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SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Featured

Eng. Olayan M. Alwetaid
Group CEO
stc

THIS MONTH

CAPITALIZING ON 5G IN THE NEW OPPORTUNITY LANDSCAPE

WORLD SPACE RISK FORUM

22nd-24th February 2022
Raffles Hotel, Dubai

The World Space Risk Forum (WSRF) is the largest space gathering of its kind, offering an opportunity to learn more about the risks faced in the space sector and its implications. Network with satellite operators, investors, insurers, brokers, and many others from the industry.

Get acquainted with these space risks in terms of technical, financial, political or any such that is not yet quantified which may impact our future.

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SAMENA
TRENDS

Editor-in-Chief
Bocar A. BA

Contributing Editors
Izhar Ahmad
Javaid Akhtar Malik

Knowledge Contributions
Eutelsat
OmniClouds
stc Group

Publisher
SAMENA Telecommunications Council

Subscriptions
subscriptions@samenacouncil.org

Advertising
ads@samenacouncil.org

SAMENA TRENDS
trends@samenacouncil.org
Tel: +971.4.364.2700

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Capitalizing on 5G in the New Opportunity Landscape

The emerging 5G opportunity landscape is a reflection of the understanding of its multi-faceted applications, and it is now that there exists willingness among both private and public-sector decision-makers to make 5G a success. We all have witnessed different projections for the world and the region specifically in terms of what making 5G a top priority can bring forth; for example, multi-gigabit speeds, innovative uses and new business applications, real enablement of IoT ecosystem, e-gaming, and so much more. So, we see that 5G is indeed a transformative advancement, and a door to true digital transformation.

As we embrace 2022, 5G has now been launched in every region, setting out live commercial and planned commercial 5G networks. Interestingly enough, the Middle East ranks among the world's very first regions to adopt 5G. The region is also home to some of the most well-defined ICT and economic diversification visions in the world as well as strong international coordination on spectrum management approaches.

The pace at which 5G adoption is happening, we can expect a billion 5G users over the next three years, and such dramatic adoption rate equally applies to industries and niche segments now extensively being driven by digitization, new digital offerings, differentiation in value-propositions. This demands a very enabling regulatory environment, and capitalizing on new opportunities relating to Industry 4.0, smart-city projects, and proliferating 5G applications across education, healthcare, oil and gas, port operations, and other verticals of most relevance to the diversification visions of the region.

Operators are increasingly seeing 5G as a key enabler to fuel business growth and economic recovery, and to help mitigate similar crisis in the future. In 2022, we need to focus our efforts on building better communication services that are inclusive, providing enhanced digital experiences, increasing business productivity, and adding to quality of life.

And these are areas where 5G will make its greatest contributions.

Bocar A. BA
Chief Executive Officer
& Board Member
SAMENA Telecommunications
Council

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- Corporate Social Responsibility Award
- Tech For Good Award
- SMB of The Year Award

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SAMENA COUNCIL ACTIVITY

SAMENA Council's end-2021 Intervention at the World Telecom Policy Forum Identifies Key Implementable Areas to Shape Future Digital-Technology Policy

SAMENA Council, represented by its CEO - Bocar BA, who also delivered a keynote in support of the Private Sector, participated and contributed to the Guidelines adopted during the Sixth World Telecom/ ICT Policy Forum (WTPF-21), held virtually in December 2021. The Forum brought together representatives from all stakeholder groups belonging to 90 ITU Member States, 40 Sector Members, including SAMENA Council, and various Observers.

Deliberations at the WTPF-21 delved into identifying actions that can be taken to mobilize new and emerging technologies and ICTs for sustainable development, as well as practical measures to boost universal, affordable and secure connectivity. Delegates recognized the need to re-energize sustainable development and drive faster and more inclusive connectivity, and to ramp up digital skills. The essential requirement for setting best policies and practices for adopting and utilizing new and emerging technologies and services to facilitate the use of ICTs for sustainable development was recognized as being crucial. It was also agreed that an enabling environment for the development and deployment of new and emerging telecommunication/ ICT services and technologies to advance sustainable development is critical for a sustainable digital future. (SAMENA Council noted that this was in accordance with the earlier acknowledgement by the global community of the role that the Telecom/ICT industry, especially the Telecom Operator community, has been playing in digital development worldwide and more so throughout the 2020-to-date pandemic response and future preparedness processes.)

> *SAMENA Council stressed upon two particularly important aspects for future policymaking and governance: One, adopting innovative and sustainable funding, financing and investment models that need to be much broader and include contributors apart from Telecom Operators alone and predictable and sustainable contributions from all those that benefit from infrastructure investments. Two, understanding and meaningfully utilizing the vast data flow landscape that now exists...*

Aligned with the Report presented by the ITU Secretary General, H.E. Mr. Houlin Zhao, and Opinions 3 & 4 agreed to during the WTPF-21 regarding the need to adopt effective future-oriented policy approaches for building the digital future, SAMENA Council stressed upon two particularly important aspects for future policymaking and governance: One, adopting innovative and sustainable funding, financing and investment models that need to be much broader and include contributors apart from Telecom Operators alone and predictable and sustainable contributions from all those that benefit from infrastructure investments. Two, understanding and meaningfully utilizing the vast data flow landscape that now exists, and for which Policymakers and Regulators should help in the harmonization of data categorizations such as global definitions and data-related concepts; developing common technical data-related standards; exploring emerging forms of data governance, and agreeing on digital and data-related rights and principles at the top of their data-centric policy and regulatory approaches.

Bocar BA, in his keynoted, stated that "Focusing on these two aspects will help establish a foundation on which the future

of connectivity can be built. SAMENA Council suggests that the Policymakers and Regulators consider extending the regulatory sandbox approach to understand and address new challenges associated with cross-border data flows, which are an integral part of the global connectivity system we have recognized today for building a sustainable digital future for all."

BA also reiterated that "In the age of collaborative regulation, policy and regulatory approaches should aim to more effectively address the needs of the Private Sector, in particular of Telecom Operators. The success of the Governments and the success and sustainability of the Private Sector are closely interlinked. Consequently, in support of the Opinions adopted regarding future-oriented policy approaches, it is almost inevitable that we'd also need to focus specifically on the need for reducing Taxation and incentives in investment, adopting future-friendly Spectrum allocation approaches and rectification of Spectrum Interference issues and supporting innovation in the creation, adoption, and championing by the government sector of the adoption of new digital services."

> *Bocar BA, in his keynoted, stated that Policymakers and Regulators should consider extending the regulatory sandbox approach to understand and address new challenges associated with cross-border data flows...*

WTPF-21 brought together policy-makers from across the globe, providing a venue for exchanging views and knowledge to create shared vision on issues arising from the emergence of new telecommunication/ ICT services and technologies. It is the sixth such Forum, previous having taken place in 1996, 1998, 2001, 2009 and 2013. The Forum was convened at the request of ITU Membership to discuss new and emerging technologies. The Sixth World Telecommunication/ICT Policy Forum (WTPF-21) was due to be held on 16-18 December 2021 in Geneva, Switzerland. However, given the deterioration of the epidemiological situation and the announcement of travel restrictions and quarantine requirements in Switzerland and many other countries, WTPF-21 was only held as a fully virtual event.

GO Joins SAMENA Council to Push for Cloud Services and ICT Solutions and Revolutionize the Telecommunication Standards in the Kingdom of Saudi Arabia

SAMENA Council announced that Etihad Atheeb Telecom Co. ("GO"), a leading telecommunications provider in the Kingdom of Saudi Arabia aiming to become the telecommunication service provider of choice by optimizing resources to introduce world-leading technologies, has joined its membership of Operators and technology companies.

Expressing his warm welcome to GO on joining the Council's community of Telecom Operators, Tech Providers, and specialist firms, Bocar BA, CEO & Board Member stated: "GO is serving the community and the telecom market by revolutionizing the telecommunication standards in the Kingdom of Saudi Arabia and providing world-class services to its customers. GO is playing an important role by optimizing its resources to introduce world leading technologies. GO is deeply committed to deliver quality products and superb services. As SAMENA Council continues to contribute at both regional and global digital development fronts, the role of its diversified group of Members such as GO has become ever more important for assisting in making our digital networks more resilient and more inclusive."

"GO is extending its commitment by joining SAMENA Council", said, Mr. Yahya Saleh Al Mansour, CEO of Etihad Atheeb "GO". "This is an extension of our commitment to serving both business and consumer sectors by revolutionizing telecommunication standards in Saudi Arabia with world-leading technologies. GO Telecom is providing Enterprise with a reliable and competitive Cloud and ICT services." He also added, "Our commitment is well aligned with SAMENA Council's vision for industry transformation and innovation through sustainability and social responsibility".

GO Telecom is providing enterprises reliable and competitive Business Services. GO Co-Location Service offers accommodation facilities, and within GO leading edge Data Center environment managed by the latest support and Network management tools.

The company's membership in SAMENA Council will allow it to build long[1] term relationships in order to support and contribute to the growth of regional telecom industry. GO will be working closely with other Members on technical areas and participate in discussions on key regional telecom topics with members from the Middle East region. The company also intends to leverage its position within SAMENA Council for strategic partnerships with regional telecom providers that are aligned with GO's vision.

6th World Telecommunications/ICT Policy Forum Charts Course for an Equitable and Inclusive Digital Future

Over 400 top representatives from the public and private sectors affirmed the need to align information and communication technologies (ICTs) and rapidly evolving new and emerging technologies with global priorities for sustainable development. Delegates at the sixth World Telecommunications/ICT Policy Forum (WTPF-21) gave their seal of approval to a set of guidelines shaping future technology policy. These covered areas from inclusive connectivity and digital skills to using new and emerging technologies and services for sustainable development, fostering an effective enabling environment, and how tech can support effective COVID-19 response and recovery. These guidelines, set out in non-binding policy documents known as "Opinions", were approved in the Chairman's report at the close of the WTPF-21, which took place online between 16 and 18 December. The Opinions reflect common views among ITU's membership of countries, companies, institutions, academia and civil society, as refined and set down during a highly collaborative two-year multistakeholder preparatory process. "The ITU family came together at WTPF-21 to discuss the new and emerging technologies that show so much promise for all humanity," said ITU Secretary-General Houlin Zhao. "The output of this Forum sends a clear, strong and positive message to the world that these technologies and ICTs in general are essential to achieve the UN Sustainable Development Goals and address some of the world's most pressing opportunities and challenges, from COVID-19 to the digital divide." Ursula Owusu-Ekuful, Minister of Communications and Digitalization, Ghana and WTPF-21 Chair, said: "As ITU members, we owe it to ourselves to do our utmost to harness better the emerging technologies and ICTs to accelerate the achievement of the 2030 Agenda for Sustainable Development. Because when poverty is on the rise, when our children's education is on the line, when our planet is suffering and when our health is impaired with existing and new diseases, we believe that these technologies can and will make a big difference." She further said: "These Opinions will

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The Forum brought together representatives from all stakeholder groups belonging to 90 ITU Member States, 40 Sector Members and some 10 Observers and began with the presentation of the ITU Secretary-General's report.

now provide guidance and support to ITU Member States in formulating future policy, and the task ahead for ITU members as stakeholders is to work towards implementing them." The Forum brought together representatives from all stakeholder groups belonging to 90 ITU Member States, 40 Sector Members and some 10 Observers and began with the presentation of the ITU Secretary-General's report. "The report by the Secretary-General is a balanced text recognizing the complexities of the current digital ecosystem," explained ITU Deputy Secretary-General Malcolm Johnson. "The key public policy questions at its core provides a solid framework for discussion at WTPF-21, which will help build a digital future where no one is left behind and where opportunities have no boundaries."

The report outlined the topics of the five Opinions:

- Enabling environment for the development and deployment of new and emerging telecommunication/ ICT services and technologies to advance sustainable development;
- Affordable and secure connectivity in mobilising new and emerging telecommunications/ICTs for sustainable development;
- Digital literacy and skills for inclusive access;
- New and emerging technologies and services to facilitate the use of telecommunications/ICTs for sustainable development;
- Use of telecommunications/ICTs in COVID-19 and future pandemic and epidemic preparedness and response

Member State representatives acknowledged the Opinions as enablers for ICT development and shared insights on the key drivers of digital transformation in their own countries. Discussions approving the set of Opinions took place in three working groups, focusing on:

Supporting enabling environments, boosting connectivity

Working group one approved Opinions 1 and 2, which explored actions that can be taken to mobilize new and emerging technologies and ICTs for sustainable development, as well as measures to boost universal, affordable and secure connectivity. Summing up, Roberto Mitsuake Hirayama (Brazil), Chair of Working Group 1, said: "These two Opinions set down clear, actionable steps for ITU's Membership to move forward, fostering productive enabling environments and harnessing new and emerging telecommunications/ICTs for sustainable development through affordable and secure connectivity. Forging consensus around these two Opinions at WTPF-21 will help the whole sector thrive and address the major challenges it faces and harness opportunities towards a digital future."

"The crippling cost of digital exclusion is real and growing, jeopardizing the achievement of the United Nations Sustainable Development Goals. We have a once-in-a-generation opportunity to use the technologies and services at the heart of this Forum, combined with the power of multistakeholder partnerships, to re-energize sustainable development and drive faster and more inclusive connectivity everywhere. Let's seize this opportunity with both hands," said Doreen Bogdan-Martin, Director, ITU Telecommunication Development Bureau speaking at the opening of Working Group 1.

Importance of digital skills, new and emerging technologies and services

Opinions 3 and 4, looking at how to ramp up digital skills, and best policies and practices for using new and emerging technologies and services to facilitate the use of telecommunications/ICTs for sustainable development, were both approved. "Now, more than ever, our collective focus must be on extending the right digital skills to everyone, fostering digital empowerment and inclusion. Effective future-oriented policy approaches, as set down in these Opinions, will be essential to building our digital future," said Working Group 2 Chair, Lidia Stepinska-Ustasiak (Poland). Stressing the importance of an equitable distribution, Chaesub Lee, Director, Director of the ITU Telecommunication Standardization Bureau, said: "New and emerging technologies and services must be widely distributed and shared fairly. Technology is always going to evolve, but we must stay true to our mission and vision – that is, building human potential, building trust, and enabling technological advances on a global scale."

ICTs to tackle COVID-19 and in readiness for future pandemics

The Forum then moved to approve Opinion 5, which sets down crucial steps to be taken to mitigate and respond to COVID-19 as well as to be prepared for future pandemics and epidemics. "COVID-19 is one of the biggest topics of our time. We must all learn from the experiences we have endured, and work as a global community to see how ICTs have been used to respond to the pandemic. We must figure out how we can do more to protect jobs, support education and health services, and how to build our economies and societies more inclusively," said Jim Paterson (South Africa), Chair of Working Group 3. "Government and industry are called upon to keep using the momentum gained during these challenging times to accelerate digital transformation and extend it to the almost 3 billion people who are still offline around the world. Going forward, our priority must be to bridge the digital divide and make access to communications affordable for everyone," said Mario Maniewicz, Director, ITU Radiocommunication Bureau.

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stc Leads on the Gaming Front

stc set to Play Major Role in MENA's Gaming Industry as Users Adopt New 5G Technologies

The fifth generation of mobile technology (5G) allows for super-fast data transfer and connectivity at speeds far superior to any previous mobile technology. 5G can range anywhere from 20 to 100 times faster than current 4G networks and will serve an array of industries around the world using digital infrastructure to advance goods and services.

> *For stc, 5G is enabling the company to expand its operation into other new areas such as in fintech, which it did so with its launch of stc Pay towards the end of 2020. Less than two years later the company is valued at over $1 billion.*

It's estimated that over a billion people will be using 5G networks by 2025 and industries that adopt emerging technologies will be drastically changed by the tech's capabilities. Companies around the world are already starting to use 5G to enhance their digital offering and individuals are already reaping the rewards of connecting to 5G.

One such industry which is expanding at a rapid rate, and one that is set to boom even more as 5G is rolled out further, is e-gaming. Currently, the world's gaming industry is valued at a staggering $174 billion and in just five years time that figure is expected to grow to a whopping $314 billion as 5G enables gaming to be taken to the next level. Capitalizing on this growth is Saudi Arabia's leading telecommunications company stc, which in March 2021, launched its exclusive online gaming hub stc Play. Users can compete in esports tournaments and find gaming-related content in one place and it's thanks to the company's 5G technology, which has enabled stc Play to make an instant impact in the market. For gamers one of the most noticeable differences when playing on a 5G network is the low latency, which for those that take gaming seriously, or even make a living from e-gaming, the difference is remarkable. It can prove to be the difference between winning and losing, and in the

Eng. Olayan M. Alwetaid
Group CEO
stc

context of potentially lucrative e-gaming tournaments low latency is crucial for those involved. Furthermore, 5G has the ability to unlock a new level of gaming reality through VR. The technology is so quick VR headsets can be used without any lag, making virtual worlds seem remarkably real.

> *"We at stc are at the forefront of our industry, delivering leadership in terms of cutting-edge technology in infrastructure and its application. Looking at it in the round and the outcomes it provides is what enables us to accelerate the benefits to the people and the businesses we work with in a truly transformational way. "*

Eng. Olayan M. Alwetaid, Group CEO, stc said: "We at stc are at the forefront of our industry, delivering leadership in terms of cutting-edge technology in infrastructure and its application. Looking at it in the round and the outcomes it provides is what enables us to accelerate the benefits to the people and the businesses we work with in a truly transformational way. "

He emphasised " We are determined to maintain our scale and pace of development, because unless we deliver the products and services behind all these incredible and fast-moving innovations, we will not be able to turn ideas into life enhancing and life changing, reliable products and services. That is under our DARE strategy we are creating and incubating companies, with strong focused leadership which we can then let thrive and create additional value for the economies, customers, employees and shareholders through IPOs and funding like we did with solutions by stc and stc pay/bank. Many more are planned as we build out our digital strategy to help the transformation of our kingdom under Vision 2030 and the region as a whole."

For stc, 5G is enabling the company to expand its operation into other new areas such as in fintech, which it did so with its launch of stc Pay towards the end of 2020. Less than two years later the company is valued at over $1 billion. stc Pay is the digital payment arm of the wider stc Group, which has opened the door for cash transfers and transactions to be done digitally worldwide thanks to a partnership agreement with Western Union. It's deals like this, which have helped to establish stc as the digital hub for the MENA region as well as pioneering the digital transformation in Saudi Arabia. In line with the governments Vision 2030, which aims to reduce the country's dependence on oil by growing other sectors, stc has already begun to overhaul the Kingdom's digital infrastructure and has been rolling out its new and emerging technologies across the country, including in previously hard-to-reach and rural areas of Saudi Arabia. The digital transformation will affect and improve all public and private sectors as they adopt the new technologies.

stc's role in the digitalization of the country is clear – to lead the charge and it is achieving that by expanding into new areas such as fintech through the stc Pay app, stc Play, and Sirar for all things cyber security. The rapid rise of the business has led it to becoming a powerhouse in MENA and is now the region's number one hub for digital solutions. The company continues to evolve and expand while offering customers a quality service and rapid connection speeds. Users have the added benefit of being able to access everything from the firm on its new digital Mystc app.

MEMBERS NEWS

stc Signs 3 Agreements and Launches the New Data Center in Jeddah

stc signed partnership agreements with a number of specialized companies in support of establishing modern, new generation of cloud-based data centers. As part of the third phase of the data centers project, stc recently launched a new data center in Jeddah. These steps aim to expand the stc's capabilities and capacities and accelerate the implementation of the Kingdom's digital transformation goals through a flexible and global-level data distribution process. Through these agreements, stc also seeks to accelerate the stages of advanced digital transformation, consolidate the Kingdom's role as a regional digital hub for cloud computing that attracts innovation-based technology investments in the region by providing cloud services to public and private entities and contributing to storing and processing their data. Thus, the cyber risks as well as the operating expenses of these entities would be reduced in line with cyber security standards and controls provided by data centers in the Kingdom. These agreements are an extension of the third phase of the stc's newly launched data centers project, the largest in the region. This phase would provide seamless data distribution on a global level in compliance with the objectives of the Saudi Green Initiative for Environmental Sustainability. The most prominent of these agreements are the ones concluded with SBM, with the aim to increasing the efficiency of data centers using flexible and advanced technologies; Huawei, with the aim to supporting data centers by ensuring a flexible flow of data and digital information traffic between different technical facilities to maintain business continuity; and MMR, which the aim to enhancing the infrastructure of modern data centers. In addition, stc inaugurated the new data center in Jeddah under the third phase of the data centers project. It is the first neutral data center in the region and its capacity amounts to 1.2 megawatts and 150 server racks. It combines many digital services that ensure fast and secure access to the high capacity local and international network that connects various IGW and MPLS networks. The center comes as a part of stc's strategic plans for data centers to enable the company to be a gateway to the digital infrastructure of the Middle East and to achieve the digital transformation of the Kingdom by providing important digital availability areas that secure an integrated set of secure services and service management at the global level, in addition to improving its digital technologies and communication services across the major cities in the Kingdom, including Jeddah.

Successful Completion of stc Secondary Public Offering with a Total Offering Size of SAR 12 billion

The Public Investment Fund ("PIF" or "The Fund" or the "Selling Shareholder") and Saudi Telecom Company ("stc" or the "Company"), Saudi Arabia's leading ICT provider whose ordinary shares are listed on the Saudi Stock Exchange, announced today the successful completion of the secondary public offering. 120 million shares representing 6.0% of stc's share capital were sold to local and international institutional investors and retail investors by way of a secondary public offering, the first of its kind in the Saudi capital market. The total offering size reached SAR 12 billion, which makes it the largest equity capital markets transaction in Saudi Arabia since the IPO of Saudi Aramco, the largest secondary follow-on transaction in EMEA in the last three years and the largest secondary follow-on transaction in CEEMEA in nearly ten years. Yazeed A. Al-Humied, PIF Deputy Governor, Head of MENA Investments commented: "The strong interest that this Offering has

generated from domestic and international investors is testament to stc's enduring strengths and exciting prospects for the future. As its majority shareholder, we look forward to stc continuing to play a leading role in shaping the future of the Information and Communication Technology sector in the Kingdom of Saudi Arabia, one of the 13 strategic sectors the Fund focuses on." "This transaction is in line with PIF's strategy 2021-2025, launched by HRH the Chairman of the Fund, to recycle capital by selling stakes in the companies owned by the Fund, as with the secondary public offering of the Fund's shares in stc and the IPOs of ACWA Power and Saudi Tadawul Group, to reinvest the proceeds in the Kingdom's emerging sectors. We are pleased to contribute to the development of the Saudi capital market through the elaborate and successful structuring and execution of this secondary public offering, which is the first Secondary Fully Marketed Public Offering ever in the Kingdom of Saudi Arabia targeting international investors and the largest in the region, which demonstrates the advancement of Saudi capital markets and its regulation." Eng. Olayan M. Alwetaid, stc Group CEO commented: "We are extremely pleased to see the strong interest in the Offering from domestic and international investors. I believe this is an endorsement of stc's achievements as a leading ICT provider and one of the largest telecom players in the MENA region, as well for our strategy going forward. I have no doubt that the increase in the Company's free float percentage to 29.84% will further enhance the Company's international investment case and help make its shares accessible to a wider range of investors and improve trading liquidity. We welcome our new investors and look forward to sharing the Company's success with them." Eng. Khalid Al-Hussan, CEO of the Saudi Tadawul Group, said: "The healthy reception of the Public Investment Fund's secondary offering highlights the maturity of the Saudi capital market, emphasizing its depth, resilience and strength in response to positive regulatory and economic policies. The increasing complexity of the market and strong governance of Saudi Exchange, Edaa, and Muqassa, have created a welcoming environment that is able to support deals such as this. As of now, this is the largest equity capital market transaction in the Kingdom since Aramco IPO, and it bodes well for the future as we seek to capitalize on the growing momentum in the Saudi economy."

