

Wind Tre said the upgrade will enable it to quickly re-route traffic as needed to enable the high reliability its business customers will require. Nokia will supply optical transport capabilities for the upgrade that leverage the company's PSE-V super-coherent (PSE-Vs) chipset.

"Nokia's solution based on industry-leading coherent technology will help us provide next-generation broadband services to both consumer and business customers in the most efficient way," said Benoit Hanssen, chief technology officer at Wind Tre. "It will also enable us to grow our subscriber base and provide best-in-class experience to Wind Tre existing customers."

Sergio Solivera Vela, vice president, Mediterranean region, at Nokia added: "We have a longstanding and successful relationship with Wind Tre and are very happy to expand this by deploying its new optical backbone. Our latest coherent technology solutions will provide Wind Tre with massive capacity that grows as subscriber demand increases, without sacrificing reliability."

Russian telco market consolidation

ER-Telecom, the Russian telecommunication holding and cable company, has partnered with the state-owned corporation Rostec to acquire a 75% stake minus one share in the company Akado Holding, running the regional operator Akado Telecom.

The minority stake will be held by the company AVK Investments.

Akado is the largest independent telco in Moscow, serving corporate, private and government clients on its own fibre infrastructure, in addition to offering digital TV film services, data transmission, building corporate networks, information protection, video surveillance, website hosting, plus storage and data processing at its own data centre.

The partners plan to create a platform for the development of numerous digital technologies, including 5G, IoT and smart city systems.

"This is an alliance of strong players, in which the competencies of our companies have synergies," said Sergey Chemezov, chief executive officer, Rostec. "This set-up opens new opportunities for the creation and implementation of domestic technological solutions in various fields."

ER-Telecom could receive 300,000 new customers as well as the existing orders from the operator, because of the deal. A notification has already been sent to the Federal Antimonopoly Service (FAS), Russia's regulatory body, but it has not yet been received.

Last year, ER-Telecom acquired 100% of the united group of companies Avantel for an undisclosed fee. The transaction will allow ER Telecom to significantly strengthen its position in the Moscow, Siberian and Far East markets.

Akado is the largest independent telco in Moscow

Saudi-led air strikes on telecom building in Yemen knocks out internet

Saudi-led air strikes that targeted a telecom building in the contested city of Hudaida has caused Yemen to lose connection to the internet nationwide.

The disruption affected TeleYemen, the state-owned monopoly that controls internet access in the country, advocacy group NetBlocks said.

Yemen was "in the midst of a nation-scale internet blackout following air strike on (a) telecom building," it added.

The San Diego-based Center for Applied Internet Data Analysis and San Francisco-based internet firm CloudFlare also noted a nationwide outage affecting Yemen beginning around the same time.

The Houthi's Al Masirah satellite news channel said the strike on the TeleYemen building had killed and wounded people.

It released chaotic footage of people digging through rubble for a body as gunshots could be heard. Aid workers assisted bloodied survivors.

The Saudi-led coalition battling the Houthi rebels acknowledged carrying out "accurate air strikes to destroy the capabilities of the militia" around Hudaida's port.

The undersea FALCON cable carries internet into Yemen through the Hodeida port along the Red Sea for TeleYemen. It has another landing in Yemen's far eastern port of Ghaydah as well, but most Yemenis live to the west along the Red Sea.

Mexico's GigNet wins Mera fibre deal

Mexican telecommunications service provider GigNet has been commissioned to install a private high-speed internet and Wi-Fi network for private multinational firm, Mera Corporation.

The latter focuses on concessions of food and beverages with a critical mass within non-traditional travel hubs, such as airports and cruise ports.

Under the terms of the deal, GigNet will connect Mera's corporate Cancun offices to the company's 18 airport terminal locations.

"Mera Corporation actively seeks operations in the industry of food and beverages where we can add value and increase income," said Rafael Aguirre, president of Mera. "We are operators, concept developers, franchise partners, strategic allies, and restaurant owners."