Annual Spending on Cyber Security Expected to Reach 3 billion Riyals in the Saudi Market

In presence of His Royal Highness Prince Mohammed Bin Khalid Al-Abdullah Al-Faisal, Chairman of the Board of Directors of stc Group, His Excellency the Minister of Communications and Information Technology, Eng. Abdullah Bin Amer Al-Sawaha, and a number from their Highnesses and Excellencies, visited the stc stall during the @Hack event, and were received by the Group CEO of stc, Eng. Olayan Bin Mohammad Al-Wetaid and a number of the group's executives. His Excellency was briefed on the latest technologies offered by the group in the field of cybersecurity, as the Kingdom of Saudi Arabia is witnessing a growth in the size of the cybersecurity market, with annual spending reaching 13% and an expected spending volume of 3 billion Saudi Riyals annually, in light of the digital transformation that the Kingdom is witnessing. stc contributes to the @Hack event as a partner and digital enabler for the largest cybersecurity event in the Middle East, which is held in Riyadh, and organized by the Saudi Federation for Cybersecurity Programming and Drones in collaboration

with the General Entertainment Authority, with the participation of speakers, international experts, and local and international companies specialized in the field of cybersecurity. stc also supports the events and meetings with the participation of 200 speakers and experts from a selection of local and international companies specialized in cybersecurity. With the participation of Sirar by stc, which was launched by stc Group to enable and protect the expedition of the digital transformation and infrastructure, with a group of leading companies, by reviewing the latest solutions, products and technologies that it offers to its customers.

stc Awarded for Its Best Internal Application Across the Middle East

stc was awarded the first place in the enterprise agility award 2021 for its best application that provides solutions for companies, for the internal communication application "HUB" during the awards ceremony that was held recently in Dubai. stc's HUB application was crowned the first place as the best internal communication application, achieving the diamond plate of the Entrepreneur award 2021, after competing with a number of competing applications from international companies in the Middle East. The competition revolved around the most suitable applications for work environment that require diversity in the characteristics of its internal applications and the speed of its renewed response to provide a digital communication environment. The HUB application is designed internally with the best international practices that provide various services to employees, including employee self-service, task management and follow-up, and human resource operations. stc's win reflects the excellence of the internal work environment, which aims to make the group a "model of excellence" in its internal applications in human resource management by providing a flexible and innovative digital experience for employees, which is reflected in enhancing their productivity.

Etisalat Making Global Strides in 5G

Etisalat has made global strides in 5G by setting a benchmark right from the launch of the network to the services with its infrastructure ready to support all 5G devices and future solutions backed by the continuous investments in technology and innovation on the network enabling superior 5G connectivity. The continuous support and wise leadership of the UAE celebrating its golden jubilee this year has played a critical role throughout Etisalat's journey and the development of the telecom sector, setting a great motivation for Etisalat to continue deploying the latest innovative technologies and enriching the digital experience of customers while transforming communities. Etisalat has built thousands of 5G sites until today to enable 5G coverage across the country. The network was ready to provide the service as soon as the 5G mobile handsets were available in UAE. Our management's strategy to focus on digital innovation and to 'Drive the digital future to empower societies' have led to investments in superior and state-of-the-art technology solutions on the network. With a landmark achievement in speed, Etisalat offers consumers the world's fastest 5G download speed of 9.1Gbps. This is a result of building a robust network that empowered this leap in the 5G era to offer a speed 30 times faster than a 4G average throughput. This had a significant and profound change on individuals, industries, society and the economy, transforming how we live and work. 5G has all the capabilities to enable industries break any barriers in embracing and accelerating their own digitalization journey. Etisalat has set milestones all the way, from making the first live 5G video call from the world's tallest and iconic tower 'Burj Khalifa' to becoming the first operator to enable a metro station, transform a smart district to empowering an international racing track with 5G connectivity. Today Etisalat has set benchmarks for the industry backed by the infrastructure accomplishments made in the past that have complemented the 5G network. Etisalat took the lead in the launch of 5G in the MENA region targeting opportunities to maximize value from the delivery of end-to-end 5G enabled solutions. Etisalat has continuously engaged with relevant stakeholders to deploy and monetize from the 5G network while at the same time testing and exploring new 5G use cases for the government, business and different industries.

Etisalat's journey towards 5G

Etisalat embarked on its 5G journey in 2014 when it started constructing the network with a dedicated team of engineers and specialists to build one of the most advanced networks in the region. In 2016, Etisalat Group signed a premier partnership deal with Expo 2020 Dubai, the first major

commercial customer in the Middle East, Africa and South Asia (MEASA) region to access 5G services making them one of the fastest, smartest and best-connected places in the world. Another significant milestone in 2016 was the successful completion of the first live 5G experiment using millimeter waves (mmWave). This showcase was the first of its kind in the MENA region with Etisalat becoming the first telco globally to test speeds of 71Gbps setting a new global record in data transfer speed using e-band and massive MIMO technology. The foundation of the commercial launch was laid in 2017, where Etisalat was one of the operators globally to launch a pre-commercial 5G network in certain areas of the country demonstrating high-speed use cases in addition to the low latency feature of the 5G technology. Today looking back at every step of the successful 5G journey, all the efforts have yielded results with the country crowned globally for 5G achievements. UAE's capital Abu Dhabi was ranked among the fastest capitals globally in the 5G network index with the fastest median download speeds (421.26Mbps) in the first half of 2021. This remarkable achievement for the UAE reflects the ongoing efforts of Etisalat and its investments to build one of the most advanced 5G networks in the region and the world. The deployment of 5G across industries and sectors leads the way to digital transformation in UAE, pushing it to the forefront with a network that is future ready for the next generation of mobile technologies.

Collaboration is Key to Creating a Hyper-Connected World with Limitless Connectivity, Highlights Etisalat Chief

Collaboration is key to create a hyper-connected world as we move into a future that requires limitless connectivity to improve lives, redefine business and nurture an entrepreneurial ecosystem especially in the past two years that has profound effects on the ways we work, learn and socialise, said Hatem Dowidar, CEO, Etisalat Group. He delivered a keynote address on 'Enabling a Hyper-Connected World' at the TiE Global Summit, an annual flagship conference for entrepreneurs. Each year, the event gathers speakers, mentors and conducts sessions on new business trends and entrepreneurship. The conference also witnessed the participation of government and industry leaders sharing their perspective on the growing entrepreneur ecosystem in the country. H.E. Ahmed Belhoul, Minister of State for Entrepreneurship and SME inaugurated the event sharing his vision on nurturing the next generation of entrepreneurs followed by Mohamed Al Abbar, founder of real estate conglomerate Emaar and the homegrown online marketplace Noon. Abbar provided insights into his journey in building one of the largest real estate companies in the world and building an e-commerce portal in the region from scratch catering to customers in the Middle East. In Dowidar's address he highlighted the significance of connectivity in this digital environment where the network brings together the various stakeholders in this entrepreneurial ecosystem. He also reiterated how Etisalat is constantly looking at innovative ways to service customers by collaborating with startups that will enrich services and the daily lives of consumers at the same time supporting its digital ambitions. He also emphasized how a crisis can accelerate innovation reimagining a more connected society through the power of technologies such as AI, 5G, big data and IoT that are shaping our future and transforming lives rapidly. This can be done by working collaboratively with all the stakeholders beyond the ICT ecosystem. Dowidar added that mobile networks of the future have to be extensive and dynamic that is highly intelligent with an AI-powered infrastructure. These networks must be resilient and trustworthy capable of processing anywhere evolving as a model that is complex with real-time processing distributed and tightly integrated through-out the network. With the continuous support and guidance of the UAE leadership in bringing digital transformation in the country this has enabled Etisalat to aspire to transition to a complete integrated ICT/digital solution provider. This is achieved by capitalizing on opportunities such as megaprojects and smart city and Industry 4.0 projects across multiple verticals, including health, education, logistics and oil and gas. Etisalat has remained committed to achieve its goals, reshaping the lives of its consumers, accelerating the economic growth of businesses and enhance the competitiveness of the countries where it operates, reiterated Dowidar.

Etisalat Group Named 'Best Middle Eastern Wholesale Carrier' at Global Carrier Awards 2021

Etisalat Group announced that it was recognized as the 'Best Middle Eastern Wholesale Carrier' at the Global Carrier Awards 2021. The Global Carrier Awards are the most prestigious awards program in wholesale telecoms. This year, the awards ceremony took place in London alongside Capacity Europe: as a live, in-person event. Etisalat Group is the leading wholesale service provider operating a global network and advanced wholesale data center facilities. The extended portfolio of premium services such as voice, data, roaming, mobile services, including messaging and satellite services. Commenting on the award, Ali Amiri, Group Chief Carrier & Wholesale (C&WS), Etisalat, said: "We are honored to receive this award which highlights Etisalat's core international network capabilities, reach and commitment to quality as well as its strong fundamentals, a well-developed infrastructure, and a global network of partnerships. This recognition is also largely due to the trust put in us by our valued customers and loyal partners to deliver the highest quality and innovative international services." Etisalat Group's C&WS has extensively invested in a state of the art technology and infrastructure that enables the digital transformation journey, with a focus on customer experience with self-service interface provisioning the service with zero touch. Etisalat Group inaugurated a third SmartHub facility in Dubai in 2021 as well as signed the Africa-1 submarine cable. Etisalat Group's infrastructure is optimized for various wholesale customers with a special focus on the requirements of hyper-scalers and other players that are looking for ecosystems that best suit their edge node connectivity requirements. Etisalat Group also invested in network virtualization to enable connectivity and services in no time using Bandwidth-on-Demand (BoD) and Software-defined Wide Area Network (SDWAN) platforms. The communications platforms such as CPaaS and UCaaS are Etisalat's new logical evolvement for voice and messaging service, enabling its valued partners to address their digital needs. This milestone positions Etisalat Group as one of the biggest diversified carriers in the MENA region.

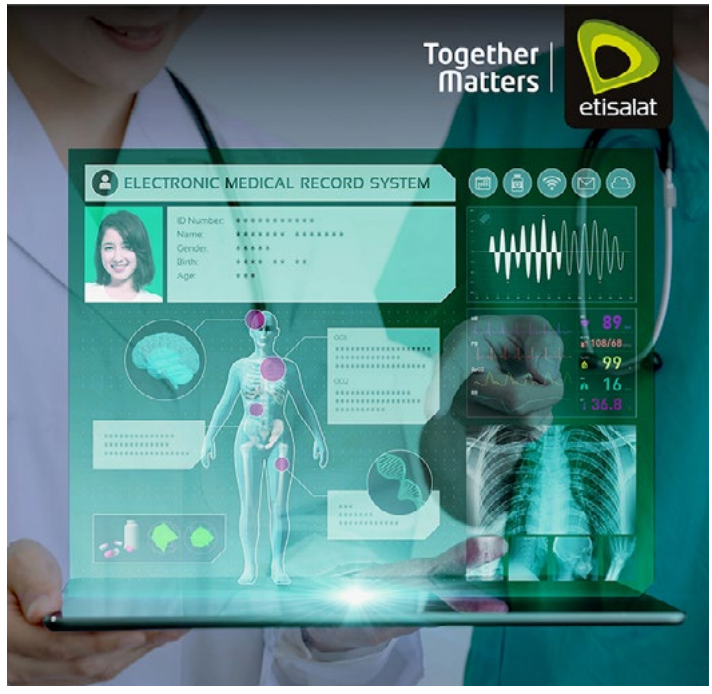
Etisalat Scoops Three Awards at ADDA ICT Leaders Meeting

Etisalat announced that it was recognized for its unwavering commitment to Abu Dhabi's digital transformation journey at the Abu Dhabi Digital Authority ICT Leaders Meeting. Organized by the Department of Government Support (DGS), represented by Abu Dhabi Digital Authority (ADDA), the ADDA ICT Leaders Meeting saw industry leaders and private sector representatives gather at the Abu Dhabi National Exhibition Centre to discuss the strategic pillars of Abu Dhabi Digital agenda, and shed light on ADDA's planned initiatives and engagements for 2022. H.E. Dr. Mohamed Abdelhameed Al Askar, Director General of the Abu Dhabi Digital Authority, presented the 'Government Services' award to Masood M Sharif Mahmood, CEO, Etisalat UAE. The award recognizes an entity for establishing a seamless, hassle free and personalized experience across channels. Abdulla Ebrahim Al Ahmed, Senior Vice President, Government Sales at Etisalat, received two awards on behalf of Etisalat. The 'Information Security' accolade honors an entity that safeguards government digital infrastructure, systems and data. The 'Shared Government Solutions' award acknowledges an organization's commitment to drive synergies and create incremental value from joint initiatives across government entities. Etisalat has made great strides over the past few decades in the digitalization of services across different sectors such as education, business, and entertainment, to drive the UAE's digital transformation. The UAE leadership is the inspiration and motivation behind every success that Etisalat has had on its own journey, remaining committed to its vision of

'Driving the Digital Future to Empower Societies'. The acceleration of digital transformation is at the core of Etisalat's strategy as it transitions from a traditional telecom operator to an integrated ICT and digital solution provider. Etisalat is currently leveraging its wide range of digital technologies and services and powering a great digital-first experience to encourage digital adoption by its customers. Its own digital transformation is enabling the Group to execute its strategy, and is facilitating a paradigm shift to a new operating model that nurtures innovation and agility

Etisalat Launches Business Edge Healthcare Platform

Etisalat has announced the launch of Business Edge Healthcare platform, a plethora of services dedicated to enhance and empower hospitals, ambulatory practices and medical staff with seamless, secure and practical solutions to enhance day-to-day operations in all business phases of the various departments. This falls in line with UAE's leadership's vision and the Department of Health's (DoH) overall objectives of enabling the use of digital health supporting clinics utilizing digital technologies to improve health, care delivery, and informed decision-making for a better patient experience. Dr. Hamed Ali Al Hashemi, Advisor to DoH Chairman at Department of Health – Abu Dhabi, said: "We welcome the launch of Etisalat's healthcare platform that will further boost the digital transformation process of healthcare in Abu Dhabi with locally hosted solutions. This will entice all market participants to adopt digital solutions that will enable them to provide a higher standard of patient care, as our joint goal." Etisalat's Business Edge Healthcare platform offers various business benefits to the health care sector. The pre-integrated telemedicine module allows doctors to conduct live video consultations with their patients. The cloud electronic medical records (EMR) solution on the platform is HIE (Health Information Exchange) ready as well as a clinical care and telehealth solution optimized for small to medium-sized clinical practices providing ambulatory care to patients. Etisalat's Business Edge Healthcare solution hosts a number of benefits such as quick set-up and provisioning; a monthly subscription with no significant upfront cost; and a customizable solution with a built-in modular approach. It also covers all outpatient department operations, including scheduling and patient check-in and checkout. Esam Mahmoud, Senior Vice President, SMB, Etisalat, said: "The emergence of COVID-19 and its devastating impact have brought irrevocable changes to our lives and the global economy. This demands agile solutions that empower frontline workers with the best in technology and continuous access to health services in a safe and convenient way. This solution is a testimony to bringing digital transformation to small businesses as it provides tools and services that will help them achieve a world-class healthcare system." Other benefits include an intuitive patient app available on iOS and Android app stores; an interoperable solution with capabilities to integrate with other healthcare solutions; and a complete clinical documentation module allowing patient transactions and records. Laboratory and X-ray results will be securely stored on the cloud, while a "speech to text" feature will make it easier for clinicians to capture patient history and charts. The solution also features a video surveillance as a service and a thermal camera solution to detect elevated skin-surface temperatures and reduce false alarms, analyze and track with the point of sale service, cloud hosted end point security guaranteeing protection from the most invasive cyberattacks, unified communications, managed Wi-Fi solutions and managed devices.



Orange Jordan and the German Development Cooperation Inaugurate the 8th Orange Digital Center in the Middle East and Africa

Orange (www.Orange.com) and the German Development Cooperation are inaugurating an "Orange Digital Center" in Amman, a digital ecosystem entirely dedicated to the development of digital skills and innovation to train young people in digital technology and enhance their employability. The event brings together government and administrative authorities of Jordan, representatives of Germany and France in Jordan, GIZ Jordan as an implementing partner, and members of the group's board of directors and executive committee. Orange headed by its Chairman and CEO Stéphane Richard. After Tunisia, Senegal, Ethiopia, Mali, Ivory Coast, Cameroon and Egypt, it is in Amman, Jordan, that this new Orange Digital Center is inaugurated. Spread over 630 m², the Orange Digital Center in Jordan brings together three strategic programs of the Orange group, namely; a coding school, solidarity FabLab – one of the digital fabrication workshops of the Orange Foundation -, and a Orange Fab (BIG by Orange) start-up accelerator, supported by Orange Ventures Africa, the investment fund. All programs are free and open to everyone. They range from digital training for young people, 90% of which are practical, the acceleration of start-ups, and support

for project and investment leaders. In addition, Orange Jordan and the Ministry of Youth have agreed to establish an Orange Digital Center club at Zarqa Youth Club, as well as another Orange Digital Center Club in cooperation with the Jordanian German University, thus completing the education system for give as many people as possible access to new technologies and help them take full advantage of these technologies. Working in a network, the Orange Digital Centers allow the sharing of experiences and expertise between countries and offer a simple and inclusive approach to improve the employability of young people, encourage innovative entrepreneurship and promote the local digital ecosystem. Orange and the German Development Cooperation are working together within the framework of a development partnership within the developed program, which the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is implementing on behalf of the German Federal Ministry for Economic Cooperation and of Development (BMZ). The objective is to realize their common vision, to promote the employability of young people while supporting sustainable growth and the digital transformation of the country. The program also works to advance gender equality and inclusion by promoting the access of women and girls to ICT jobs. Using digital technology, this program focuses on the following sustainable development goals, in line with the United Nations 2030 Agenda for Sustainable Development: (4) quality education, (5) gender equality, (8) decent work and economic growth, (9) industry, innovation and infrastructure, (10) reducing inequalities and (17) partnerships for goals. Stéphane Richard, Chairman and CEO of Orange, says: "Orange acts as a responsible company in all of its activities. This sense of responsibility is a central value that has been placed at the heart of the Group's strategic plan, Engage 2025. In order to promote digital services as a vector of inclusion and to make them accessible to as many people as possible, we want to open an Orange Digital Center in all the countries where we are present by 2025. This ambition clearly demonstrates our desire to harness the positive force of digital innovation. Alioune Ndiaye, Chairman and CEO of Orange Middle East and Africa, said: "I am very proud to inaugurate the eighth Orange Digital Center in Amman today. This new Orange Digital Center is part of a network of 32 Orange Digital Centers which will be deployed not only in Africa and the Middle East, but also in Europe. The main objective is to democratize access to digital technology for young people – graduates or not – by giving them access to the latest technological trends to strengthen their employability and prepare them for the jobs of tomorrow. Bernhard Kampmann, Ambassador of the Federal Republic of Germany to Jordan Remarks: "The Orange Digital Center contributes to Jordan's digital transformation while creating local employment opportunities for young people. It shows the commitment of Germany and Europe to promote inclusive and human-centered digitization around the world. Elizabeth Tchoungui, Executive Director CSR, Diversity and Sponsorship of Orange, Vice-President of the Orange Foundation adds: "This major project is a key step in our social responsibility for digital inclusion, in particular for young people and women. The Solidarity Fablab, the flagship program of the Orange Foundation, is an essential building block of this socially useful action, by allowing beneficiaries without access to digital tools to reconnect with the professional world: the start of a beautiful journey which, through development of technical skills and by the complementarity of the devices deployed, goes as far as the creation of companies. "Thierry Marigny, CEO of Orange Jordan commented: "Being here today is a testament to our commitment to our role as a responsible digital leader and partner of the Kingdom in the digital transformation. The programs that we implement with the support of our partners help us achieve our goals by empowering young people and giving them keys to improve their digital skills in order to support their employability chances and contribute to the entrepreneurial ecosystem. in Jordan. Orange is present in 18 countries in Africa and the Middle East and had more than 130 million customers as of September 30, 2021. With 5.8 billion euros in sales in 2020, Orange MEA is the leading hub for growth of the Orange group. Orange Money, its flagship mobile money transfer and financial services offer, is available in 17 countries and has more than 50 million customers. Orange, a multi-service operator, a key partner in digital transformation, brings its expertise to support the development of new digital services in the Middle East and Africa.

Mobily Posts 40% Increase in Net Profit in 9M21

Saudi Arabian mobile network operator (MNO) Etihad Etisalat (Mobily) has published its financial results for the nine months ended 30 September 2021, reporting a 4.0% year-on-year increase in revenues to SAR10.937 billion (USD2.9 billion), up from SAR10.513 billion in 9M20. The company claims that the positive result was due to the growth of revenues generated by its business unit, the increase in its fibre-to-the-home (FTTH) active base and the growth of its overall subscription base. Further, EBITDA increased to SAR4.098 billion in 9M21, up by 3.3% y-o-y, while interest and financial charges decreased from SAR434 million to SAR373 million in the period under review, reflecting the company's efforts to reduce funding costs by refinancing of a big portion of its debts. Net profit, meanwhile, improved by 39.9% y-o-y from SAR751 million to SAR751 million in 9M21. CAPEX for the first nine months of 2021 amounted to SAR885 million versus SAR1.765 billion for the similar period of the previous year.

Omantel Selects Hughes to Extend Mobile Network Reach

Hughes Network Systems has announced that Omantel has selected the Hughes JUPITER System to extend its mobile networks to serve more customers in remote and rural areas of Oman. Omantel will deploy satellite backhaul of cellular network traffic using JUPITER System equipment, including a gateway hub and hundreds of remote terminals. In use at more than 12,000 mobile sites across Africa, Asia and Latin America, the JUPITER System offers a low-cost and effective means of interconnecting cellular base stations, regardless of distance, infrastructure or terrain. 'Our aim is to connect more subscribers in more places throughout the Sultanate, and satellite backhaul helps expand our network into areas where terrestrial backhaul is onerous or cost-prohibitive,' said Bernhard Van Der Merwe, Vice President Technology at Omantel, adding: 'We chose the Hughes JUPITER System due to its high performance and efficiency, as well as scalability for the future. This solution will enable us to cover new areas with our broadband services catering to the needs of individual and business customers across the country and enabling our digital society to grow and expand.'

Omantel to Upgrade Optiva Convergent Charging Engine

Omantel, the integrated telecom services provider in the sultanate, has signed a multi-year agreement with Optiva to upgrade Optiva Charging Engine™ to a cloud-native architecture on Omantel's private cloud. The upgrade represents the next phase of Omantel's digital transformation strategy to use technology and automation to drive superior customer experience and significantly improve time to market for new services. The upgrade will support new business models for 5G monetization and introduce Optiva Test Framework to reduce deployment time by up to 70%. As a result, Omantel will gain platform capabilities to deliver new customer-centric services and expand its customer base across consumer, fixed, broadband and enterprise market segments, supported by Optiva's platform. "With Optiva as our partner, we feel confident to execute our digital transformation strategy and play our role in the Oman 2040 vision. Optiva's cloud-native technology leadership and automation framework will allow us to launch services faster as we embark on the next phase of our growth with 5G and new digital services," said Samy Ghassany, COO of Omantel.

Omantel Wins Top Honors at Alam Al-Iktissad Wal-Amal (AIWA) Awards

Omantel, Sultanate's pioneering integrated telecommunications services provider, bagged top honors at the recently held Alam Al-Iktissad Wal-Amal (AIWA) awards. While Omantel was named the 'Nation Builder of the Year', Talal bin Said Al Mamari, CEO of Omantel, was honored with the 'CEO of the Year in the telecom sector. The AIWA awards, organized by Alam Al-Iktissad Wal-Amal magazine, felicitates top-performing companies in Oman. The coveted award honors companies that have attained extraordinary achievements and innovations. The commendation reaffirmed Omantel's prowess as a leader in network. ICT, operations, new implementations, innovative products and services. The only telecom company to be honored at the awards, Omantel was recognized for its leadership in building the nation, supporting the society, encouraging the youth and sustaining its business partnerships. Talal Al Mamari was honored for leading Omantel, a world-class telecom company, through a major evolution towards greater sustainability. He was recognized for maneuvering the company by embracing change and enhancing its focus on innovation, technology, and digitalization. Under his leadership, Omantel has achieved operational distinction while setting global standards in finding sustainable social solutions benefitting businesses, people, and communities. He has led & supported many of the company's major projects and initiatives such as its initial public offering to divest government's stake. He also played an important role in Omantel's second IPO and in the company's acquisition of 21.9% stake in Kuwait-based Zain Group. Talal Al Mamari said, "We are delighted to receive this prestigious award which recognizes the hard work of our team during a period that changed the work and life landscape. Committed to globally benchmarked quality, Omantel believes in constantly innovating to offer the very best for our customers. I am also personally honored to be named the 'CEO of the Year' for which I owe to the team at Omantel. We believe in contributing to the nation's growth and are committed to taking on bigger challenges in the future. We will strive to continue to offer customers a best-in-class experience to meet and exceed their needs." Omantel has been sustaining the title of a 'nation builder' through it's various initiatives. The company allocates OMR 500,000 every year to launch and support CSR projects. It builds the capacities of Omani youth by empowering them in various fields through training programmes. In addition to providing business opportunities, supporting SMEs through customized solutions and packages is a priority for the company. The company launched Omantel Innovation Labs and co-founded the OMHUB platform to support entrepreneurship and innovation. The firm has been investing in the latest telecommunications technologies to achieve the objectives of the National Digital Economy Program in accordance with Oman Vision 2040. Omantel is the Sultanate's first and leading integrated telecommunications services provider, enabling the digital society to flourish, allowing new ways of doing business and delivering a world of information, news and entertainment. While striving to ensure optimum customer satisfaction, Omantel plays a key social role to provide the necessary support and subsidy to all sectors of the Omani society.

Six Omani Start-Ups Join Omantel's Innovation Labs

Omantel, the leading telecommunications company in Oman, is thrilled to announce that six innovative Omani Starts-Ups have successfully joined the Omantel Innovation Labs as part of the first cohort of the Omantel Accelerator. The Omantel Accelerator, delivered in partnership with Brinc, is tailored to the needs of each of the participating startups to support them to refine the technical feasibility, market desirability, and financial viability of their products and operations. Only six startups were selected after a rigorous selection process led by Oman Technology Fund, which included online applications, a three-day bootcamp and interviews with subject-matter experts from Omantel, OTF and Brinc .

The six companies are:

- Autoplant an AI and IoT solutions for the farming industry to improve agricultural decision making
- Lamma, Oman's first super app, a unified communication platform with payment integration
- Mamun, an embedded credit, payments & insurance platform

- Mubader, an IoT and AI tool providing data to support in the management and care for livestock,
- Pixel Tech, a subscription- based tool that allows sellers in the GCC to easily set up digital stores and sell their products online
- Remedy.om, a platform that connects patients with clinics and therapists.

The selected startups will have access to local, regional and global networks of mentors, technology, perks, guidance for successful geographical expansion, and potential investment opportunities offered by Omantel, OTF, and Brinc. Startups will also receive a free working space at the Omantel Innovation Labs located in the Omantel headquarters in Muscat. In addition to the accelerator, Omantel Innovation Labs will organize, participate in, and host multiple activities to support Omantel's internal innovation agenda by providing systematic spaces, approaches, events and activities that can accelerate product conceptualization, prototyping, testing and deployment of solutions to Oman and Omantel-centric challenges. Commenting on this, HH Al Sayyida Ghada Jaifar Al Said, Senior Manager Omantel Innovation Labs said: "The Omantel Innovation Labs aim to put Omantel at the heart of Oman's technology start-up ecosystem and to apply our resources to boost entrepreneurial growth, knowledge sharing, collaboration and economic development. We want to support and tap into new ideas and technologies, stay ahead of the curve and drive local innovation. Our ambition is to leverage Omantel's expertise, partnerships, reach, and access to technology to contribute to Oman's Vision 2040 and promote innovation and entrepreneurship in new and emerging technology." The key focus of the program is to cultivate entrepreneurial skills among the youth and accelerate the growth of relevant Oman-based technology startups across five technological verticals: 5G, Internet of Things, Cybersecurity, Customer Experience Technology, and Big Data. CDO & MP of Brinc MENA, Yasin Aboudaoud, stated: "We are always on the path of empowering Game-Changers venture, especially during these uncertain times. We believe that global economics now recognizes the role and the value of innovation, technology, and connectivity to secure business continuity and economic growth. We will enable Omani Game Changers to flourish by providing extensive guidance to de-risk their ventures and ensure that they play an active role in solving local, regional, and global challenges. We are thrilled to collaborate with Omantel to transform the region into one of the leading tech telecommunication startup hubs."

Zain Kuwait Resolute 5G Investment Delivers Business Success

Zain Kuwait's 5G traffic currently accounts for more than 40% of its total wireless traffic, ranking the operator as number one in GCC countries in terms of 5G offload ratio. Zain Kuwait is one of the leading telecom operators in MENA and has been at the forefront of innovation for years as the first operator to launch commercial 5G services in the Middle East. From the 5G service development and business achievements of Zain Kuwait, it is clear that the focus on 5G development brings business success to operators. Zain Kuwait started deployment of 5G networks in 2018. After two years of continuous development, 5G services have entered a period of high growth. Users are continuing to develop rapidly, and the proportion of 5G traffic has also been increasing continuously. This has resulted in positive revenue and profit growth for the operator. Zain Kuwait has achieved the 5G subscriber penetration ratio of 23%, and the average DOU of its 5G subscribers is five times higher than that of its 4G subscribers. Zain Kuwait's mobile network also recorded revenue and profit growth of 4% and 13% year-over-year in Q2 2021. This is an outstanding achievement especially when there is no population dividend and the expatriate population in country has been continuously decreasing. Zain's 5G development leads the Kuwait telecom market, and its business success has been a result of its overall strategic objective to provide first-class 5G services for users in Kuwait. Zain Kuwait has firmly invested in 5G for the fastest network construction with the widest coverage, building a foundation for user experience Network coverage is the basis for user experience. Zain started 5G C-band construction in 2018. In Q3 2019, it completed coverage of major urban areas. By early 2020, it achieved 1:1 construction ratio with its LTE network. Focusing on fast and value-based network construction, Zain Kuwait was able to quickly exploit the benefits of enhanced 5G network coverage. Leading the network construction lays the foundation for creating 5G business advantages. For instance, Zain was the first operator to commercialize 5G

networks in Kuwait. In the commercial release phase, Zain provided the most extensive 5G coverage and best services owing to its focus on network construction. Within six months of the commercial launch, Zain reached 100% coverage, forming the first-mover advantage of 5G networks for itself. User experience is the key In leading 5G experience targets to drive network experience leadership With the goal of providing a first-class 5G

network experience, Zain insists on higher standards of 5G network construction to ensure high-speed and reliable services for all the users. As a result, the investment in network planning and network construction was increased, which enabled Zain Kuwait to win Ookla's Fastest Fixed Wireless Network Provider Award in 2020 and to lead the Open signal Global Experience Test reports as well. A great network experience enhanced Zain's brand and helped it achieve greater commercial competitiveness.

Zain awarded 'Best Brand' at Telecom Review Excellence Awards 2021

Zain Group, a leading mobile telecom innovator in seven markets across the Middle East and Africa, announces its Zain brand has been identified as the 'Best Brand' for telecom in the Middle East for 2021 at the Telecom Review Summit Excellence Awards gala ceremony held in Dubai on 8 December, 2021. Zain Saudi Arabia was also awarded 'Best 5G User Growth' and 'Most Innovative Service' for its Yaqoot mobile-only platform. Telecom Review is a leading industry publication and the award recognizes the outstanding performance of Zain's brand across all its markets, which has come to represent the highest standard of customer service across all of its touchpoints. Winners were chosen based on demonstrable capabilities in their specific sector by an independent panel of 15 experienced industry veterans. Zain has been a recipient of the 'Best Brand' accolade at other regional events in the past, confirming the success of its media campaigns, corporate sustainability, and diversity and inclusion initiatives, as well as its ongoing innovation and investment in network upgrades. These factors combined have resulted in exceptional customer experience since the introduction of the Zain brand in 2007, making it one of the most respected and recognized corporate brands in the Middle East and Africa. Zain remains passionate about forging strong partnerships and bringing new dynamic services to its customers, evident by the recent launch of Zain Esports and the expansion of Zain's API platform in offering unique and appealing content and gaming services. Zain also recently launched Zain Ventures to reinforce its efforts in the startup ecosystem, as well as launching ZainTech to offer enterprises and governments across the region unique, one-stop shopping across the full stack of ICT services. The company's marketing campaigns across the region on various media channels have captured the hearts and minds of millions of people. Zain's Ramadan and Eid television commercials this year received a remarkable 20 million views on YouTube, indicative of the brand power of Zain. Today, Zain Group and its local operations

boast over 12 million fans on Facebook, more than seven million followers on Twitter, 2.4 million on Instagram and 665,000 on LinkedIn, totaling 22 million fans. Annually, Zain Group and its operations' numerous YouTube channels receive in excess of 100 million views. Zain was also the first operator to launch commercial 5G networks in both Kuwait (June 2019) and Saudi Arabia (October 2019), followed by Bahrain (June 2020); developments that are positively impacting customer experience and innovation. Sustainability, transparency, and thought leadership lie at the core of Zain's business and this is reflected in every aspect of the company's day-to-day operational activities. Zain's annual Sustainability Report highlights the company's continued regional leadership in pursuing its sustainability agenda and supporting the communities it serves through outreach activities such as climate change, children's rights, capacity-building, education, socio-economic development, and environmental stewardship. Zain's diversity and inclusion program has also proven extremely successful in further motivating employees given it is one of the most progressive of any entity in the region.

Zain Mulls $1.3B Offer for Sudan Operations

Zain Group began due diligence on a $1.3 billion offer for its mobile and ICT managed services businesses in Sudan made by a subsidiary of local conglomerate Dal Group. In a stock market statement, Zain revealed it had received the bid for mobile operation Zain Sudan and its sister managed services company Kuwait Sudanese Holdings from Dal Group subsidiary Invictus Holdings. Dal Group is a business based in Sudan with a diverse range of domestic interests spanning the agriculture, energy, mining, healthcare, consumer goods and automotive sectors. Zain noted it was conducting due diligence on the offer before deciding whether to initially approve the deal. It also clarified the deal did not include Zain's business in South Sudan, a country which became independent several years after the operator began providing services to its citizens. Its operation in the new country was subsequently spun-off into a separate division. In Zain's financial statements for each of the first three quarters of 2021 it has bemoaned currency devaluation in Sudan as negatively impacting earnings. However, in Q3 it also pointed to positive subscriber additions in the market and changes being made to its pricing structure in an attempt to mitigate foreign exchange losses.

Arthur D. Little Appoints Francesco Acanfora as Partner to Lead Healthcare & Life Sciences in Italy

Arthur D. Little (ADL) announced that Francesco Acanfora has been appointed as a Partner in Italy, where he will lead the local Healthcare & Life Sciences practice. Based in the company's Milan office, Francesco brings a wealth of experience to ADL, with a particular expertise in developing new business architectures and running digital transformation programs for life sciences companies. Prior to joining ADL, Francesco was Managing Director for Life Sciences at Accenture, Milan, and was responsible for driving the division's financial growth while ensuring that its clients benefited from continuous innovation in response to industry trends. From 2015 to 2018, Francesco was Corporate Director for Demand Management and Digital Innovation at A. Menarini Pharmaceutical Industries Group, having joined the company in 2012; and from 2006 to 2012, he was Strategy & Enterprise Architect at multinational catering company Autogrill. Saverio Caldani, Managing Partner at ADL Italy and Spain, comments: "I am very happy to welcome Francesco to our Italian team. His arrival will strengthen the Milan office and his proven leadership skills will ensure the continued growth of our Healthcare practices in Italy and Spain. Servicing the local pharmaceutical sector is a fundamental part of our future development strategy." Ulrica Sehlstedt, Global Leader of ADL's Healthcare & Life Sciences practice, comments: "As an expert in helping life sciences companies with their digital transformation journeys, Francesco has an important role to play at ADL. These companies are on the frontline of protecting us against potential new threats to our health and well-being, as well as diagnosing and treating us when infections occur, so it is vital that their digital infrastructure and enterprise architecture is both as robust and innovative as possible." Francesco Acanfora, Partner at ADL, adds: "Life sciences is one of the most complex and demanding sectors in business, with a constant drive to develop new products and solutions. From research and trialing to governance and production, every step has to be fine-tuned for maximum efficiency. As such, the technologies and systems that companies use must always be fit for purpose, because those that lag behind in developing their digital architecture will quickly be overtaken by their competitors." Francesco has a degree in Computer Engineering from the University of Naples, Italy.

AT&T Helps Federal Agencies Modernize Their IT Infrastructure

AT&T has launched an integrated, managed cybersecurity solution to help U.S. federal agencies modernize and protect their IT infrastructure in compliance with Trusted Internet Connection (TIC) 3.0 cybersecurity guidance. AT&T Government Trusted Internet brings together software-defined wide area networking (SD-WAN) technology, security capabilities and fiber connectivity in a 24/7 managed solution through a single provider. The comprehensive, scalable solution integrates with the AT&T Managed Trusted Internet Protocol Service, extending highly secure remote access to federal agency workers and branch offices. As federal agencies increased their adoption of mobile and cloud technologies in 2020 to support telework, cyber risks and requirements changed. These changes prompted new TIC 3.0 guidance from the federal government's Cybersecurity and Infrastructure Security Agency to protect federal data and networks and provide visibility of cloud and remote users. The need for federal agencies to modernize their IT infrastructure also increased this year with the White House Executive Order (EO) on Improving the Nation's Cybersecurity in May. The EO calls for bold changes and investments to improve the cybersecurity posture of the federal government including moving to Zero Trust. Zero Trust is a security framework requiring all users, whether in or outside the organization's network, to be authenticated, authorized, and continuously validated for security configuration and posture before being granted or keeping access to applications

and data. AT&T is a trusted network provider to U.S. federal government agencies, helping them maximize network efficiency and performance no matter where they are on the network transformation continuum. AT&T Government Trusted Internet meets federal agency requirements for highly secure remote connectivity supporting remote users and branch offices. The solution optimizes network performance while allowing government agency users to connect directly to the internet to access cloud-based applications in a highly secure manner. It provides centralized network visibility across users, devices, and locations to monitor users whether they are on or off the network to reduce security risks. These capabilities allow federal agencies the flexibility and speed they require as they modernize their IT infrastructure. AT&T Government Trusted Internet delivers threat analysis and correlation through the AT&T Security Operations Center and AT&T Alien Labs Open Threat Exchange® global threat sharing community to help federal agencies monitor and reduce ongoing cybersecurity risks. The solution includes additional capabilities such as Zero Trust Network Access to provide highly secure remote access to applications, data, and services based on clearly defined access control policies. AT&T Government Trusted Internet is immediately available to U.S. federal agencies. Chris Kissel, Research Director, Tier 2 SOC Analytics, IDC said "Federal agencies want to stay ahead of evolving cyber threats and comply with TIC 3.0 and the Executive Order, but they also want as little friction as possible. What I see as compelling about AT&T Government Trusted Internet is it considers all of the possible use cases including remote workers and the practical implementation of Zero Trust. Additionally, the AT&T Security Operations Center and AT&T Alien Labs Open Threat Exchange provide monitoring and security insights." Brandon Pearce, AVP, Product Marketing Management, AT&T "The shift to saidtelework and increased cyber threats have created urgency for federal agencies to enhance the security of their IT infrastructure. AT&T Government Trusted Internet helps federal employees to efficiently connect to remote agency networks and cloud environments in a highly secure manner while continually managing risks."

AT&T Launches 5G in Mexico

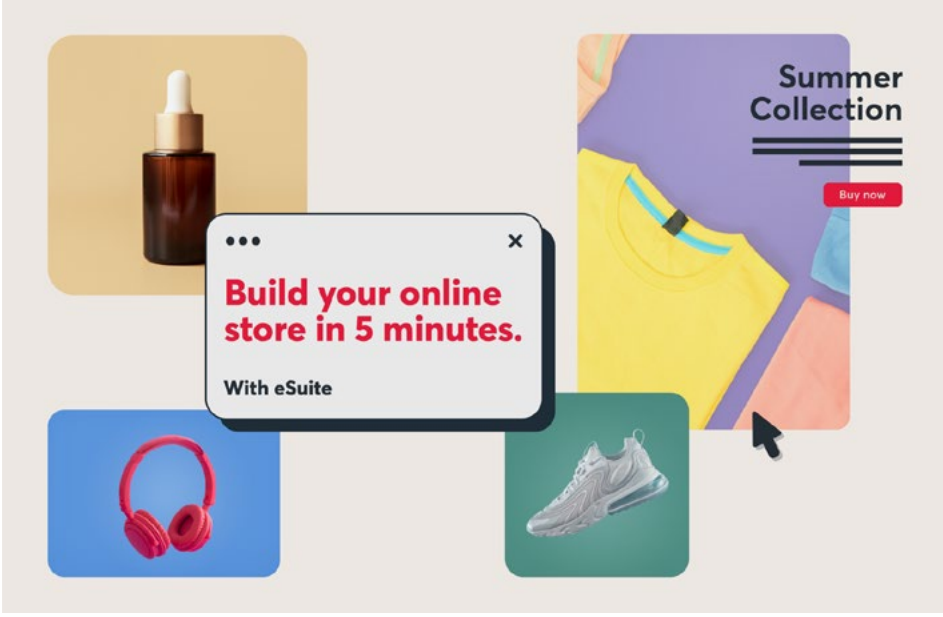
AT&T has announced that it has activated 5G technology in Mexico. The cellco says it will expand its 5G coverage on a gradual basis, starting with industrial and urban areas, while continuing to operate its 3G and 4G networks. Nicole Rodriguez, Vice President and CTO at AT&T Mexico, commented: 'In the next three years we will deploy 5G in the main markets of the country, starting with the most important cities.' 5G access is initially available via the Honor 50 smartphone; AT&T notes that the first 50 handsets were connected to its network on 8 December. While the official press release is lacking in specifics, local press reports have indicated that AT&T is using spectrum in the 2.5GHz band to deliver coverage to the Cuauhtemoc and the Napoles districts of Mexico City.

AT&T Forecasts Industry-Wide Investment

AT&T CEO John Stankey forecast a banner year for infrastructure investment in 2022 and told investors he expects the operator to complete planned asset sales despite protestations by some US politicians. During the UBS Global TMT Virtual Conference, Stankey predicted the wireless industry will invest heavily in infrastructure in 2022 due to the availability of C-Band spectrum and new air interfaces. "This is going to be a phenomenal year in terms of re-investment back into infrastructure in the US on behalf of the industry in total", Stankey projected. He added AT&T plans to increase investment, noting opportunities in building "more robust wireless networks" in rural areas to take advantage of government broadband subsidies. AT&T estimated 2021 capex at $17 billion: it previously stated the figure will rise to $24 billion after it completes a sale of WarnerMedia to Discovery. Stankey believes the combination will proceed according to plan, despite a recent call by politicians for close scrutiny. The AT&T chief noted a recent move by Amazon Web Services (AWS) to provide private 5G services to enterprises sounded like an appropriate solution for business customers which do not need to support mobile devices beyond their own sites, adding the service could likely outperform Wi-Fi. "In that regard, they're solving a market problem", Stankey said. "I don't think we have a scaled enough and simple enough offer in that space right now". Stankey noted AT&T has focused on "more complex environments", but admitted "there's a lot of great opportunity in enterprise right now, especially in healthcare, especially in manufacturing". The CEO said AT&T may "equip the network to…move down market and offer more economical solutions", but was presently focused on serving the "upper end of the market".

Move Your Business Online with "eSuite" from Batelco

There's no doubt that owning a physical retail shop is not enough to grow your business and reach all your potential customers. Breaking the physical barriers and establishing an online store is essential for today's businesses. To help merchants create online stores, Batelco launched an eCommerce platform "Batelco eSuite" powered by Hoodly, a multi-channel commerce ecosystem designed to help sellers start, run, and grow their business. "Batelco eSuite" enables merchants to create online stores within minutes through few easy steps; signing up, listing items with photos, prices, and quantities, and their ready to sell, without any paperwork or set-up fees. Merchants don't need to hire developers to set-up the store, the platform is user-friendly and provides clear instructions. The online store is mobile optimized, meaning customers will have a consistent shopping experience whether they're using a browser on their laptop or their mobiles. "We at Batelco pay great attention to the SME segment as it is an important pillar in Bahrain's economy. We proactively deliver solutions that support SME growth, helping them to operate more efficiently. Earlier this year, we launched "Business in a Box", a package that offers a full set of technology tools for SMEs, and now to complement our growing portfolio, we're offering a solution that allows merchants to sell online. "Batelco eSuite" provides a fully customizable solution, with localized payment methods," commented Abdulla Danish, Batelco's A/General Manager Enterprise. Merchants can manage their account through a user-friendly dashboard with bi-lingual store administration. Other interesting features include managing inventory for each product, setting up your own domain name, a built-in tax tool to make compliance simple, and much more. Shoppers browsing products on the online store will find local payment methods from Bahrain based providers, such as Tap payments, allowing a seamless payment and delivery experience for users. Commenting on the launch, Hoodly's co-founder Sebastian Wussler said, "We are pleased to announce our strategic partnership with Batelco. Hoodly will be fully integrated in Batelco's digital business services and be distributed exclusively through Batelco in the Kingdom of Bahrain. Together we enable entrepreneurs and SME's to get their business online easily and in less than five minutes." The good news is that Batelco is offering a full-featured, three-month free trial period. Following that, should customers decide to continue using the service, they will only be charged BD9.900 per month.