"High-speed data access and efficient communication is a requirement to keep at the forefront of our business. GigNet is a perfect fit to connect our Headquarters operations because they understand what it means for our business to have reliable high-speed Internet," Rafael added.

Mark Carney, president, GigNet Mexico, said: "We will be supplying our GigNet enterprise solutions, enabling simultaneous use of cloud and streaming applications that will not only enhance Mera's already superior customer service but will also improve communication, automation, and the decision-making process for the group's corporate management team."

Korean government working on 6G networks

The Korean Ministry of Science and ICT announced it is working on 6G network development strategies together with local carriers and tech firms SK Telecom, KT, LG Uplus, Samsung Electronics and LG Electronics.

According to a report in Business Korea, the government and the tech giants aim to carry out cooperation activities for the development and innovation of 5G backbone and future 6G networks, the internet of things and satellite communication.

Samsung recently announced it will collaborate with Korea University to establish a department dedicated to the research and development of next-generation technologies such as 6G. Starting in 2023, a limited number of students will be able to study in Korea University's next-gen tech department.

"In keeping with the changes in the communications market where hardware and software technologies converge, we have decided to establish Korea University and the next generation communications department to develop convergent talents specialised in the telecommunications sector," Samsung said.

The South Korean government previously said it aims to launch a pilot project for not-yet-standardized 6G mobile services in 2026. It is confident 6G services could be commercially available in the country as early as 2028.

Montenegro grants 5G frequency licences to trio

Montenegro's telecom watchdog EKIP has approved bids placed by Mtel, Crnogorski Telekom and Telenor Montenegro in a public auction for allocation of national frequency licenses for 5G mobile networks.

Mtel won frequencies in the 900 MHz, 1.8 GHz, 2 GHz and 2.6 GHz spectra, while Crnogorski Telekom and Telenor Montenegro secured frequencies in the 2.6 GHz spectrum at the auction held December 27.

The licences will be valid until September 1, 2031, according to EKIP

Montenegro has recently adopted a roadmap to encourage the introduction of 5G mobile networks by the end of 2022. A national strategy is expected to be adopted next year, defining further activities for the support of the rollout of 5G networks in Montenegro, per government's previous statements.

Measures and policy reforms envisaged by the roadmap relate to harmonisation of national legislation for electronic communications with the EU rules, implementation of 5G networks on the entire territory of Montenegro and pilot testing projects and removing administrative obstacles, among others.

Meanwhile, EKIP said the number of mobile phone subscribers in Montenegro rose 3.7% year-on-year to 1,120,074 at the end of December.

The mobile penetration rate in Montenegro went down to 180.65% in December from 185.53% at the end of November, when the number of subscribers was 1,150,310.

Q&A

Eugina Jordan
vice president marketing
Parallel Wireless

What was your big career break?

Let me tell you. It happened when Starent's CEO Ashraf Dahod gave me an opportunity. The story goes like this ...

At the age of 37, newly single, with a new mortgage, & a 2-year old son counting on me to provide for him, I realized that as an EA, I had little opportunity to advance.

On a mid-winter afternoon in 2007, I marched into my CEO's office determined to ask for his support.

Thoughts raced through my head. I had heard about an entry-level marketing job that sounded like an opportunity for career growth. I had been considering my options carefully & going back to school was not financially viable in my present circumstances, but this job...this job felt like something to help me grow. I knew that given the chance; I would succeed. All I needed was a chance to prove myself. All I needed was a "yes" from my boss, the CEO.

But I am his EA, I support the whole executive team. Will he let me go?

Anxiety roiled in the pit of my stomach as I walked into his office. I remember the way the sunlight streamed through the window across his desk like it was yesterday. His answer had the power to be life changing.

I took a deep breath, and with no preamble, before I could change my mind, I told him, "There is an opening in the marketing department, and I want a transfer."

He studied me for what felt like an eternity, then he smiled, and said, "I would miss you, but I cannot be selfish and stop your growth."

I didn't even realize I was holding my breath until I felt it whoosh out of me at his answer.

And just like that, with one simple "yes," I got my biggest career break.