DISH and Cisco Partner to Drive Wireless Disruption and Innovation for Enterprises

DISH Wireless and Cisco have announced a multi-layered agreement to accelerate 5G services in the United States. The partnership is designed to enable businesses to capitalize on DISH's 5G network and application infrastructure to support new hybrid work models. Together with Cisco, DISH will unlock the value and benefit of 5G for businesses by building the United States' first smart 5G network. This open and secure network allows DISH to customize solutions and enable enterprise-driven slices of its network to meet the needs of specific industry verticals. Unique to DISH's network, this customized approach will grant enterprises across industries the access to rapidly reap the full benefits of 5G. "Cisco and DISH are disrupting the mobile and enterprise markets by launching cloud-powered 5G services in record time through innovative technologies, fostering new application development and improving the overall customer experience," said Chuck Robbins, Chairman and CEO, Cisco. "Together, we look forward to helping businesses across industries transform

their networks to support the evolution of hybrid work models, the transition to Network as a Service (NaaS) offers, and the expansion into new markets including IoT." "DISH has compiled an outstanding roster of partners in the wireless industry, and Cisco is a key player helping us launch a customizable, automated, 5G network optimized for enterprise performance," said Charlie Ergen, Chairman, DISH. "Working with Cisco is central to achieving our goal of delivering a best-in-class experience for enterprises. Our ability to continually drive value and enhance capabilities for our customers is a key differentiator for DISH and positions us to disrupt the industry with more innovation, speed, agility and security." The DISH 5G network will be powered by a comprehensive mix of Cisco's latest cloud networking and automation software, as well as a unique blend of end-to-end lifecycle services from Cisco Customer Experience (CX).

Highlights of the Cisco and DISH agreement include:

- Go-to-market strategy: DISH will participate in Cisco's Reseller and Managed Services Program to deliver private 5G services to the enterprise, and the companies will invest in joint go-to-market plans.
- Deployment of an intelligent transport network: Cisco is helping to plan, design and deliver an open, cloud-based network that will predict, self-heal and self-optimize with closed-loop automation for transport network slicing.
- Co-innovation on virtual routing: DISH's 5G network will be powered with fully automated Cisco XRv9K virtualized routers running on AWS, along with virtual Cell Site Routers (vCSR) at the tower. This is a state-of-the-art, fully containerized virtual routing implementation with a purpose-built data plane to unlock the full potential for cloud-native networking.
- New operational models: Cisco is helping DISH build out a lean, world-class DevOps organization that drives automation and improves operational efficiency leading to faster time-to-market with new services, speed to revenue and return on investments. Key outcomes are CI/CD testing and zero-touch onboarding to enable DISH to quickly go from development to pre-production, as well as staging and testing directly to production.
- World-class technology: Cisco will support DISH with the following: IOS-XR operating system for 5G, backhaul and fronthaul transport via Cisco NCS series routers, segment routing for automated traffic management and network slicing, Nexus 9000 series with an Application Centric Infrastructure (ACI) fabric for data center switching, and Cisco Crosswork Network Controller as the transport domain controller including automated service provisioning and assurance.

Cisco and Meta Partner on Open Compute Project Contribution

As part of its commitment to the open source community and the hardware and software disaggregation movement, Cisco announced that it is collaborating with Meta on an Open Compute Project (OCP) contributed design. Meta has deployed the Cisco Silicon One Q200L device along with the Wedge400C Top of Rack (TOR) switch. Cisco Q200L uses 7nm technology to provide a 12.8 Tbps solution for web scale switching and routing. The 12.8 Tbps Wedge400C supports up to 16 ports of 400G and 32 ports of 200G. Meta worked with Cisco to develop and deploy two new next-generation TOR switches. The latest versions of Meta's Wedge TOR, the Wedge 400 and 400C, offer higher front panel port density, and greater performance for AI and machine learning applications, while also enabling future expansions. The Wedge 400 and 400C have several improvements over the Wedge 100S, including 4x the switching capacity (upgraded from 3.2 Tbps to 12.8 Tbps), 8x the burst absorption performance, and a field-replaceable CPU subsystem. "Cisco Silicon One is uniquely positioned in the industry to provide a common architecture across the entire network, enabling massive operational efficiencies for our customers," said Rakesh Chopra, Cisco Fellow, Common Hardware Group Architecture and Platforming, Cisco. "The Q200L is an important part of Cisco's expanding Silicon One product family and as part of our overall disagg component model, it provides Meta a building block to innovate on top of, at hyperscale efficiency and scale."

Global Cisco Study Identifies Top Security Practices to Detect Threats and Ensure Business Resiliency

Cisco released its latest cybersecurity report, Security Outcomes Study Volume 2, surveying more than 5,100 security and privacy professionals across 27 markets to determine the most impactful measures teams can take to defend their organizations against the evolving threat landscape. Respondents shared their approaches to updating and integrating their security architecture, detecting and responding to threats and staying resilient when disaster strikes. Last year's study revealed that five practices had an outsized influence on the overall health of an organization's security program. These include proactively refreshing outdated technology; well-integrated security technologies; timely incident response; prompt disaster recovery; and investing in accurate threat detection capabilities. This year's study analyzed those top five practices more closely to identify success factors. Highlights of these findings include:

Updating and Integrating Architecture

- Investing in a proactive technology refresh strategy is more important than ever, as on average 39 percent of security technologies used by organizations are considered outdated. Unsurprisingly, organizations with cloud-based architectures are more than twice as likely to refresh than those with more outdated, on-premises technologies.
- Organizations with integrated technologies are seven times more likely to achieve high levels of process automation. Additionally, these organizations boast more than 40 percent stronger threat detection capabilities.
- More than 75 percent of security operations programs that do not have strong staffing resources are still able to achieve robust capabilities through high levels of automation. Automation more than doubles the performance of less experienced staff, supporting organizations through skills and labor shortages.

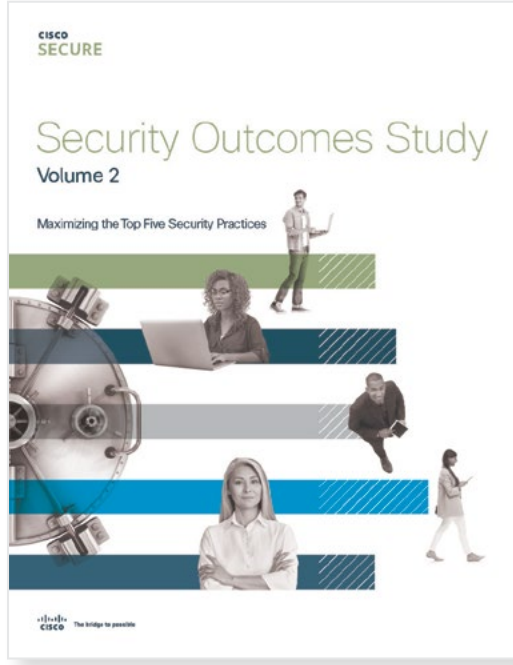
Detecting and Responding to Threats

- The value of cloud-based security architectures cannot be understated. Organizations that claim to have mature implementations of Zero Trust or Secure Access Service Edge (SASE) architectures are 35 percent more likely to report strong security operations than those with nascent implementations.
- Organizations that leverage threat intelligence move twice as fast to repair damage caused by security threats, than organizations that do not use threat intelligence.

Staying Resilient When Disaster Strikes

- As the threat landscape continues to evolve, testing business continuity and disaster recovery capabilities regularly and in multiple ways is paramount, with proactive organizations 2.5 times more likely to maintain business resiliency.
- Organizations with board-level oversight of business continuity and disaster recovery efforts that have operations residing within cybersecurity teams perform best.

"With the shift to hybrid work, organizations are grappling with the increased complexity of securing a distributed workforce," said Shailaja Shankar, SVP and GM of Cisco's Security Business Group. "At the same time, they are also dealing with limited staff and budget constraints, so it's critical for organizations to invest in innovative technologies and security practices. Cisco's Security Outcomes Study, Volume 2 takes the guesswork out of prioritizing security strategies and technologies. By investing in cloud-based, integrated security architectures with high automation, practitioners can respond to threats faster, so they can focus on enabling the business and keeping users safe."



Comviva Launches Next Generation BlueMarble Platform for Digital Commerce and Business Systems

Comviva, the global leader in mobility solutions, announced the launch of its next generation BlueMarble platform. The new BlueMarble is an integrated digital commerce, order management, customer care and partner management platform. Specifically designed for Communication Service Providers (CSPs), it is 5G ready, cloud-native, microservices based, open and modular digital platform that delivers business agility, high performance and flexibility to rapidly offer personalized digital experiences and journey. Comviva's BlueMarble empowers CSPs to serve all customer types (consumers and businesses, existing and new), all channels (assisted, unassisted, current and future), multi-play businesses and actively

leverage partner ecosystems. With the new BlueMarble, Comviva supports the entire digital customer lifecycle from discovery, shopping, ordering, and billing to payment and care. It enables CSPs actively access to new revenue sources while accelerating time to launch and monetize new lines of business, such as 5G, Cloud applications, IoT and virtualized services. Speaking on the occasion, Manoranjan (Mao) Mohapatra, Chief Executive Officer at Comviva said, "We are significantly raising the digital bar with our next generation BlueMarble solution. Industry boundaries have blurred and Communication Service Providers today, are competing against digital native companies at various levels. The new BlueMarble solution represents a major upward shift and will present whole lot of new opportunities for the CSPs in this 5G era, driven by innovation and agility. It shall help organizations quickly launch new products, grow revenue, expand partner ecosystems, and provide world-class customer experiences." "We are intensely customer-focused, in our product roadmaps, consultative led engagements and client advocacy. The new BlueMarble solution provides organizations immense flexibility and technology choices by driving openness and interoperability," further added Mohapatra. With the new BlueMarble, Comviva has introduced an extremely strong proposition for the CSPs to drive their digital transformation journey. The solution has been built with modularity in mind enabling a phased approach to add digital capabilities. Microservices provide the agility to introduce new features and services rapidly, without affecting the rest of the elements. Comviva's BlueMarble solution has been awarded Platinum Badge by TM Forum for Open APIs Conformance. The open APIs enable businesses to monetize and launch bundled services, fast and seamlessly. It enables quick and flexible integration among management systems which makes it easier to build complex services.

Eutelsat's Konnect Africa and Vodacom Partner to Bring High-Speed Broadband to Unserved Regions of Tanzania

Eutelsat Communications (Euronext Paris: ETL) and Vodacom Tanzania PLC have signed a service agreement for packaged services to bring connectivity to underserved regions of Tanzania, leveraging Eutelsatâ€™s EUTELSAT KONNECT high-throughput satellite. Following a successful Proof of Concept trial, Vodacom will commercialize services on the EUTELSAT KONNECT satellite under its own brand, building out its service offer to customers previously unreached by its existing infrastructure, notably in the B2B and hospitality verticals. Installation services will be undertaken by Konnect Africa on behalf of Vodacom. Founded in 2000, Vodacom Tanzania, part of the UKs Vodafone Group, is Tanzanias leading telecommunications company providing a wide range of services for consumers and enterprise including voice, data, messaging, financial services and enterprise solutions and counting over 15 million customers. Vodacom Tanzania PLCâ€™s strategy incorporates inclusion for all while bridging the digital divide gap. As a result, this partnership means a lot to Vodacom, as it will serve people who have been without connection since independence. In service since end 2020, EUTELSAT KONNECT is a new-generation High Throughput Satellite offering unprecedented operational flexibility. Delivering significant resources for broadband services with quasi-complete coverage of Sub-Saharan Africa, it addresses direct-to-user consumer and enterprise broadband services. Commenting on the agreement, Sitholizwe Mdlalose, Managing Director of Vodacom Tanzania PLC said: We are delighted to incorporate satellite to our suite of services, leveraging the state-of-the art EUTELSAT KONNECT satellite to fulfil our mission to deliver connectivity to all regions of Tanzania. With Konnect, Vodacom will cover 100% of the country, connecting all regions, districts and villages no matter how remote they are. With this service, we will connect everyone, this includes areas which are not covered today, giving access to services up to 100Mbps. Philippe Baudrier, Chief Executive Officer of Konnect Africa added: We are excited to partner with Vodacom, a leading pan-African telecom operator, to extend the reach of its services in Tanzania. This agreement illustrates the unparalleled resources of our powerful EUTELSAT KONNECT satellite to satisfy the strong demand for connectivity in underserved regions of the African continent and marks another success in the development of our distribution capabilities following recent additions in Nigeria, South-Africa and DRC."

Eutelsat and Gazprom Collaborate to Reduce Greenhouse Gas Emissions and Improve Energy Efficiency of Gas Pipelines

Eutelsat Communications' (Euronext Paris: ETL) Konnect Russia and Gazprom MKS, a company specializing in gas conservation using mobile compressor stations, have published the results of a major cooperation project aimed at reducing the CO2 emissions of Gazprom's gas transmission subsidiaries. The two-year program focused on reducing the volume of vented gas during repairs on gas pipelines at 13 companies, saw some 400 transfers undertaken using mobile compressor stations across a section of Russia spanning from the North-Western District to the Khanty-Mansiysk region. Over such a vast region, satellite communications was the optimal infrastructure to oversee complex operations including the centralized management of the network of mobile compressor stations, designing the logistics for the movement of complexes, enabling regular monitoring of the works, and assuring round-the-clock communication between dispatch centers and mobile station crews. The program yielded considerable benefits, saving circa one billion cubic meters of natural gas, and equating to a reduction in greenhouse gas emissions of 17 million tons of CO2-equivalent Dmitry Bronner, CEO of Konnect Russia said: "We have been honored to support Gazprom in this hugely meaningful project. The results show how effective satellite internet can be in the oil and gas industry thanks to its ubiquitous coverage and flexible functionality for mobile objects. We hope to continue to partner with Gazprom, and others in projects which serve, among other things, to preserve nature and improve ecological situation in Russia. This program has truly showcased the benefits of aligning ecological ambitions with business objectives, resulting in a win-win outcome for the company, our customers, and our planet."

Huawei Honored at the 3rd Mohammed Bin Rashid Al Maktoum Business Innovation Awards

Huawei has been awarded the prestigious 'Best Performance Award' and the 'Outstanding Performance Award' during the 3rd cycle of the Mohammed Bin Rashid Al Maktoum (MRM) Business Innovation Awards. The awards were presented to Jiawei Liu, CEO of Huawei UAE, by H.H. Sheikh Ahmed bin Saeed Al Maktoum, President of Dubai Civil Aviation Authority, Chairman and Chief Executive of Emirates Airline and Group, and Chairman of the Expo 2020 Dubai Higher Committee. The MRM Business Award ceremony was held under the patronage of H.H. Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice-President and Prime Minister and Ruler of Dubai, with the ceremony hosted by Dubai Chamber. The program recognizes companies who are proven leaders in innovation and whose advances contribute to the development of the national economy and cultivate a world-class business culture in the UAE. This is the third time that Huawei has won the 'Best Performance Award', the first being in the inaugural cycle of the awards in 2017. With three wins, the most by any single company, Huawei was subsequently bestowed with the prestigious 'Outstanding Performance Award' this year. H.E. Abdulaziz Al Ghurair, Chairman of Dubai Chambers, congratulated Huawei for its achievements, saying its exceptional performance sets it as a leading example for other industry players. He further encouraged all winning companies to keep striving for excellence, embrace innovation within their organizations, and continue to raise standards within their respective industries. Jiawei Liu, CEO of Huawei UAE said: "Huawei has always pursued customer-centric innovations that are done openly and collaboratively with the wider ecosystems in which we operate. The business success of our customers is the ultimate measure of the value of any technology, product, or process improvement. The receipt of these MRM Business Innovation Awards are further validation of our efforts to support stakeholders across the UAE to embrace digital transformation and create new value in the economy and wider society."

Huawei began operations in the UAE in 2001 and has since built an extensive presence in the country. To date, Huawei has invested in its UAE presence by setting up a Regional Supplier Center, a Customer Solution Innovation & Integration Experience Center, a Huawei OpenLab for joint innovation, and two offices in both Dubai and Abu Dhabi, amongst other ventures. The MRM Business Innovation Awards also recognize how Huawei's significant R&D investments have enabled the company to develop some of the most advanced technology solutions globally, which are being made available to local organizations in the UAE.

Huawei and Buffalo Reach License Agreement Under Huawei's Wi-Fi 6 Patents

Huawei has announced that it reached a patent license agreement with Buffalo Inc. ("Buffalo"). The agreement provides Buffalo coverage for certain Wi-Fi 6 enabled products under Huawei's portfolio of Wi-Fi 6 standard essential patents (SEPs). Buffalo joins the growing list of global vendors authorized to access and implement Huawei's Wi-Fi SEPs and technologies. "We are pleased to reach this license agreement with Buffalo, which is our first overseas Wi-Fi 6 focused license," said Fan Zhiyong, Global Head of Intellectual Property at Huawei. "We have broader license agreements covering both Wi-Fi 6 and legacy Wi-Fi products, but this agreement marks the emergence of Wi-Fi 6 as the dominant Wi-Fi technology. Huawei is proud to be a key contributor to the all-new Wi-Fi 6 standard, which enables thrilling experiences such as 'smart home' and 'smart factory' innovations." Huawei is open to licensing its patents to industry peers, who in turn enrich lives globally using Huawei's technologies. Huawei estimates there are over two billion active networking devices licensed under Huawei's patents.

EU Ranks Huawei as the World's 2nd Highest Investor in R&D

Huawei has ranked second in the 2021 EU Industrial R&D Investment Scoreboard, up from third place in the previous year's edition. The 2021 EU Industrial R&D Investment Scoreboard is a European Commission publication that ranks the research investment levels of 2,500 companies around the world that comprise 90% of the world's business-funded R&D. The report is prepared by the EU Joint Research Centre (JRC). "Huawei is now ranked as the second-highest private sector investor in research and development in the world. The European Commission Industrial R&D Investment Scoreboard 2021 is recognized as one of the most authoritative global studies into private sector investment in research and development. International collaboration in the areas of research and science is very important so as to guarantee that the most innovative products and services are developed" said Tony Jin, Huawei's Chief Representative to the EU Institutions. Separately, Huawei has also recently been named among the top 25 Global Corporate Startup Stars as part of the annual Corporate Startup Stars Awards, organized by Mind the Bridge under the European Commission's Startup Europe Partnership initiative. In total, 50 companies located in every region of the world have been recognized for their work: 25 as Global Corporate Startup Stars and 25 as Global Open Innovation Challengers. Along with Huawei, companies named in the 2021 Top25 Global Corporate Startup Stars include AB InBev, Allianz, Aramco, AXA, BNP Paribas, Bosch, BP, Engie, Haier, Hyundai, Mastercard, Nestlé, Orange, Samsung, SAP, Schneider Electric, and others. Alberto Onetti, Chairman of Mind the Bridge, commented, "We recognized Huawei's effort in working with startups, and in particular its ecosystem approach that takes into consideration the 'give' as much as the 'take'. In fact, Huawei makes use of its CLOUD infrastructure and of its Huawei Mobile Services to support startups' growth, the development of new products, and the expansion to new markets, while taking advantage of being close to countless cloud-native, AI, big data, and other hi-tech startups." Catherine Chen, President of the Public Affairs and Communications Dept at Huawei, said, "34 years ago, Huawei opened with just 5,000 dollars in registered capital. At that time, we luckily benefited from the generosity of other major companies who were willing to take a chance on a newcomer. So it is no surprise that we have wanted to do our part and pass this warmth and support on to more startups today. We believe this idea of paying it forward is important for healthy ecosystem development. Together with initiatives like our Shining Star program and the Huawei Developer Program designed for individual developers, we want to increase the number of startups in the market and support individual entrepreneurs and developers.

Huawei Sponsors Cyber Security Salons Middle East 2021 to Discuss Cloud Security Challenges and Collaboration

Huawei sponsored the 3rd virtual session of the 2021 Cyber Security Salons on 14th December across the Middle East. As an initiative of Forum Global in partnership with Cullen International, the online event brought together key regional industry experts and Huawei speakers in a panel discussion to explore cybersecurity challenges faced by organizations, and explore opportunities for future collaboration. Cyber Security Salons is a communication platform for stakeholders to meet and discuss cybersecurity policies and regulations, while providing the opportunity for regional and global regulators to explore how they can collaborate on cyber defense. The global series aims to bring in new perspectives from academics, policymakers alongside key opinion leaders and other stakeholders. This Middle Eastern version concludes the 2021 Security Salon series, after events in the Asia Pacific and European regions. The event witnessed a keynote presentation by His Excellency Dr. Mohamed Hamad Al-Kuwaiti, Head of Cybersecurity, UAE Government, and the hosted panel discussion on cloud security and digital transformation featured key regional ICT leaders including Dr. Jassim Haji, President of Artificial Intelligence Group; Ms. Rasha Al Abdali, In-Charge Director of Compliance, Ministry of Transport, Telecommunications, and Information Technology in Oman; Mr. Charbel Chbeir, council member at ARISPA, the industry organization under the League of Arab States; and Mr. Kamal Zian, Chief Security Officer, Huawei Gulf North. From his side, Kamal Zian, Chief Security Officer, Huawei Gulf North, highlighted the role of regional industry experts and technological leaders in cybersecurity: "While recovering from the pandemic, countries across the Middle East realized the importance of cloud as key enabler of digital economies. In Huawei, we are committed to supporting the region's digital transformation by delivering innovative, secure, and safe cloud services." Speaking at the seminar, His Excellency Dr. Mohamed Hamad Al-Kuwaiti, Head of Cybersecurity, UAE Government, noted that we need to keep the ecosystem supporting our digital economy open, transparent, and collaborative. He concluded with how cloud security will be a core part of this new cybersecurity framework because the future of securing cyberspace lies with reining in the cloud, as cloud security tomorrow is cybersecurity of today. Dr. Jassim Haji, President of Artificial Intelligence Group, highlighted how Artificial Intelligence plays a vital role in cybersecurity, and that it won't just be people that solve these issues. With the world in the Zettabyte era, criminals are already using AI, machine learning, and complex algorithms to carry out cyber-attacks. With AI becoming more autonomous, machines will play a greater role in tracking cyber threats in the Middle East and beyond. "AI is a necessity in the future" he said, with more tools emerging with no human supervision, even including drafting policy. Mr. Charbel Chbeir, council member at ARISPA, highlighted a note made by Professor Pierre Catala's presentation on the draft law on electronic communications, writing and transactions, and how the digital revolution enables every individual to communicate with others at any time, and affects everyone in their person and their property. Chbeir noted how the law must adapt to these new parameters of social life. Ms. Rasha Al Abdali, In-Charge Director of Compliance, Ministry of Transport, Telecommunications, and Information Technology in Oman, highlighted how a good balance of policies and good governance are vital today. She continued to stress that data governance ensures that all the stakeholders are on the same page in terms of defining roles and responsibilities. Huawei is a global entrusted ICT partner with leading cloud and cybersecurity expertise and continues to collaborate and contribute to the industry across the region. By working with partners and customers to advance cybersecurity, Huawei continues to support rapid digitization and is a key driver of cloud adoption to support the digital transformation of the Middle East.

Huawei Sponsors Cyber Security Salons Middle East 2021 to Discuss Cloud Security Challenges and Collaboration

5G has landed in Bangladesh! The first commercial 5G network in the country came on-line on 12 December 2021. Rolled out by Teletalk Bangladesh Limited with technical support from Huawei, 5G will expedite Bangladesh's digital transformation and put within everyone's reach the panoply of advanced technologies enabled by the upgraded connectivity. Initially, 5G network

will be available in 6 locations around the Bangladesh Secretariat, the National Parliament area, the Prime Minister's Office, the Bangabandhu Memorial Museum, the National Monument in Savar, and the mausoleum of the Father of the Nation in Tungipara, Gopalganj. Coverage will gradually expand to more regions of the country. A program titled 'New Era with 5G' was held on Sunday at Radisson Blu Dhaka Water Garden to mark the historic launch. Honorable Prime Minister's ICT Affairs Adviser Sajeeb Wazed Joy graced the event as the chief guest. Minister of Posts and Telecommunications Division Mustafa Jabbar joined the event as a special guest. Alongside, Khalilur Rahman, Posts and Telecommunications Division Secretary Md; Shyam Sunder Sikder, BTRC Chairman; Md Shahab Uddin, Managing Director of Teletalk Bangladesh Limited; Yasir Azman, CEO of Grameephone Limited; and Erik Aas, CEO of Banglalink Digital Communications Ltd, also honored the ceremony with their presence. Huawei was represented by Simon Lin, President of the Asia Pacific region; Zhang Zhengjun, CEO of Huawei Technologies (Bangladesh) Limited. Both took part virtually and delivered a congratulatory message to all present at the ceremony as well as Bangladesh as a whole. The Honorable Prime Minister Sheikh Hasina also shared her inspiring comments through a video message. Sajeeb Wazed Joy, Prime Minister's ICT Affairs Adviser, said, "The key to realizing Digital Bangladesh is connectivity. In the era of connectivity, now everything is going digital. I would like to thank the Ministry of Posts, Telecommunications and Information Technology and BTRC. They worked hard to implement 5G. I would also like to thank Huawei for their contribution in implementing the 5G service. We believe that we will be able to keep pace with the developed world, and Digital Bangladesh will continue to move forward." Mustafa Jabbar, Minister of Posts and Telecommunications Division, said, "This is a memorable day for Bangladesh. From only 8 lakh internet users and 4 crore people with mobile connections in 2008, we have been able to bring in drastic changes within 13 years. 2G and 3G are able to satisfy our day-to-day needs, whereas 5G can go much beyond that. It can expand the horizons for industries, businesses, agriculture, healthcare, and much more. Also thanks to our long term digital eco partner Huawei, their continuous effort and advanced technology to accelerate Digital Bangladesh" Simon Lin, President of the Asia Pacific region of Huawei, said, "Huawei has been providing infrastructural support to many countries throughout the world for their roll out of advanced 5G technology. Bangladesh, I believe, will also benefit from the coverage provided by our state-of-the-art technology. For more than the last 22 years, Huawei has been playing a responsible role as one of the family members of the ICT ecosystem in Bangladesh. We have always been there to support our customer's needs with a key vision of building a fully connected, intelligent world." Zhang Zhengjun, CEO of Huawei Bangladesh, added, "We believe 5G will change society with diversified applications for individuals, homes, and industries. And Huawei will always be there to facilitate Bangladesh with its innovative technology because we are in Bangladesh, for Bangladesh." At the event, a temporary 5G site was launched. Members of the audience experienced AR/VR services, learned about innovative 5G use cases, and experienced 969 Mbps speed and 4~10 ms latency first hand. A game-changing wireless mobile technology, 5G can provide, ultra-reliable low latency communications, and support for up to 1 million connected devices per square kilometer, also facilitates the availability of rural broadband via fixed wireless access, thereby reducing the digital divide.

Microsoft Executive Praised Saudi Arabia's Progression Towards Its Digital Economy

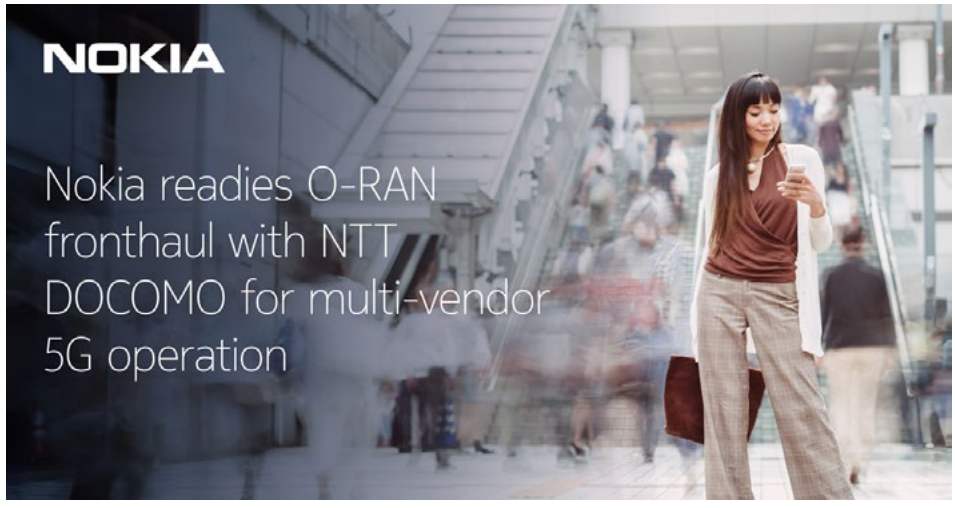
Microsoft executive praised Saudi Arabia during a visit to the country where he lauded the Saudi government's ambitious vision and initiatives. Samer Abu-Ltaif, Microsoft's Corporate VP & President of Middle East and Africa (MEA) region, praised Saudi Arabia's transition on the "digital economy" map, which, he believes, represents one of the highlights of its evolution toward future economic development and diversification. Abu-Ltaif's comments came after his recent visit to Saudi Arabia, where he lauded the government's ambitious vision and initiatives, as well as their efforts to advance the course of digitization of Saudi's national economy. Abu-Ltaif commended Microsoft's ability to enable the public and private sectors to achieve these transformations, thanks to innovation and expertise that will help it reach technological economic sustainability. Local government efforts were recently praised by KPMG. Abu-Ltaif declared that Microsoft would contribute directly and indirectly to establishing the Kingdom's strong and evolving digital structure, ramp up its digital transformation process, and support its ambitious vision of building a digital society, digital government, and a thriving digital economy. The Microsoft executive praised Saudi Arabia for its response to Covid 19 and highlighted the role that Microsoft's digital and cloud solutions in both the public and private sectors played in addressing the problems caused by the pandemic, specifically in the field of education. Abu-Ltaif emphasized Microsoft's full support to the Green Saudi Arabia Initiative launched by the Crown Prince Mohammed bin Salman in March, by contributing to resist the challenges of climate change; demonstrating Microsoft's technological ability to achieve the initiative's chief goal and reach the "zero-carbon" level, which coincides with the Microsoft's aims to become carbon negative by 2030. Microsoft aims to ultimately eliminate the carbon footprint by 2050, to achieve the planet's environmental sustainability.

Nokia Launches Gigabit Connect to Simplify Gigabit Broadband Installation in Apartment Blocks

Nokia has launched Gigabit Connect to make it easier for fiber network providers to deploy gigabit broadband services in MDUs where the final connection leg is via twisted pair or coaxial cables. Fiber providers often encounter difficulties in bringing fiber all the way to every apartment in residential buildings. The age of the building can mean there is a lack of space or in-built ducting, or legal issues might constrain the deployment. G.fast technologies can help by enabling operators to terminate the fiber in a central location in the building and then bridging to any existing television, data or telephone cables for the last leg. Nokia's Gigabit Connect solution builds on G.fast capabilities, hiding its complexity and enabling the last leg connection to be managed as a fiber endpoint under a single pane of glass management interface. This is especially important for operators who focus on fiber-only deployment and who do not have expertise with technologies over copper twisted pair. Gigabit Connect can be deployed with no impact on existing network management and FTTH (Fiber to the Home) services. Gigabit Connect solution also delivers the same speed and low-latency experience for the end user as full FTTH. Sandy Motley, President, Fixed Networks at Nokia, said: "We estimate that 20% of MDUs are challenging for new fiber installations. Using G.fast over a building's existing cables goes a long way to solving the problem, but it can be a challenge for operators to build expertise in new technologies. With Gigabit Connect, we are hiding the complexity, enabling plug-and-play fiber deployment and on-going management as with any normal fiber line. Furthermore, consumers will experience the same speed and low-latency performance as standard fiber." Pan Dacom Networking AG is deploying Nokia's Lightspan SX G.fast distribution point units (DPUs) and Altiplano Network Management System for their fiber customer R-Kom to connect 4,000 buildings in Eastern Bavaria, Germany. Thomas Klein, Head of Sales & Technology Competence Center from Pan Dacom Networking, said: "We are using G.fast for the last drop and use zero-touch provisioning with SDAN (Software Defined Access Networks). Nokia's solution extends what can be done with SDAN and has helped reduce deployment times by 50% with configuration from the cloud." Alfred Rauscher, Managing Director from R-KOM added: "Thanks to Nokia's scalable and future-proof solution, thousands of Bavarians living in previous fiber no-go homes can now look forward to gigabit broadband." According to Dell'Oro, G.fast connections are set to more than double by 2025.

Nokia to Supply DOCOMO with O-RAN Fronthaul Multi-Vendor Solution

Nokia has announced that it is ready to supply its O-RAN fronthaul multi-vendor solution to NTT DOCOMO's 5G network in Japan following successful testing. In a press release yesterday (7 December) the vendor said the move will enable the operator 'to further select independent combinations of hardware and software to optimize its network in the future'. In the trial held at the cellco's laboratory in Yokosuka, Nokia's 5G O-RAN AirScale baseband was 'successfully integrated and tested with third-party O-RUs (radio units)' as part of wider plans to build open interfaces on top of its existing solutions, offering interested parties the choice to pursue O-RAN. Nokia notes that the O-RAN Alliance was formed in 2018 to define common interfaces between systems to reduce complexity and accelerate the deployment of multi-vendor RANs. As previously reported by CommsUpdate, earlier this month DOCOMO and NEC Corp announced the successful conclusion of interoperability testing for 5G Standalone (SA) technology using a 5G base station conforming to O-RAN open interface specifications and radio units (RUs) of different vendors. In a press release, NEC noted that the multi-vendor test used a software upgrade to introduce SA capability to NEC's 5G Non-Standalone (NSA) operating on the cellco's commercial network.



Nokia and Türk Telekom Successfully Test 25G PON Technology in Turkey

Nokia and Türk Telekom have completed the first successful 25G PON trial in Turkey making it the fastest fiber network in the country. The laboratory trial took place in Türk Telekom Ankara Innovation Center and achieved downstream speeds of 20Gbps over a single wavelength. Türk Telekom is exploring how to deliver superfast services to support smart city, office and home services. Yusuf Kıraç CTO of Türk Telekom, said "Our goal is to provide better service quality to our consumer and corporate customers with faster and higher capacity technologies. The 25G PON solution we tested with Nokia achieves approximately 10 times higher bandwidth than is possible with existing GPON networks. Our trials demonstrated 20 Gbps for downstream and 9.1 Gbps for upstream which will enable us to support better quality for upcoming services such as 16K TV, 3D 360 degree videos and augmented & virtual reality experiences." Özgür Erzincan, General Manager of Nokia Turkey, said: "Global investments in fiber underline the importance of competitive advantage brought by high-speed networks. Nokia is the leader in 10Gb/s symmetrical PON and is the only manufacturer to offer a seamless transition to 25G speeds. We are happy to support Türk Telekom in deploying all three-generations of PON technology powered by Nokia's Quillion chipset simultaneously, enabling Turkey's first 25G PON network, and providing high-speed broadband to customers in Turkey's largest fiber (FTTH) network."

Nokia Selected to Drive KDDI's 5G Transition with Standalone Core

Finnish vendor Nokia today (2 December) announced that Japanese operator KDDI (au) has selected its 5G Core and Converged Charging software to support its transition to a fully automated, cloud-native 5G Core architecture. In a press release the equipment manufacturer noted that its cloud-native 5G Core's near zero-touch automation capabilities are designed to 'help operators drive greater scale and reliability' and deliver 'lower latency, increased bandwidth and higher capacity'. Further, the company said it will deploy '5G monetization and data management software solutions including cloud-native Converged Charging, Signaling, Policy Controller, Mediation and Registers to capture new 5G revenue opportunities, enhance business velocity and agility', streamlining KDDI's network operations. This includes 5G network slicing and network as a service offering, IoT and new business models for B2B2X services. Other products in the deal include Nokia's Digital Operations software, Cloud Operations Manager, NetAct network management system and Archive Cloud.

Elisa Estonia Selects Nokia for 5G RAN Deployment Under Five-Year Deal

Elisa Eesti, a wholly owned subsidiary of Finnish telecoms group Elisa Corporation, has inked a five-year 5G deal with Nokia for the supply of the latter's 5G AirScale portfolio. The contract will see both the deployment of a nationwide 5G RAN as well as the replacement of the cellco's existing 4G infrastructure. In a press release, Nokia said it will be the sole provider, replacing the incumbent vendor, with rollout expected to commence next year following the completion of Estonia's spectrum auction in early 2022. Under the deal, the Finnish company will provide equipment from its ReefShark System on Chip-powered AirScale equipment portfolio covering Elisa's nationwide radio network across the country. The release notes: 'Nokia's AirScale RAN portfolio is designed for seamless, simple, and efficient 'plug-in' deployment and reduced power consumption. It covers all deployment scenarios including dense-urban environments and wide-area coverage.' The deal builds on a long-standing collaboration with Elisa Corporation, which saw Nokia selected as a nationwide supplier of 5G RAN in 2020 supporting its efforts to digitize Finland and make it a 'leading global 5G market'.

JAWWAL PAY: The First Company to Obtain the PCI DSS Certificate of Compliance with Information & Payment Security Standards

The National Electronic Payment Company, Jawwal Pay, attained the certificate of compliance with the application of information security standards and electronic payment card data from the Payment Card Industry Data Security Standards International Council (PCI DSS), as the first company in the field of electronic payments. The ceremony of handing over the certificate took place at the headquarters of Jawwal. In this context, Mr. Ibrahim Khammash, the G.M of Jawwal pay, expressed his happiness for earning this certificate, which was the result of the efforts of the company's staff over the past period to ensure the security and protection of its customers' confidentiality. He added that this certificate is a reflection of the company's strategy and interest in providing secure payment channels and services to its customers. On the other hand, Eng. Alaa' Al-Qasem, the Director of the IT Department for Jawwal pay, expressed his contentment in the company's obtaining this certificate as the first company in the field of electronic payment ;clarifying that comprehensive and accurate protection and security standards aim to prevent the risks which may result from the penetration of payment cards data, stressing the company's commitment and investments in the latest technological solutions, keeping pace with all developments related to protecting the confidentiality of customers' data, and applying the latest standards that contribute to the implementation of banking operations in a properly safe & secure manner. In his turn, Mr. Rabee' Barakat, the certified auditor of PCI, praised the company's efforts during the past period and its investment in the field of information security in order to secure the confidentiality of data and the endurance of its electronic services provided to customers and companies safely, congratulating the company on this well-deserved certificate. It is worth mentioning that the (PCI DSS) certificate is considered as a data security standard for electronic payment cards, so that it works all over the world to verify security procedures related to payment cards. This certificate also contributes to enhancing the confidence of subscribers and verifying the ability of the company's systems to securely store and process payment card data.

Cologix and Console Connect by PCCW Global Expand Collaboration into Canada with First Ever Pop in Montréal

Cologix, North America's leading network-neutral interconnection and hyperscale edge data center company, and Console Connect by PCCW Global today announced that the Console Connect Software Defined Interconnection® platform is now available at Cologix's MTL7 data center in Montréal through a new Point of Presence (PoP). Through its collaboration with Cologix, Console Connect is increasing its interconnection footprint across Canada with availability of the automated platform to Cologix's customers across all 20 Canadian data center locations. The collaboration enables Cologix's Canadian customers to directly connect to Console Connect's Network-as-a-Service (NaaS) platform, providing on-demand access to international connectivity across the Console Connect fabric to more than 650 data centers in over 50 countries. With Console Connect, Cologix's Canadian customers can automate connectivity at the network edge to their customers, partners and employees around the world. Customers can also experience the flexibility and speed of on-demand, private connectivity using the Console Connect self-service portal bringing them instant and direct access to major cloud platforms, as well as direct links to 20 data center locations across Canada. The platform supports the growing cloud connectivity requirements of enterprises in Canada. Using either the secure Console Connect web portal or its API, Cologix's Canadian customers can quote, order, deliver and manage their network connections to leading cloud platforms including Amazon Web Services®, Alibaba Cloud, Google

Cloud Interconnect, IBM Cloud, Microsoft® Azure ExpressRoute and many others. Mr. Michael Glynn, Vice President of Digital Automated Innovation, Console Connect, said, "Console Connect is expanding its presence and reach across North America, enabling more buisneses in the region to access and experience our on-demand networking services. I am pleased to welcome Cologix to the Console Connect ecosystem, while growing the availability of our platform in Canada with our first PoP in Montréal." Ms. Laura Ortman, Cologix's President & Chief Revenue Officer, said, "We are delighted to collaborate with Console Connect to extend its reach across Canada and welcome Console Connect as a new platform to our MTL7 facility. We look forward to working together to enable our customers to connect to the cloud globally and support international business growth in Canada with greater access to carriers and customers."

Key Facts

- Console Connect platform provides on-demand access to international connectivity to more than 650 data centers in over 50 countries.
- Console Connect offers direct access to a large ecosystem of local and global cloud, SaaS, IX and IoT providers. Through the platform's MeetingPlace feature, users can order and provision partner services, such as remote peering, colocation, SaaS and business applications, as well as access a range of home-grown features and solutions.
- Organizations can access over 100 networks with low latency connectivity using the Meet-Me-Room at Cologix's MTL7 facility, powered by high-count, diverse and scalable fiber. The facility provides direct access to Cologix's network-dense ecosystem with 200+ Canadian-based networks and almost 600 networks across Cologix's footprint.
- MTL7's uniquely efficient design facilitates rapid power deployments, with cutting-edge technology including hot aisle containment and modular in-row cooling.
- Eco-friendly renewable green energy facility.
- Cologix offers 11 data centers in Montréal with direct onramps to such cloud services as Amazon Web Services® Direct Connect, Google Cloud Interconnect, Microsoft® Azure ExpressRoute, IBM Cloud and Oracle FastConnect

Through the Cologix platform, customers have access to the company's North American ecosystem including four cloud gateways in Ashburn, VA, Columbus, OH, Montréal, QC and Silicon Valley, CA. The Cologix platform offers a robust ecosystem of 1600+ customers and 29 direct onramps to all major public clouds.

stc Media Excellence and a Prominent Player in Enabling Digital Transformation

Kuwait Telecommunications Company – stc, a world-class digital leader providing innovative services and platforms to customers, enabling the digital transformation in Kuwait, announced that it won several awards during the 9th edition of the Kuwait Creativity Award 2021 forum. The awards were presented by the Arab Media Forum in appreciation of stc's unique TVC productions, creative advertising concepts, as well as other initiatives introduced while implementing its effective CSR agenda and digital transformation strategy. stc released a statement indicating that the awards were officially announced during the ceremony held by the forum's organizing committee. Held under the patronage of the Minister of Information and Culture, and Minister of State for Youth Affairs, Abd Al-Rahman Al-Mutairi, the League of Arab States, and in the presence of the Ministry of Information Undersecretary, Muneera Al Huwaidi, and Secretary-General of the Arab Media Forum, Madi Al-Khamees, creative

individuals, sponsors, participants, and volunteers were honored, with stc amongst the top of the list. stc added, "stc annually receives these awards in appreciation of its innovations in the technical and marketing fields, as well as its pioneering offerings line and continuous support towards the Kuwaiti community throughout 2021. The Company has further solidified its role as a pioneering leader in enabling digital transformation locally and throughout the region." stc highlighted that the honorable recognition was received by Danah AlJasem, General Manager of Corporate Communications and her team at stc, on behalf of the Company. The award also served as a token of appreciation for the innovative and creative ideas implemented through the Company's CSR program, which included a range of sponsorship and community-based initiatives. stc highlighted that the recognition reflects the years of hard work and effort placed by the Company to launch a diverse range of products, services and solutions that exceed the expectations of its valued customer base, individuals and corporates. To achieve these goals, stc relied on the strength of its 5G infrastructure, which is the most widespread in Kuwait, as well as the experience and knowledge of its workforce in introducing the latest global technology in Kuwait's market. It is worth mentioning that stc contributed to various causes in 2021 within the fields of health, education, sports, and the youth. One of which, for an example, was stc's continuation of its strategic partnership with the Kuwait Football Association for the eighth consecutive year. The Company is also a strong supporter of local SMEs and start-ups, reflected by various initiatives launched by stc such as the "Weyak" campaign. In a pioneering step, stc established a partnership with Virgin Mobile Middle East and Africa to launch the first mobile virtual network operator (MVNO). Additionally, stc launched campaigns targeting different causes such as its national and liberation day campaign "Ezhalha" and being the only telecom Company in Kuwait and the MENA region to offer the latest 5G Standalone technology dubbed 'FULL 5G'. In addition to its extensive activities, stc also received the award due to its strategic marketing and role in enabling digital transformation in Kuwait. In her role, Danah AlJasem said, "This award come as a testament to the dedication and hard work placed forth by stc throughout the year, in addition to the steps taken to implement the digital transformation strategy and enhance the range of innovative offerings to both individual and corporate customers, as well as the Kuwaiti society as a whole." AlJasem added, "During 2021, we were keen to enhance our leadership role in the local market by offering an array of new-to-market and pioneering telecom services, leveraging the strong infrastructure and wide coverage of stc's 5G network. Throughout this time, we did not overlook our vital role of supporting and giving back to the Kuwaiti community."

Tech Mahindra Achieves Premier Consulting Partner Status in the AWS Partner Network

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, announced today its new Premier Consulting Partner status in the AWS Partner Network (APN). This tier is awarded through successful demonstration of competence on multiple fronts such as technical proficiency, customer satisfaction, thought leadership, and revenue recognition. This recognition reiterates Tech Mahindra's position as a dominant leader in cloud and reflects its differentiated industry expertise and notable success in helping customers design, architect, build, migrate, and manage their workloads on AWS. With this collaboration, Tech Mahindra joins a select group of 125 Partners who have achieved the Premier status so far out of the total 6,000+ global AWS Partners. Sudhir Nair, Senior Vice President and Global Head, Infrastructure and Cloud Services at Tech Mahindra said, "Tech Mahindra has been at the forefront of delivering human-centric experiences and enabling seamless digital transformation for customers across the globe by leveraging innovative technological solutions. Being recognized as Premier Consulting Partner in the AWS Partner Network is a testament to our commitment towards the same." As an AWS Premier Consulting Partner and AWS Managed Service Provider (MSP) Partner, Tech Mahindra holds certified qualifications like Migration Consulting Competency, Well Architected Framework (WAF), and AWS Solution Provider. This allows Tech Mahindra to help customers become agile, lean, and build reliable platforms and applications on AWS. Over the last five years, Tech Mahindra has built a strong AWS Practice with over 1700+ AWS-accredited associates, including more than 1,000+ AWS-

certified engineers and architects across various streams of transformation and a dedicated AWS CoE (Centre of Excellence). Tech Mahindra believes in DigitALL philosophy for comprehensive Business Transformation. Digital technologies catalyze the transformations – they humanize businesses by helping them think, sense, connect, communicate, secure and act better than before. As part of NXT.NOWTM framework, which aims to enhance 'Human Centric Experience', Tech Mahindra focuses on investing in emerging technologies and solutions that enable digital transformation and meet the evolving needs of the customer.