With that one simple "yes", I took the first step of my journey to becoming one of the best marketers in the tech industry & a C-level female executive.

And make no mistake, it was hard work. For a full year, I did both jobs—EA & marketing, learning all I could about the marketing profession, while as a single mom, raising my son.

I did not know back then that one day my story of "asking for more" might help others: other single moms, other immigrant women, other women struggling to make ends meet in entry-level jobs...in short, other women who want more. Other women just like me.

It's taken me 14 years since that mid-winter day, when I asked for a job, I wasn't sure I deserved, but each day, I make a conscious choice not to hide the extraordinary light of my true self and perform to my best ability.

Who was your hero when you were growing up?

My mom has been always my hero. She has been gone 10 years now. We fell out of touch during the last years of her life, but her unconditional love, and the hard work she demonstrated and taught me made me who I am today.

She got to be the person she was because she was a single mom to twin daughters in communist Russia. She worked extremely hard. Every weekday, she got up in the dark at 5 AM to get ready for work, then get on a bus for an hour-long ride to be at work by 7 AM. She was working as a secretary making just enough to cover basic food and clothing needs and we had hard times making ends meet. That meant that sometimes we had to borrow macaroni from the neighbors or walked to a place instead of riding a public bus. But she never gave up hope and she never allowed my sister and me to give up hope. When Russia was going through turmoil in the early nineties, she knew that her daughters "deserved better." She sold what she could, an apartment, her jewelry, so her daughters could immigrate to Canada, because she believed we deserved better, and we could only build a better life in a free world.

Never in my wildest dreams did I, an immigrant woman and a single mother, imagine that I would become who I am today, a C-level executive.

All because of those words that my mother said to me when I was growing up "you deserve better". Because of those words I would dream the biggest dreams.

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

A Hollywood actress! I still have some time to fulfill that dream once I retire from telecom though.

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

"Don't act like a victim." This means that a person is always in control of their life. We cannot blame others for us not getting to our goals.

If you could live anywhere, where would you choose?

Anywhere where there is no snow. I grew up in Russia, then lived in Canada and now I have been living in New England for 20+ years. So, dealing with winter and all that cold and snow is getting old. I would love to live somewhere closer to the ocean (if I can afford it). The sounds and the smells of the ocean are very calming.

At some point in my life, I thought that I would go back to the big city life eventually, with lots of things happening. I have been living in the small-town USA now for almost half of my life and I appreciate the serenity and simplicity of that life. So, I have realized that small town is where I belong, just not with the snow.

Which law would you most like to change?

I would change any law where the government tells people what to do with their bodies. For example, the Due Process Clause of the Fourteenth Amendment to the U.S. Constitution provides a fundamental "right to privacy" that protects a pregnant woman's liberty to choose whether or not to have an abortion. And we still have many countries preventing women in 2021 (!) the right to choose what to do with their bodies.

What would you do with US$1m?

Let me tell you. First, I would give some scholarship money to my nephews and nieces. Student debt can cripple a young person when they get out of college. So, by giving them the scholarship money, my hope is to give them a leg up and start their adult life after college in a better position than many.

Secondly, I would donate to programs that help with food insecurity for school age children. My husband grew up very poor and the only meals he got were the meals that he got when he went to school, on the weekends he often went hungry. And he grew up in Massachusetts! During Covid when the schools were closed and just like my husband experienced, children did not have access to food, I drove food early in the morning to central locations where parents can pick the meals up.

Thirdly, I would establish a charity where I can help immigrant women like me to create better lives.

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

That would be Princess Diana. I relate to her as she was a simple girl and once, she fell in a position of power, she made sure she used it for good, to make an impact on the world.

Which place must you visit before it's too late?

I miss traveling ... My job and my personal passion for travel took me to many different places across the world, from Brazil to Japan. I am always fascinated by new cultures and excited to meet new people. I would like to go back to Paris and Venice. I also would like to visit Australia and the Pacific islands. Who am I kidding? There is not a particular place, I want to see all the 7 wonders of the world, all 1000 places a person should visit. Sign me up! ■

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