Tech Mahindra Supports Digital Transformation of Telefónica Germany's Microwave Network with Open SDN

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, announces that it has been working with Telefónica Germany to digitally transform its microwave network with open software defined networking (SDN). Telefónica is working to standardize its management interface by collaborating with multiple vendors and partners. Tech Mahindra is helping Telefónica achieve this by bringing its domain expertise and continuous integration capabilities to the partnership. Tech Mahindra has been working with the telco to implement new standards for its DevOps model including enhancing its processes and requirements. This includes the continuous management support of service operations for the organization's overall SDN Architectures. The project involves the deployment of microwave transmission automation aimed at elevating service delivery and network operations. All microwave devices in Telefónica Germany's mobile backhaul network are accessible via a single harmonized Network API which supports an open microservice framework. Vikram Nair, President, EMEA Business at Tech Mahindra, comments: "We have been actively collaborating with Telefónica on this project. We made an important contribution to the integration results and have driven us to continuously broaden our capabilities. This reflects our commitment to invest in open source technologies and scaling out networks within just weeks. Telefónica is able to accelerate its digital transformation efforts to provide a more efficient and future-proof service to its customers." Telefónica has been able to integrate 30,000 microwave links from multiple vendors into the OpenDaylight Controller using ONF TR-532 interface standard. This also reflects Tech Mahindra's commitment to invest in open source technologies to accelerate scaling out networks. The move to SDN will enable Telefónica to adopt automation functionality in the future more easily. "Together with our partners like Tech Mahindra, we are pioneering SDN within the microwave domain. The technological requirements for the mobile network of the future are continuously increasing. Software-based approaches such as SDN are helping us to reduce the complexity of our network architectures and to drive our network expansion even faster and with higher quality through a greater degree of automation. For example, our Telefónica technology team is already continuously developing new applications that can be made available across manufacturers within a matter of weeks," says Mallik Rao, Chief Technology & Information Officer at Telefónica Deutschland

Tech Mahindra Acquires 100% Stake in Activus Connect, a Leading Provider of Work at Home Customer Experience Management Solutions

Tech Mahindra, a leading provider of digital transformation, consulting, and business re-engineering services and solutions, today announced that it has acquired a 100% stake in Activus Connect, a leading provider of work at home customer experience management solutions. The acquisition will bolster Tech Mahindra's capabilities in emerging workplace solutions and strengthen end-to-end CX portfolio. The acquisition will augment Tech Mahindra's position as a leading digital transformation enabler in the Work at Home Customer Experience Management domain. Additionally, Tech Mahindra will leverage Activus Connect's customizable omni-channels and AI-powered compliance analytics platform, SmartVirtual™, to render a secure cloud-based ecosystem of technologies, analytics, and virtual management practices. This will enable friendly, smart, efficient, and effective outcomes for consumers across the globe. Vivek Agarwal,

President – BFSI, HLS and Corporate Development, Tech Mahindra, said, "WAH CXM is undergoing disruptive changes due to the pandemic and has given rise to exponential demand in the market. The acquisition of Activus will fill a whitespace, with their unique delivery model, disruptive platform, and expertise in the WAH CXM industry that will add significant value to Tech Mahindra's offerings and capabilities. We welcome Activus employees into the Tech Mahindra family and look forward to achieve great success together." Founded in 2018 to reimagine the customer experience, Activus Connect offers outsourced customer experience (CX) solutions and SmartVirtual™ technology to support and elevate chat, email, phone, text, video, and social experiences. The acquisition will enable Tech Mahindra to offer multilingual, multichannel, voice & non-voice customer care, sales, retention, social media moderation and technical support to customers across verticals. Felix Serrano, Chief Executive Officer, Activus Connect, said, "We could not be more excited about the significance of today's announcement, and what it means for our valued team members, customers, and the Tech Mahindra family. As a leading provider of employee based, 100% work-at-home solutions, the synergies between Activus Connect & Tech Mahindra will usher in a new chapter of Customer Experience Management (CXM) powered by Virtual CX. I see today as the beginning of a new-new, a realization that Virtual CX is core to the continued evolution of our industry." Birendra Sen, Business Head, Business Process Services, Tech Mahindra, said, "In line with our strategy of expanding our US presence to provide high quality digital customer experience services, we are very happy to welcome the Activus Connect team to the Tech Mahindra family. This acquisition will enable our customers to rapidly scale and operate by leveraging the Work at Home model. We believe that together we will continue to push the limits on providing superior outcomes for our customer." As part of the NXT.NOWTM framework, Tech Mahindra aims to enhance human centric experiences for businesses. This means focusing on investing in emerging technologies and solutions that enable digital transformation to better meet the evolving needs of its customers through our DigitALL framework.

Yahsat Announces Global Agreement with Ericsson to Boost Telecommunications Technologies, Automation and IoT Sales and Services

Al Yah Satellite Communications Company PJSC ("Yahsat" and, together with its subsidiaries, "the Group") listed on the Abu Dhabi Securities Exchange ("ADX") (SYMBOL: YAHSAT) (ISIN: AEA007501017), the UAE's flagship satellite solutions provider, today announced a group-wide partnership with Ericsson (NASDAQ: ERIC) to provide private network, data and internet connectivity services across the oil and gas, mining and ports industries. The integrated solution provides secure, reliable and low-latency local connectivity to deploy Industry 4.0 use cases on a single network while ensuring that sensitive data remains on-site. Yahsat and Ericsson will offer integrated solutions focused on critical connectivity to address industry challenges, including the lack of network separation for communications, high running costs, and data speed and coverage limitations. Under this agreement both parties will co-market and expand their sales of several important applications such as remote sensing, video surveillance, UAVs and drones, geo-positioning, backhaul solutions for offshore oil rig sites, and general data connectivity. The solutions offered will play a vital role in completing the technology and connectivity ecosystem needed for automation and IoT adoption in these industries. The partnership leverages Ericsson's telecommunications and technology leadership position for these critical industries which often operate in remote locations. Yahsat and Ericsson will further expand their private network presence across the region and provide value-adding services to existing and prospective customers. Ali Al Hashemi, Yahsat Group CEO, said, "We are delighted to collaborate with Ericsson to deliver comprehensive integrated communications solutions to the oil and gas, mining and ports industries. Leveraging our combined areas of expertise, we are confident that we will play a key role in overcoming the access and connectivity challenges facing these critical industries and further build upon our strong value

proposition to prime customer segments, regionally and internationally". Åsa Tamsons, Senior Vice President and Head of Business Area Technologies and New Businesses at Ericsson, added: "Ericsson has introduced private 5G networking solutions to fuel innovation and drive efficiency and sustainability across every sector. In addition, 5G enables automation, increases safety and facilitates lower carbon operations. Ericsson's private network solution, combined with Yahsat's satellite connectivity and services, will empower advanced IoT use cases. Predictive maintenance, connected worker, augmented reality, sensor-based monitoring, and automated guided vehicles are some exciting examples."

Zain Jordan Agrees to Sell and Leaseback 2,607 Towers to TASC Towers for US$88 Million

Zain Group announces that its operation in Jordan has entered into a definite 15-year agreement to sell and leaseback the passive physical infrastructure of its 2,607 tower portfolio in Jordan to TASC Towers for US$88 million. The transaction includes an additional 223 sites transferring to TASC Towers on a managed basis. Zain Group holds a 25% minority stake in TASC Towers. The deal also includes TASC Towers managing Zain Jordan's supporting facilities such as power generators, fuel tanks and protection kiosks as well as a build-to-suit agreement allowing for a minimum of 525 network sites to be built over the next five years. Zain Jordan will retain its active infrastructure, including wireless communication antennas, intelligent software, and intellectual property with respect to managing its telecom network. TASC Towers (www.tasctowers.com), headquartered in Dubai, is an international tower operator focused on sale and leaseback, build-to-suit and growth capital investments in the MENEASA market (Middle East, North & East Africa and South Asia). Bader Al-Kharafi, Zain Vice-Chairman of Group CEO said: "This transaction is consistent with Zain's '4Sight' strategy to create significant value for shareholders through the unlocking of capital and optimization of infrastructure assets which will flourish under the management of an independent team. As a strategic shareholder, we are committed on supporting TASC Towers' regional expansion in making it a leading operator of telecom infrastructure." Al Kharafi added, "The deal gives Zain Jordan greater flexibility to invest in network upgrades and cutting-edge ICT technologies to meet the ever-increasing demand for reliable broadband access and data consumption. It will also enhance operational efficiencies and enable a laser focus on the operator's core business and customers to offer them the best mobile and data experience in the Kingdom of Jordan." This transaction follows similar pioneering deals with respect to 1,620 towers in Zain Kuwait and a recent announcement in Zain Saudi Arabia to sell its 8,100 tower infrastructure. FTI Capital Advisors acted as exclusive financial advisor to Zain Group on this transaction.

Lighting up the Future

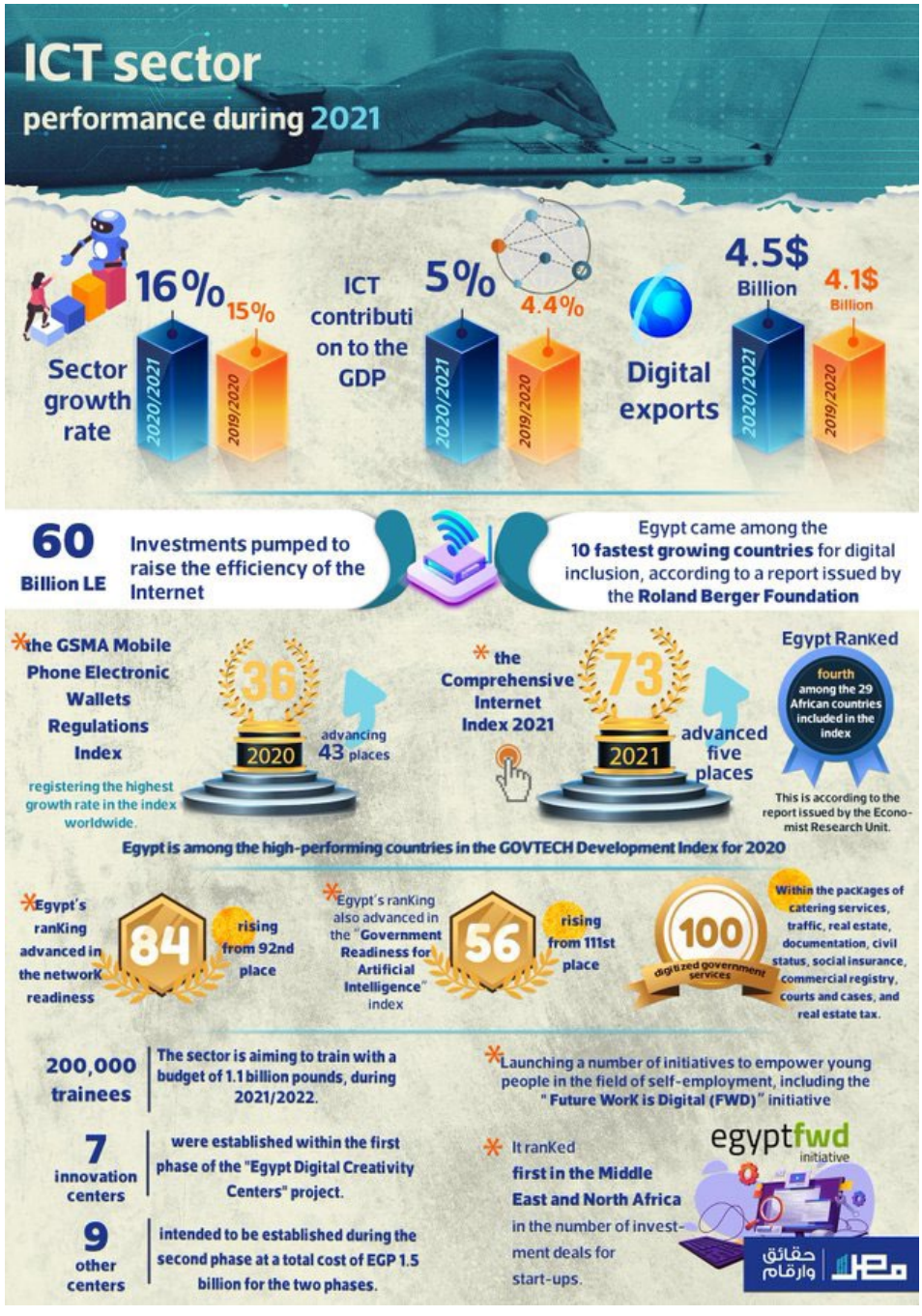
Building a Fully Connected, Intelligent World

HUAWEI

REGIONAL NEWS

Egypt's ICT Sector Witnesses Significant Development During 2021

The Egyptian ICT sector witnessed significant developments during 2021. These developments are linked to the remarkably high growth rates of the Egyptian economy and the increase in the number of users, which supports the government's digital transformation strategy. The Egyptian ICT sector is described, according to international assessment institutions, as one of the fastest growing economic sectors thanks to strategic plans that are in line with market and life developments, despite the coronavirus pandemic. According to the data of the Ministry of Communications and Information Technology, the sector has achieved tangible leaps in all governorates of Egypt by building a broad base of technical cadres and supporting major national projects. The indicators of the communications and information technology sector rose, as it is the highest growth among the state sectors, with a growth rate of about 16% in the fiscal year 2020-2021. The sector's contribution to the GDP increased from 3.2 percent in 2017-2018 to 5% in the 2020/21 fiscal year. Digital exports grew from $3.6 billion in 2018-2019 to $4.5 billion in 2020-2021, in addition to the growth in the number of workers in the sector from 233,000 in 2017-2018 to 281,000 in 2019-2020. Several projects were implemented in cooperation with state agencies and institutions to achieve digital transformation in all sectors, and to implement the project of moving the government to the new administrative capital as a participatory, paperless government. This is in addition to the increase in the number of trainees in the specialized training programs provided by the ministry and its affiliated training bodies from 4,000 trainees with a budget of LE 50 million in 2018, to 148,000 trainees with a budget of LE 400 million in 2020, and a target of training 200,000 trainees with a budget of LE 1.1 billion during the fiscal year 2021-2022. With regard to the information infrastructure and digital transformation sector, 12 projects were recently implemented at a total cost of LE 3.5 billion, including four projects implemented with a total of LE 271.4 million. The most prominent of these projects are the enforcement and law enforcement system and the development of the commodity and bread subsidy system, in addition to 8 ongoing projects worth LE 3.2 billion, most notably the implementation and operation of the second phase health insurance system, the mechanization of the agricultural holdings system (the farmer card), the launch of the digital Egypt platform for



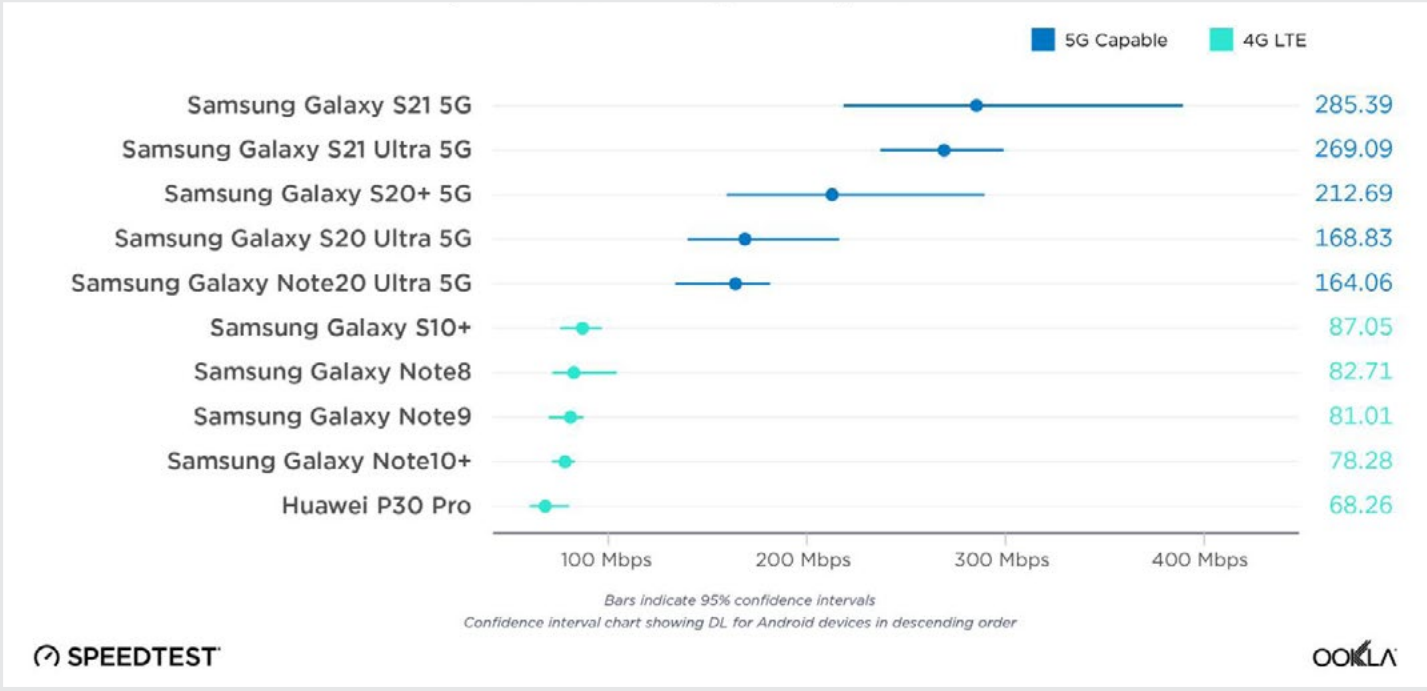
government services, the mechanization of documentation services. As for technological and cognitive headquarters, they It include five projects that have been and are being implemented at a total cost of LE 3.5 billion, including five projects that have been implemented at a total cost of LE 1.5 billion, most notably the technological areas in New Assiut / Borg El Arab / New Beni Swi / Sadat, and the establishment of seven new creativity complexes "Egypt Digital Creativity Centers". Egypt witnessed a growth in the entrepreneurship sector and emerging companies in light of the efforts made to support technological innovation, the most prominent of which is the implementation of a project to spread Egypt's digital innovation centers in the governorates. The first phase of the project included the completion of the establishment of seven centers, while the second phase aims to establish nine other centers, at a total cost of LE 1.5 billion for the two phases. Egypt ranked first in the Middle East and North Africa in the number of investment deals for emerging companies. Egypt has maintained its regional leadership in the Middle East and Africa in the provision of cross-border outsourcing services and ranked first regionally and continentally and fifteenth globally in providing outsourcing services, according to Kearney's index of "global service sites" for 2021. Egypt's ranking advanced in the network readiness index, rising from 92nd place globally to 84th, and Egypt came among the 10 largest developing countries for digital inclusion. Egypt's ranking also advanced in the "Government Readiness for Artificial Intelligence" index to become 56th globally compared to 111th in 2019. According to the Ministry of Communications and Information Technology, huge investments were made to raise the efficiency of the internet, which resulted in an increase in the average fixed internet speed from 6.5 Mbit/s in January 2019 to 45.8 Mbit/s in October 2021, making Egypt fourth in Africa compared to 40th in January 2019. As part of the work to improve the quality of telecommunications services, 80 MHz was launched in the frequency space of 2600 MHz, with revenues of $1.170 billion, and the number of installed towers was doubled from 600 to 1200 in the first half of 2021, while working in parallel on the governance of telecommunications services. The investments of the Egyptian Postal development plan during the current year amounted to about 4 billion pounds, and the total number of post offices reached about 4,147 post offices, and the number is targeted to reach 4,200 by the end of the year 2021. The number of developed offices reached about 2,855 post offices, while it is aimed that the total developed offices by the end of 2021 will reach about 3,130 post offices; New postal outlets were also created through the establishment of 147 post offices out of a target of 200 offices by the end of 2021. The total number of postal kiosks reached about 35 postal kiosks out of a target of 50 postal kiosks by the end of 2021, in addition to the number of mobile offices reaching about 83 cars equipped and equipped with postal employees and an automatic teller machine out of a target of 89 mobile offices by the end of 2021, and the total number of ATMs 750 machines out of a target of 1750 machines by the end of 2021.

Muscat Declared 'Arab Digital Capital' for 2022

The Council of Arab Ministers for Communications and Information announced that Muscat will be the Arab Digital Capital for 2022. The decision was announced at the conclusion of the 25th session of the Arab minister's council hosted Sunday via videoconferencing by the Arab League's technical secretariat general of Arab Ministers of Communications and Information, Oman news agency reported. Said Hamoud Al Maawali, Omani Minister of Transport, Communications and Information Technology, said that the decision reflects the confidence of Arab countries in the digital and legal capabilities of Oman, the latest of which the Council of Ministers' endorsement of the National Digital Economy Program. The Arab digital capital is selected on an annual basis to host successful initiatives and models.

UAE Has Fastest Internet Speed on Android 5G Devices Worldwide

The UAE has the fastest internet speed on Android 5G devices globally, according to data analyzed by Ookla, which provides analysis related to Internet connection data rate and latency. The study found that the median speed of Samsung Galaxy S21 was 285.39 Mbps, Samsung Galaxy S21 Ultra at 269.09 Mbps and Samsung Galaxy S20+ at 212.69 Mbps in the third quarter of 2021. While 4G devices speed test was below 90 Mbps. The Samsung Galaxy S21 5G showed a median download speed of 215.10 Mbps in South Korea while the Galaxy S21 Ultra 5G showed a median download speed of 261.21 Mbps in Saudi Arabia. It also found that the iPhone 13 was more than four times faster than the iPhone 11 in the UAE. With a download speed of 485.59 Mbps, the UAE has the fastest median download speed over iPhone 13, faster than any phone in any country analyzed in Q3 2021. UAE's capital Abu Dhabi was recently ranked among the top three fastest capitals in the 5G network index with the fastest median download speeds of 421.26Mbps in the first half of 2021, reflecting the country's ongoing efforts and investments to build one of the most advanced 5G networks in the region and the world. "While the median download speeds across 4G devices in the UAE during Q3 2021 handily beat those of all the other countries, the country's 5G download speeds were even faster. We can see from the data that some of the 4G devices can perform much better when on a faster network. Even the slowest 4G device on this list, the Huawei P30 Pro, had a median download speed of 68.26 Mbps in UAE compared to 30.20 Mbps in the UK on the same device," Ookla said in its latest analysis. The study found that not only did Saudi Arabia show the second-fastest median download speed over iPhone 13 during Q3 2021, the latest iPhone variant was also more than five times faster than the iPhone 11.



Saudi Arabia, Egypt Discuss IT Cooperation

Amr Talaat, Egypt's minister of communications and information technology, and Haytham Al-Ohali, Saudi deputy minister of communications and IT, discussed ways to enhance bilateral cooperation, particularly with regard to digital transformation and digital capacity building. They discussed cooperation in launching a hackathon in Egypt in which Egyptian youth — including computer programmers, developers and content writers — would participate to enrich Arabic digital content. Talaat referred to initiatives launched by his ministry to build digital capabilities. He said the Egypt Informatics University — established in the country's new administrative capital — is the first in Africa and the Middle East specialized in communications, IT and related fields. He urged Saudi youth to study at the university. Al-Ohali said the coronavirus pandemic has highlighted the vital role of information communication technology, referring to the development of digital government in Saudi Arabia. He was in Egypt to attend the 42nd session of the executive council of the Islamic World Educational, Scientific and Cultural Organization, which was held in Cairo from Dec. 6-9 and hosted by the Ministry of Higher Education.

iGA, Smart Way Discuss Ways to Promote Smart Cities in Bahrain

Information and eGovernment Authority (iGA) Chief Executive, Mohammed Ali Al Qaed, welcomed Smart Way Consulting CEO, Waleed Khalaf and Vice President, Daneh Al Rayes to his office at the iGA's Isa Town premises, where they discussed plans for cooperation. Smart Way is the organizer of the annual Bahrain Smart Cities Summit. The meeting included discussions on how to promote the development of smart cities in the Kingdom, and raise awareness of their many benefits among the public and private sectors, individuals, and Non-Government organizations to help Bahrain keep pace with global developments. Al Qaed said that the Kingdom has successfully implemented a range of smart city projects, such as providing a robust technical infrastructure linked to eGovernment that is prepared to accommodate future IT requirements. The iGA continues to accelerate digital transformation and launch Artificial Intelligence (AI) applications that will improve efficiency and quality of life for the public. Bahrain adopted fundamental smart city elements during the pandemic through the deployment of advanced technology that minimized the impact on Bahraini society and its economy. Al Qaed highlighted the private sector's role in supporting technological progress in the Kingdom, including Smart Way for organizing the annual Bahrain Smart Cities Summit and its efforts in promoting digital transformation in cooperation with government entities. He highlighted the company's role in providing valuable IT expertise, including Al Rayes's recent contributions as a jury member of eGovernment Excellence Awards 2021. Khalaf expressed his appreciation to the iGA for its cooperation, adding that Smart Way stands ready to support pioneering eGovernment initiatives that benefit the Kingdom.

High Mobile, Internet Penetration Boost Use of E-Government Services in Oman

Ninety-four per cent of household members own a mobile phone, and 93 per cent of the surveyed individuals use the Internet, in the Sultanate, a survey has revealed. The information is part of a survey conducted by the National Centre for Statistics and Information's "Measuring Access and Usage of Information and Communication Technology Among Households and Individuals". The results of the survey carried out in cooperation with the Ministry of Transport, Communications and Information Technology during the period from 14 February to 4 March 2021. The data showed an increase in the usage of laptops in the Sultanate of Oman, as it increased from 34 per cent in 2020 to 38 per cent in 2021, and the use of tablets also grew from 17 per cent to 20 per cent during the same period. The results also indicated that sending messages via e-mail, WhatsApp or SMS came as the most prevalent arithmetic skill that accounted for 97 per cent, then using copy and pasting tools with 87 per cent, and using basic arithmetic formulas on the data page reached 65 per cent. It also indicated that 94 per cent of household members own a mobile phone, and 93 per cent of the surveyed individuals used the Internet. The percentage of using the Internet for the purposes of interacting with e-government services increased from 34 per cent in 2020 to 55 per cent in 2021. The use of online banking services also increased from 38 per cent in 2020 to 53 per cent in 2021, while the percentage of internet usage for educational purposes increased from 28 per cent in 2020 to 39 per cent in 2021. The results show that clothes, shoes, sportswear, or accessories are the types of goods or services that were purchased online, accounting for 66 per cent, while the foodstuffs purchased online was 56.8 per cent. The percentage of preference for shopping in stores was 71.8 per cent, while the percentage of disinterest in shopping online was 50.4 per cent of the surveyed sample. The data also indicate that 94 per cent of families have access to the Internet, and the percentage of tablets in households increased from 37 per cent in 2020 to 51 per cent in 2021, and smart TVs also increased from 47 per cent to 59 per cent during the same period.

Huawei Signed a Memorandum of Understanding with Omani Ministry of Culture, Sports and Youth and Omantel

Sponsored by the Ministry of Culture and Tourism of China in collaboration with the Ministry of Culture, Sports and Youth of Oman, the Oman-China Youth Digital Culture Industry Exchange Week" organized by the Chinese Embassy in Oman and the Oman Embassy in China ended on 16th December 2021 in Muscat, Oman. During the closing ceremony, Huawei signed a Memorandum of Understanding (MOU) with the Omani Ministry of Culture, Sports and Youth and Omantel, Al Sayyid Said Bin Sultan Al Busaidi, the Undersecretary of Ministry of Culture, Sports and Youth of Oman, Yi Xiang, President of Huawei Middle East Division, and SamyBin Ahmed Al Ghassany, COO of Omantel, represented the signing ceremony. Li Lingbing, Chinese Ambassador of Oman, also attended the ceremony. The MOU is an important milestone in deepening cooperation between the three parties and aims to further promote cooperation between the three parties in innovation center construction, interns' cultivation, and 5G application and case studies. Together with Omantel, Huawei will promote the development of ecosystem partners through 5G innovative solutions and platforms based on the training center and 5G innovation platform. In addition, the three parties will work together to launch a talent training program to cultivate innovative and complex talents for the sustained and steady development of the ICT industry and digital transformation of Oman. Yi Xiang, a member of Huawei's Supervisory Board and president of the Middle East Region, said: "Huawei has been committed to developing ICT talent for local countries for a long time. In Oman, Huawei has launched multiple talent ecosystem projects, including the Seeds for the Future program, ICT Academy building, HC certification, and talent competition. We hope to cooperate with Omani Ministry of Culture, Sports and Youth and Omantel to help Omani ICT innovation and talent development.

Teletalk Launches a Trial 5G Service in Six Locations

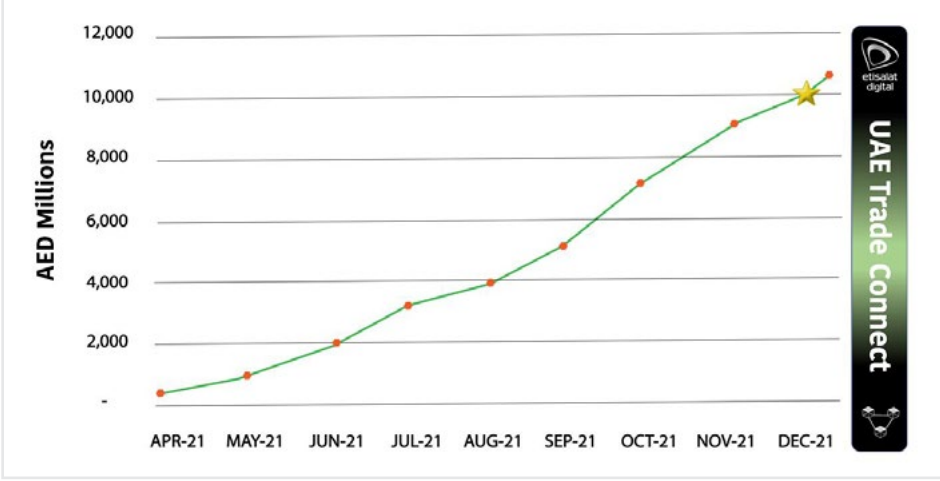
Bangladeshi state-run mobile operator Teletalk has launched a trial 5G service in six areas of the country in partnership with vendor Huawei. The high speed technology will initially be available in Tungipara in Gopalganj, National Martyrs' Memorial at Savar, Bangladesh Secretariat, Prime Minister's Office, Dhanmondi-32 and Sher-e-Bangla Nagar in Dhaka, before being gradually expanded at district level. Teletalk is planning to deploy a total of 200 5G sites by next year.

Ericsson Mulls Investing in Pakistan

Telecom firm Ericsson has shown interest to enhance investment in Pakistan by deploying advanced networks as well as scaling up its nearshore center to create job opportunities for engineers in the country. “Ericsson is committed to expansion and diversification to bring investment and the best technology to Pakistan in line with the vision of digital Pakistan." Ekow Nelson, head of global customer unit at Ericsson Middle East & Africa, said this in a meeting with IT and telecom ministry of Pakistan. The meeting held to discuss digitalization, skill development, and training for engineers in the country. "The successful meeting with the ministry is promising and we are looking forward to the future of technological advancement in the country." Speaking on the occasion, federal minister for IT and telecom, Syed Amin ul Haque said 'strong' measures were underway for connectivity in urban and rural areas of the country. He was of the opinion that Pakistan is a mega-market of technology and there is great potential in the youth. Meanwhile, secretary IT and telecom discussed regulatory and financial business models and policies for ease of conducting business. The member telecom briefed about the investment areas of technological advancement and the telecoms' ecosystem in the country.

UAE Trade Connect Crosses AED10 billion Milestone

Etisalat Digital's blockchain arm UAE Trade Connect (UTC) has crossed the milestone of handling invoices worth AED10 billion within its first eight months of operation. This amount represents the value of invoices presented by member banks into the UTC system for fraud analysis and duplicate financing checks The consortium banks include Commercial Bank of Dubai, Commercial Bank International, EmiratesNBD, First Abu Dhabi Bank, Mashreq Bank, National Bank of Fujairah, and National Bank of Ras Al Khaimah. The Central Bank of UAE is an observing member of the UTC Steering Committee. Zul Javaid, CEO of UAE Trade Connect, commented: “UTC is recognized as one of the most successful blockchain-led use cases that actually solves real-world problems. We are pleased to announce that in just a few months since UTC's launch, our consortium banks have performed their invoice-level due diligence in real time. Crossing the AED10 billion mark represents a landmark achievement for this nationwide platform that is aligned with the UAE government's vision to bring futuristic technologies such as blockchain and is set to be another enabler for economic growth.” UTC is a first of its kind nationwide trade finance platform built on advanced technologies, namely blockchain and Artificial Intelligence. Launched commercially on 19th April 2021, the platform was co-created by Etisalat Digital along with seven leading UAE banks and initially ideated by First Abu Dhabi Bank. Several other banks are currently piloting the platform and have expressed an interest in joining the consortium in 2022.



Arab Countries Urged to Take Advantage of Digital Technology in Developing Cultural Policies

Organized by the Ministry of Culture and Youth along with Arab League Cultural, Educational and Scientific Organization (ALECSO), the conference concluded. Several key takeaways for the development of Arab culture were made during the two-day conference. The event hosted 18 ministers in-charge of cultural affairs in various Arab countries, the director-general of ALECSO, more than 88 delegations with representatives of intergovernmental organizations, and key figures from the Arab world at Expo 2020 Dubai. Arab leaders and the heads of delegations presented the strategic directions that countries should adopt in a post-pandemic world. They stressed the need for activating joint Arab cultural projects to strengthen Arab identity and protect the younger generations from falling prey to extremism. The conference also discussed ways to strengthen Arab cultural unity and ensuring its sustainability through building inclusive societies. "The need for Arab culture to be open to other cultures of the world and contribute to forging human connections globally," said a press release from the Ministry of Culture. It was also recommended that Arab countries must work on implementing the outcomes of the review of the comprehensive plan for Arab culture and use it to develop national strategies for cultural development and joint cooperation. They called for organizing workshops and meetings to present the comprehensive plan for Arab culture and introduce it to the cultural entities in their respective countries to action the plan. They stressed that the cultural projects approved in this session will contribute to achieving cultural integration among Arab countries. The conference urged Arab countries to take advantage of digital technology in developing cultural policies in various countries to protect individuals and entities operating in the field from crises. The 22nd session of the conference was based on a number of topics, most notably the Status and the Future report of the Arabic language issued by the ministry in partnership with the Advisory Council on Arabic Language; and discussed ways of cooperation to launch new projects in the fields of culture, heritage and development of Arabic. On the concluding day of the conference the delegates welcomed Saudi Arabia's request to host the 23rd session of the conference in 2022. The discussions of the 22nd session reviewed and updated the draft of the comprehensive plan for Arab culture. The decisions were based on an analytical review of the most important developments of the Arab cultural scene in past 20 years. The discussions also covered the political, economic and social repercussions of these events and the challenges that the Arab world is facing today. Noura bint Mohammed Al Kaabi, UAE Minister of Culture and Youth and chair of the 22nd session of the Conference of Arab Culture Ministers, said: "The UAE is keen on strategic cooperation with ALECSO in all aspects related to its fields of work." She added: "I must mention the Ministers' conversation with Arab Youth, it's an important example of what communication between decisionmakers and our target groups can achieve in the cultural sector." The signing of the UAE Declaration for the Arabic Language launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and the Ruler of Dubai, is an important landmark, said Al Kaabi. Dr. Mohammed Ould Amar, Director-General of ALECSO, said: "We opened a new phase of work in the field of culture in Arab countries thanks to the updated plan for Arab culture, and thanks to joint Arab cultural projects that will strengthen our cooperation. The plan will provide the necessary support to cultural institutions in many areas and give Arab states the opportunity to be at par with other countries in the upcoming regional and international events." He pointed out that the 22nd session of the Conference of Arab Culture Ministers is part of the framework of cooperation between the UAE Ministry of Culture and Youth ALECSO and implements the decision of the 21st session of the conference which included a number of decisions such as the areas of join Arab cultural work, opening up new horizons to develop cultural projects that promote Arab culture in the region as well as globally.

Zain Jordan Signs Cloud IMS Agreement with Ericsson

Ericsson and Zain Jordan have signed a strategic agreement for the modernization and expansion of voice services using the existing Ericsson Cloud IMS (IP Multimedia Subsystem), solidifying an already strong partnership between the two organizations. The strategic modernization of Zain Jordan's network will support migration of current 2G and 3G voice services to 4G/LTE networks. The agreement supports capacity expansion using the Ericsson Cloud IMS solution to enable voice over LTE (VoLTE) and Wi-Fi calling for businesses and consumers across the Hashemite Kingdom of Jordan. According to Zain Jordan, the agreement will have a positive impact on its network and the experience of its customers. The Cloud IMS solution will enhance the performance of the network by making calls over VoLTE networks and wireless communications over the Wi-Fi network and offering Zain Jordan's customers superior quality voice calls. Wojciech Bajda, Vice President and Head, Gulf Council Countries, said: "Steps towards superior voice and communications quality are vital in a considerable time of transformation. In line with the vision and strategy of the country, Jordan Vision 2025, we believe partnership and our joint commitment to advanced technologies allows us to support Zain Jordan with its strategic objectives."

Qatar Achieves Breakthrough in mmWave 5G Trial

Vodafone Qatar has announced its latest milestone in the development of its GigaNet 5G network, with the completion of Qatar's first successful trial on the millimeter wave (mmWave) spectrum. According to a press release from the Doha-headquartered operator, the trial achieved system capabilities of 8.1 Gbps on downlink (DL) and 734 Mbps on uplink (UL), by using new and advanced 5G features and delivered over the mmWave Spectrum. Vodafone Qatar Chief Executive Officer, Sheikh Hamad Bin Abdulla Al-Thani, said: "The potential of mmWave technology industries and use cases is huge, and it will pave the way for the future of 5G and connectivity. The results of this trial will enable Vodafone Qatar to continue working to roll out mmWave technology for the benefits of its consumer and business customers alike. Vodafone's trial took place at a specific site and delivered impressive throughput results compared to current standards. For consumers, this means higher-quality video and multimedia content can be delivered faster via increased capacity and bandwidth, the release said. For businesses, 5G mmWave promises to transform performance and user experience beyond what is currently possible with existing network capabilities, including across mobile broadband, fixed wireless and industrial applications such as the Internet of Things (IoT) and Augmented Reality (AR). mmWave solutions operate in high frequency range and provide ultra-capacity over short distances. They allow users to leverage the true promise of faster access speeds and lower latency of 5G and will be a key enabler for several critical applications across multiple industries, from autonomous vehicles to surveillance in ports and airports, video streaming and broadcast in smart cities, and automated manufacturing in smart factories.

Egypt's e-Commerce Transactions Amount to EGP 80 Billion (US$5.08 Billion) in 2021

E-commerce transactions in Egypt reached EGP 80bn in 2021, meanwhile, it registered $71bn in the Middle East in 2021, according to the Egyptian Junior Businessmen Association (EJB) member and CEO of BOOST Sherif Makhlouf. Makhlouf told Daily News Egypt that electronics top the revenues of e-commerce in Egypt with a percentage of 28%, followed by fashion (21%), food and personal care (19%), toys, hobby & DIY (19%), and furniture and appliances (12%). Speaking about Direct to Consumer (D2C) companies, Makhlouf clarified that D2C companies are retailers, which sell directly to consumers, usually by investing in new product development and branding while outsourcing their supply chains, underlining they are typically selling using digital channels or direct distribution while omitting retail overheads and capitalizing heavily on social media marketing. Makhlouf pointed out that the D2C trend is just a part of the e-commerce world, citing that marketplaces like Amazon, Jumia, and Noon only account for 50% of the e-commerce sector. He expected that the spread of the D2C would positively impact the Egyptian economy given that many e-commerce brands are sourcing and manufacturing locally and many of them are shipping products internationally. The EJB member thought that the e-commerce market in Egypt does not need any regulations different from the current enforced retail and consumer protection laws, asserting the importance of providing it with support and incentives to allow it to flourish. Makhlouf predicted that the fashion industry would be the most demanded sector through the D2C because of the relatively advanced supply chain of the industry and new product development in Egypt, followed by home accessories, personal care, toys, hobby & DIY, pet products, furniture, and appliances. He also forecasted that the electronics and media sector would not achieve progress in the D2C model due to the complexity of the production and supply chain. The EJB member said the growth of D2C brands will lure more foreign direct investments in Egypt, referring to Amazon's acquisition of Souq Egypt and German group Rocket Internet's investment in Egypt through Jumia. He noted that the D2C trend affects traditional retailers however, it encouraged many retailers to revise their digital strategies to compete with such brands maybe even building new D2C brands themselves, adding D2C is a market innovation by entrepreneurs, who decided to reach the end consumer with direct channels skipping the intermediary. He added that selling items on Facebook out of the tax system is the form by which many of these sellers test the market and see the real demand for their products with the sophistication of the new Egyptian eCommerce buy and in the post-Covid era, noting many sellers have now legit online businesses and with large operations and mostly tax-paying like any other retailer out there. Makhlouf said the coronavirus accelerated the adoption of e-commerce by the Egyptian consumers, but this matter would happen anyway, adding it was just a matter of time. "They [consumers] discover products and solutions online and they buy them and they get delivered efficiently and that becomes a fact of life just like it is elsewhere in the world," he concluded.

More Than 630 Km of Optical Fibers & 40 Mobile Towers Covering Land Port Between KSA & Oman

stc exerted its technical capabilities to cover the land port between KSA and the Sultanate of Oman, which was recently inaugurated between Al Bat-ha area in Al-Ahsa and Umm Al-Zamoul at the Omani borders in a desert area with difficult and special terrains. The project linked the fiber-optic network along the road, where network coverage reached 100% and was implemented as a support for local content, through 10 local contractors. The length of cabling procedures exceeded "590" km while the length of fiber-optic cables exceeded "630" km, using more than 80 high-tech machines and equipment and with the participation of more than 1500 workers and technicians who worked around the clock. The project was implemented in various areas along the road, which are characterized by its difficult and tough terrains and hard to work at in some circumstances. This project is considered one of the large projects implemented by stc and within a short record period of 180 days, where 40 mobile towers were connected with optical fibers. The land port service and the entities working in it with the latest technologies and at high speeds that support 100 GB of data.

Bangladesh Rolls Out 5G

Bangladesh joined more than 60 other countries as it rolls out the fifth-generation (5G) of mobile internet connectivity on 12 December 2021. State-run mobile phone operator Teletalk will be the first to launch the super-speed technology, while the private operators are expected to jump on the bandwagon next year after the auction for spectrum in March. Teletalk will introduce the updated service on an experimental basis in six areas: the Prime Minister's Office, Parliament, Secretariat, Bangabandhu Museum on Dhanmondi 32, Bangabandhu Sheikh Mujibur Rahman's birth place Tungipara in Gopalganj, and the National Martyrs' Memorial in Savar, said its Managing Director Md Shahab Uddin. So, Teletalk's 65 lakh mobile phone subscribers will have to wait for more days as the operator is yet to get the clearance for its Tk 235 crore project to set up equipment at 200 points. Subscribers of the private mobile phone operators will have to wait until the spectrum auction. The 5G technology promises to provide data speeds at least 20 times faster than 4G and underpins the great advances of the next era, from self-driving cars and augmented reality to smart cities and artificial intelligence, according to Reuters. The technology is expected to bring higher-quality streaming and the ability to livestream to bigger audiences. "5G is the highway for automation," said Shahab. The trial run of 5G will be inaugurated at a program at the Radisson hotel in Dhaka, according to an invitation of the telecommunication division. But the launch comes at a time when Bangladesh is yet to benefit from its 3G and 4G technology deployments. The reach of mobile networks has expanded with 95 per cent of the population covered by 4G mobile broadband networks. Still, only 28 per cent of the mobile phones are connected to 4G, while 25 per cent use 3G and the rest 47 per cent 2G, said the GSM Association, an industry organization that represents the interests of mobile network operators worldwide, in a report in March. Bangladesh has 12.92 crore internet subscribers as of October. Of them, 11.91 crore access internet through mobile phones and the rest through internet service providers. "It was in the election manifesto of the government that it would launch 5G by 2021," said Subrata Roy Maitra, vice-chairman of the Bangladesh Telecommunication Regulatory Commission. He says 4G and 5G services are not the same. While 4G deals with connectivity, 5G's application is industry-based. "So, the two should not be compared." The first 5G network was launched in April 2019 by South Korea and the US. Commercial 5G is now available in 1,336 cities across 61 countries, said Arizona-based VIAVI, which offers lab-based network test solutions, in June in its "The State of 5G" report. Abu Saeed Khan, senior policy fellow at LIRNEasia, a think-tank based in Colombo, says the introduction of the 5G service is primarily a political decision, not based on the market demand. "Through this, the taxpayers' money is being wasted. In the backdrop of poor 4G service, talking about 5G is nothing but a stunt." He says the penetration of smart phones in Bangladesh is not more than 35 per cent. And as there is a shortage of 5G-enabled phones, there will be no service, he said. "We don't need 5G as per market demand. We need full 4G service." The market desperately needs a conducive policy pertaining to infrastructure sharing for a modest quality of 4G services, the telecom expert said. "Therefore, the government must overhaul the anti-broadband policy regarding optical fiber infrastructure. Infrastructure sharing should be mandatory." According to Khan, Teletalk is still a defaulter in terms of payment for the spectrum. So, it is utterly unethical to glorify the operator using taxpayers' money for such a politicized farce of technology. Teletalk Managing Director Shahab says the operator has urged the finance ministry to convert the spectrum fee into equity as the government is the owner of spectrum. Responding to the absence of smooth service for its subscribers, he says the number of towers, also known as base transceiver stations (BTS), of Teletalk is a third of Grameenphone's. And, it could not invest to expand BTS for a lack of investment. "The service will improve following an increase in investment." In March, the GSMA called for improving affordability by adopting appropriate policy and regulation in areas such as tax, subsidies and business innovation to increase mobile internet adoption in Bangladesh. It urged the government to equip individuals with digital knowledge and develop an ecosystem to produce contents locally.

Pakistan, DCO Agree to Enhance Cooperation in IT, Telecom

Pakistan and Digital Cooperation Organization (DCO) formally agreed to enhance cooperation and collaboration in the field of information technology and telecommunication. Both sides announced to provide one million Pakistani students to learn digital skills by 2022. Pakistan's Ministry of IT & Telecommunication and Digital Cooperation Organization (DCO) formally agreed to enhance cooperation and collaboration in the field of Information Technology and telecommunication between member countries, and to joint efforts that promote public-private partnership, enhance the role of women in information technology, provide digital facilities in urban and rural areas, to provide investment opportunities for IT professionals and start-ups to meet the challenges of the digital work. Both organizations announced the "Pakistan Innovation Challenge" which will enable one million Pakistan K-12 students to learn digital skills by 2022. The Pakistan Innovation Challenge was announced by the Federal Minister for IT and Telecommunications, Syed Aminul Haq, and the Secretary General of the Digital Cooperation Organization (DCO) Ms. Dima AlYahya in a joint statement at the end of the three-day inaugural visit to Pakistan. The DCO, consisting of seven founding member countries, including Pakistan, Saudi Arabia, Bahrain, Kuwait, Nigeria, Oman and Jordan, aims to benefit from each other's experiences, and observations, provide technology requirements for their citizens, and to enable market opportunities from their collective populations of 500 million people. The 17-20 November visit reinforced the importance of Pakistan as member state of the DCO, taking place within the first year of the DCO's establishment. The DCO progressed several strategic priorities of Pakistan, including enabling inward investment, digital economy skills and infrastructure development, export development support for digital companies and entrepreneurs, and inclusion of young people and women in the digital economy. In a joint statement, Federal Minister for IT Syed Aminul Haq thanked DCO Secretary-General Ms. Deemah AlYahya for her visit to Pakistan and said that this visit would be an important milestone in the goals of the organization and in the world of digital economy. Every day new values are added and the demand for the digital economy is increasing globally. In this regard, Pakistan is always ready to provide all kinds of facilities to all member countries and for joint efforts. Syed Aminul Haq said that the reforms and initiatives under the Digital Pakistan Vision could set an example for the member countries. Pakistan can be a great hub not only for the world but also for the DCO countries due to its time zone, world class IT professionals, excellent English accent and Tax savvy conditions. He said that the member countries could benefit from the expertise of start-ups in Pakistan by investing in them while highlighting their creativity, while joint efforts were also required for the free movement of IT professionals and companies in the member countries. “The Pakistan government is committed to providing all our citizens with the skills to benefit from our vision of a knowledge-based digital economy. The Pakistan Innovation Challenge is a great example of how we are partnering globally to support our children and Pakistan's future," added Minister Ul Haque. DCO Secretary General Ms. Deema Al-Yahya stated that Pakistan's contribution to the global digital economy is significant, and the progress achieved together during the visit reinforced how important the Pakistan-DCO partnership is to enabling digital prosperity for all. “This visit has generated significant energy and a renewed focus on the inclusion of young people, women and entrepreneurs in Pakistan's digital economy. The DCO is committed to enabling Pakistan's progress in these areas, and I commend President Dr. Arif Alvi, the government ministers and digital economy leaders that we have worked with during the visit for their impact in enabling digital prosperity for all. We look forward to supporting Pakistan as a valued member state of the DCO for years to come." The visit provided an opportunity to take a closer look at the various ministries and institutions leading the digital economy in Pakistan, with the infrastructure of the Universal Service Fund (USF) and Ignite of Ministry of IT being examples of public-private partnerships that can provide facilities and support creativity skills by leveraging private sector investment.

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ARTICLE

B2B Solutions for Future Readiness: Surviving in the Era of Change

Amr Eid
CEO and Board Member
OmniClouds

The only constant in life is change. Nothing has rung more true to that than the recent years, largely in part due to the COVID-19 pandemic. The pandemic has plunged the world into one of its worst global recessions. And while it seems that the business landscape is changing faster than ever before, the rise in digitalization has long been hinting at the urgency for businesses to prepare for the future.

> *Within the last decade, the emphasis on being future-ready has shifted to coincide with the rise in digitalization. From automation, big data to artificial intelligence (AI) technology, businesses that embraced digitalization are better equipped to deal with the potential challenges of the future.*

Without collaboration, an advanced and consistently developing marketplace would be an impossibility. Companies across industries rely on the products, services and capabilities produced by other organizations to accomplish tasks that are as challenging as maintaining cloud infrastructure or as ubiquitous as receiving shipments. Changing consumer needs, combined with shifting workforce expectations, are altering the competitive landscape and dictating the transformation of existing company operating models for the companies. These companies are facing wholesale change—from defining how technology reinvents entire functions to how the organization manages new workforce models to unlock value with cross-industry ecosystems.

As the Covid-19 crisis has demonstrated, businesses can't predict the future entirely. Growing a business often requires keeping up with the latest industry trends, including technology. Digitization, connectivity, and virtualization are bringing revolutionary new opportunities to companies and taking them beyond all the traditional limits. Moreover, the global economic upheaval has impacted companies across the globe and shown that no business or

solution or can ever indeed be future proof. So now is the right time to focus on being 'future-ready, establishing new business models to deal with current and future challenges. To accelerate business results, for today's B2B companies, organizations should adopt a model that recommends a shift in focus to three key dimensions, all infused with intelligence, namely efficiencies, experiences, and innovation.

The path to becoming future-ready is not necessarily linear. Even stable organizations can accelerate their journeys by moving up more than one maturity level. Adding intelligence to the journey by applying a strategic approach to advancing the operating model and transforming the business through technology, processes, and people.

Companies can gain a competitive advantage and agility by being future-ready. The journey begins here and now. Within the last decade, the emphasis on being future-ready has shifted to coincide with the rise in digitalization. From automation, big data to artificial intelligence (AI) technology, businesses that embraced digitalization are better equipped to deal with the potential challenges of the future.

A flexible operational model—an optimum blend of interdisciplinary teams and on-demand technologies that function across a large ecosystem of partners—is required to be future-ready. The objective is to deliver excellent business outcomes on a large scale from anywhere, at any time.

Here are a few solutions for future readiness.

ICT as a Service for Enterprises – shift from CapEx to OpEx

With everything in business, the ultimate question is always, "What's the bottom line here? What is this going to cost us?"

Traditionally, companies relied on in-house models for data centers that required a huge CapEx investment as they purchased space, equipment, software, and a workforce to run and maintain everything. Hence, Cloud provides opportunities to reduce capital and operational expenditure, improve service quality and responsiveness through automation, scale digital aspects of the business efficiently and drive business innovation with emerging tech. Cloud Computing enables CapEx (Capital Expenditure) savings as businesses no longer need to invest in costly infrastructure. When it comes to cloud ROI, comparing capital expenses (CapEx) to operational expenses (OpEx) reveals the Cloud is a great way to switch IT spending to a pay-as-you-go model and reduce CapEx costs, as well as reap other benefits.

To accelerate business results, for today's B2B companies, organizations should adopt a model that recommends a shift in focus to three key dimensions, all infused with intelligence, namely efficiencies, experiences, and innovation.

Reimagining the Role of Technology

Today, we live in a dynamic and turbulent global community. The wave of megatrends, including rapid change in globalization and technological advances, is creating new market forces. The technology service industry has grown quickly, but the decade ahead is likely to see even more growth as companies of all kinds recognize the imperative of digital transformation. For any organization to survive and prosper in such an environment, innovation is imperative. A pool of Technology services addressing the different needs of enterprises in the future. It's time to turbocharge the operations by reviewing existing practices that may no longer serve the business. Enterprises may need to start integrating new processes to reap the exponential benefits that cloud computing, and AI has to offer.

Innovation for value creation

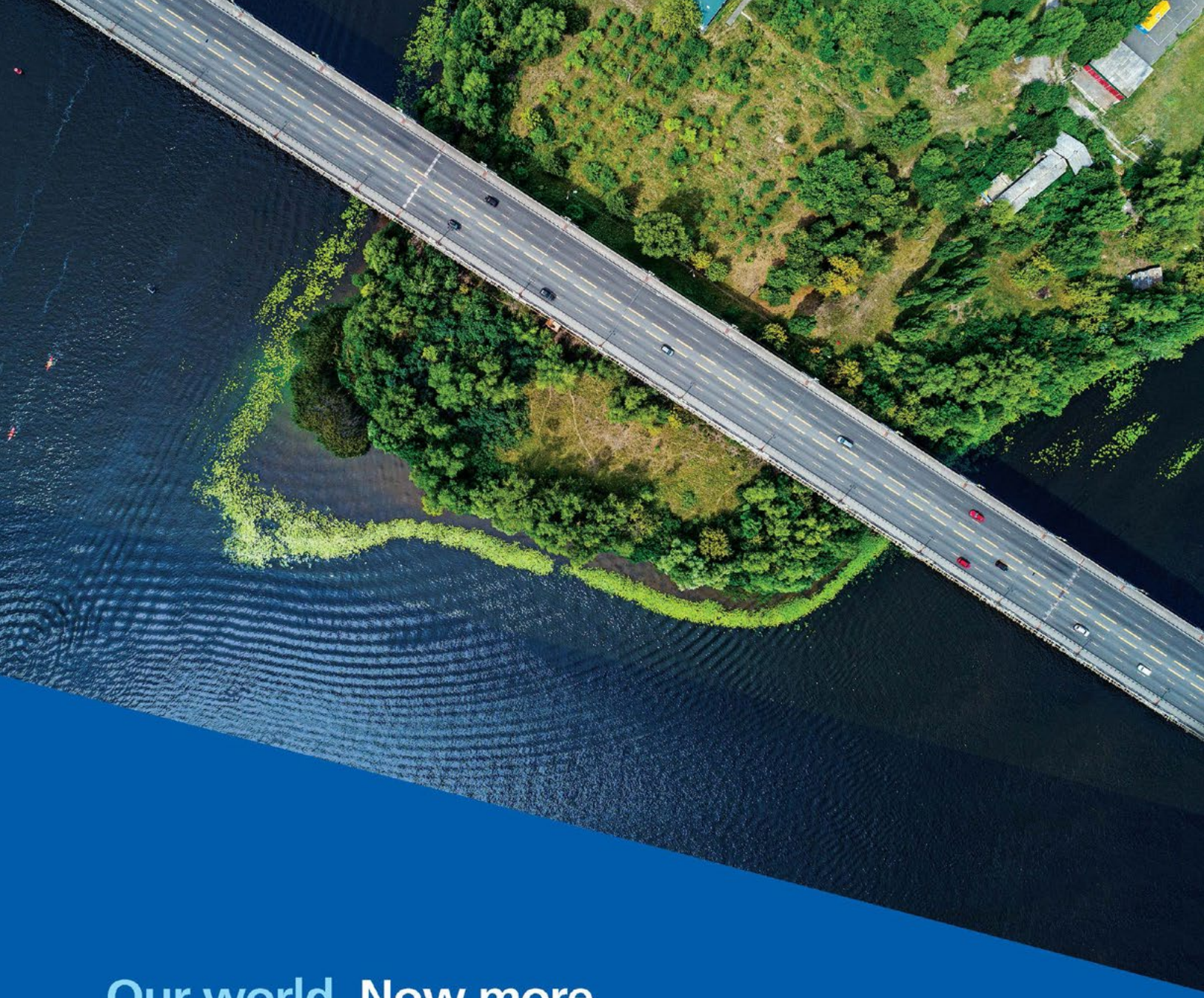
The service industry addressing B2B is future proof since customers can change the service every year. As technology becomes the catalyst for business strategy and transformation, the lines between business and technology functions are blurring, and the expectations of IT are shifting, leading many organizations to reimagine the role of technology and rethink traditional operating models and organizational structures. To maximize the value of technology investments, companies must operate with agility, predict and respond to customer and employee needs, remain competitive, and drive shareholder value, companies should fuse together separate business and technology strategies into a single unified strategy. This can require a new approach that enables business and technology functions to partner and co-create new sources of value, including data, agility, speed, transparency, and digital experiences. With technology as the catalyst, organizations have the opportunity to either disrupt and transform—or fall behind.

Augment human talent with technology

By fostering a human-machine workforce where technology helps people (not the other way around). The workforce will then be able to engage in more creative and critical thinking, which is the unique approach to discovering new sources of value. More than one-third (34%) of future-ready firms have implemented a large-scale agile workforce strategy. As a result, they can tap into ecosystem partners to mobilize people with special skills as needed.

Conclusion

Companies must be quick to market with agile, disruptive solutions so they can continually understand what customers need. Technology operating model agility remains to be imperative. As technology and business leaders consider the immense task of creating an ecosystem in which co-creation and innovation thrive, they can begin both by reimagining what technology can do for the business and viewing technology as an opportunity to enable business disruption and create sustainable competitive advantage. To achieve enterprise agility, businesses optimize how they organize and structure technology work and operate. At the intersection of these two dimensions is enterprise agility, where businesses behave in a more agile manner.



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SATELLITE NEWS

Inmarsat Eyes Fresh Capabilities As I-6 F1 Satellite Launches

British satellite operator Inmarsat has successfully launched its first dual-payload satellite into orbit. The hybrid L- and Ka-band satellite — a double-decker bus-sized system known as I-6 F1 — will ensure the continuation of Inmarsat's critical L-band-supported aviation and maritime safety services, while providing targeted capacity to its high-speed Global Xpress (GX) network. I-6 F1 is also expected to help Inmarsat unlock a new generation of capabilities for customers, including a raft of Internet of Things (IoT) applications. Manufactured by Airbus, the I-6 F1 satellite on 22 December was ferried into space by a Mitsubishi Heavy Industries H-IIA rocket, which lifted off from the JAXA Tanegashima Space Center in Japan. I-6 F1 adds to Inmarsat's existing global fleet of 14 geostationary satellites. A second L-/Ka-band hybrid satellite, known as I-6 F2, is expected to round out the I-6 constellation next year. Together, they represent a step change in the capacity of Inmarsat's L-band satellite services. The London-headquartered firm's current L-band network — recently branded Elera — has long supported crew communications and safety services for aviation and maritime customers, including secure voice and data. Indeed, when industry is not grappling with a global pandemic, over 12,000 aircraft use Inmarsat's Classic Aero service, which is accessible over its prior-generation Inmarsat I-3 and I-4 satellite systems. And Inmarsat's advanced SwiftBroadband-Safety service is provided over its I-4 constellation. (Inmarsat's I-5 series of broadband satellites comprise its current Global Xpress constellation.) According to Inmarsat, the I-6 F1 satellite alone "will provide 50% more capacity than the entire I-4 generation of Elera satellites". In addition to providing redundancy and ultimately a replacement path for prior gen L-band satellites, the two I-6s will support new capabilities including advanced safety services for airlines and maritime customers, as well as new IoT applications emerging from Elera including in agritech, transportation and utilities. With Elera, as underpinned by the I-6s, Inmarsat vows it will offer "the fastest L-band speeds available to customers, the smallest low-cost terminals and a more connected, sustainable and safer world". In terms of new applications, Inmarsat urges us to: Think commercial UAVs for disaster response and medical deliveries; autonomous transport; monitoring of the oceans and supporting greener energy solutions; intelligence, surveillance and reconnaissance (ISR); and industrial and agricultural IoT connecting billions of machines and devices. Meanwhile, the Ka-band payload on each I-6 satellite will add further depth of capacity to Inmarsat's current five-satellite Global Xpress constellation, which supports broadband cabin connectivity for a growing list of airlines (Lufthansa, Qatar Airways and Singapore Airlines to name a few), in addition to providing mobile connectivity to maritime and government customers. Inmarsat CEO Rajeev Suri notes in a statement that the Indo Pacific region will especially benefit from the targeted capacity provided by the launch of I-6 F1. Ground stations in Western Australia will support the satellite, which is expected to formally enter service in 2023. Notably, the I-6s are backwards-compatible with existing Elera and Global Xpress terminals, enabling current and future customers to benefit from new and enhanced service capabilities, says Inmarsat. The successful I-6 F1 satellite launch marks the start of what Inmarsat assures is a fully funded technology roadmap that will see the launch of a further six satellites by 2024. US satellite operator Viasat will be able to tap into this remarkable satellite capacity — and indeed placement on aircraft and ships worldwide — when it completes its planned $7.3 billion acquisition of Inmarsat in the second half of 2022. Viasat, meanwhile, is readying to launch the first of a three-satellite ViaSat-3 constellation in 2022.

M7 Inks 1-Degree West Satellite Capacity Agreements

Luxembourg-based pay-TV provider M7 Group has concluded new HD satellite capacity agreements for its 1-degree West platform with RTL Hungary, ViacomCBS and Network4/Viasat World. The three new satellite capacity deals build upon long-standing contracts with all three parties for both 1-degree West and ASTRA 23.5 degrees East capacity, as well as related channel carriage agreements. The agreement with RTL Hungary facilitates the satellite distribution of RTL+ in HD quality. A key benefit is that it will allow Hungarian football fans to enjoy live matches and highlights of the UEFA Europa League and the UEFA Europa Conference League - for which RTL Hungary acquired the rights for three seasons. The agreement with ViacomCBS will see the media giant use the newly contracted 1-degree West capacity for the satellite distribution of its dedicated CEE feed of Nickelodeon HD. The agreement with M7 follows on a recent contract renewal for the satellite distribution of 12 ViacomCBS channels targeting various CEE markets. Network4 in partnership with Viasat World has contracted 1-degree West capacity for the distribution of a fully Hungarian-localized version of documentary channel Viasat Explorer, to be launched shortly. Network4 will be in charge of local advertising sales, while Viasat World is arranging the content line-up and localization. Commenting on the deals, Bill Wijdeveld, VP platform content services at CANAL+-owned M7 Group says: "We are truly delighted to have inked new agreements with three highly respected customers with whom we have enjoyed solid partnerships over many years. Not only for satellite platform services, but also for bringing their great content to our subscribers throughout the various M7 markets in Europe. We look forward to a continued, fruitful cooperation."

Soyuz Rocket Launches 36 OneWeb Internet Satellites into Orbit

An Arianespace Soyuz rocket launched dozens of new internet satellites into orbit to boost a growing megaconstellation by service provider OneWeb. The Russian-built Soyuz rocket launched 36 OneWeb satellites from Baikonur Cosmodrome in Kazakhstan. The flight comes just two days after an Arianespace Ariane 5 rocket launched NASA's James Webb Space Telescope into space on Christmas from Kourou, French Guiana and just ahead of the New Year, closing out Arianespace's launch manifest for 2021. It's "a special time of the year for a very special flight," Arianespace CEO Stéphane Israël said via a video message during a launch webcast. The launch was Arianespace's 15th of 2021 and the last of the year, he added. This launch marked the eighth launch of the year for OneWeb, which now has 394 of its internet satellites in orbit. If all goes well, the 36 new satellites will be deployed in an initial orbit 280 miles (450 kilometers) above Earth about 3 hours, 45 minutes after liftoff. They'll then head off to a final orbit more than 621miles (1,000 km) above Earth. The London-based OneWeb is building a constellation of 648 satellites to provide high-speed internet access to customers around the world, especially remote and under-connected locations. This year, the company reached the 60% mark of their constellation in space and signed a series of distribution agreements with partners in Australia, Canada and Europe for their service network. "The demand for connectivity is not just at an emotional level, it is almost visceral," OneWeb CEO Neil Masterson told Via Satellite in an interview this month. "We think we have this incredible opportunity to level up this digital divide and help close it." OneWeb is not the only company vying for the satellite internet customers. SpaceX is building a megaconstellation of its own called Starlink and has launched 1,944 satellites since 2019. That constellation is expected to number at least 4,400 satellites in its initial configuration. Amazon is also developing its own internet satellite constellation called Kuiper, but has yet to launch any satellites.

SpaceX Launches Türksat 5B Communications Satellite

SpaceX successfully launched the Turksat 5B Turkish communications satellite in less than 16 hours after launching a batch of Starlink broadband spacecraft. The company's Falcon 9 rocket took to the skies at 10:58 PM EST December 18 (03:58 UTC Dec. 19), 2021, from Space Launch Complex 40 at Cape Canaveral Space Force Station in Florida. Turksat 5B was deployed into a geostationary transfer orbit where it will use its own onboard propulsion to circularize its orbit into a geostationary orbit positioned at 42 degrees east longitude. Operated by the Turksat communications company, which is owned by the Turkish government, is expected to provide TV broadcasting services and telecommunications to Europe, Turkey, the Middle East and geographical sections of Asia and Africa. This mission is a follow up to Turksat 5A, which was launched earlier in 2021. The Turksat 5B satellite was launched to geostationary transfer orbit, where it will use onboard electric thrusters to reach 42 degrees East to provide high throughput Ka- and Ku-band services over Turkey, the Middle East and parts of Africa. The 9,900-pound (4,500-kilogram) Turksat 5B spacecraft is Turkey's most-powerful satellite to date with a design life of about 15 years. However, it has a next-generation electric-powered impulse system that could allow it to operate for 35 years, providing data transmission of more than 55 gigabits per second with Ka-band, Ku-band and X-band transponders. All communication equipment for Turksat 5B was produced in Turkey before being transported to France for satellite integration and then on to the United States for launch. The telecommunication satellite and high data capabilities are expected to establish internet communication in places not accessed by terrestrial infrastructure, according to Minister of Transportation and Infrastructure, Adil Karaismailoglu. Turkey's first domestically built communications satellite Turksat 6A, currently in production, is expected to launch sometime in 2023 as integration, assembly and testing of the satellite at Ankara Space Space Systems and Integration Test Center are ongoing.

NGC Australia Teams with Inmarsat

Northrop Grumman Australia will partner with Inmarsat to develop an agile, resilient and sovereign satellite communications capability to support the future joint force and protect Australia's strategic interests in response to the JP9102 Australian Defence Satellite Communication System project. Under JP9102, the two companies will collaborate to deliver an Integrated Control Segment that provides the Commonwealth with flexibility across commercial and military SATCOM networks. The companies have already collaborated to deliver satellite communications capabilities through the HEOsat program, a collaborative program between the Government of Norway, the United States Air Force and Inmarsat, which will deliver broadband services to the Arctic region. “As an established satellite communications provider to the ADF, we're proud to partner with Inmarsat and build on our shared history of developing global satellite communications networks,” said Christine Zeitz, general manager, Northrop Grumman Asia Pacific. “Northrop Grumman is a true pioneer in space, providing world-leading capabilities in space mission and strategic deterrence solutions,” said Frank DeMauro, vice president and general manager, tactical space systems, Northrop Grumman. “We will build on this foundation and our history of collaboration with Inmarsat to deliver a complex and agile network of satellite communications systems, combating emerging threats and supporting the Australian Defence Force (ADF) in the future battlespace.” “Inmarsat is pleased to be partnering with Northrop Grumman Australia to meet the requirements of the Australian Defence Force,” said Rajeev Suri, chief executive officer of Inmarsat. “Together, we provide the right balance of program delivery track record, access to advanced satellite system technology, protection against evolving threats, and sovereign assurance through long-term delivery for Australia, from Australia. Inmarsat brings highly complementary capabilities to Northrop Grumman's JP9102 proposal. Both companies have proven delivery capability as demonstrated on current ADF satellite programs.” Northrop Grumman's end-to-end space expertise brings strategic capability from SATCOM, control systems, enterprise ground infrastructure and launch systems, backed by a legacy of expertise that began at the dawn of the space age.

OneWeb Commercial Launch Delayed 'Five or Six Months'

BT and other wholesale partners of satellite company OneWeb will start testing services in January, Capacity understands, with commercial services likely to be on offer several months later. That means OneWeb will miss its original planned commercial service date of October 2021 by at least three months, and more likely five or six. The pandemic has been a major contributor to the delay, because of global supply-chain issues. And consumers in the UK and elsewhere will miss the joy of finding OneWeb receivers in their Christmas stockings this weekend, despite the hope expressed earlier this year by the company's executive chairman, Sunil Bharti Mittal (pictured), in an interview with Capacity. Mittal gave that over-optimistic October prediction in an interview with Capacity in January 2021, though the company later modified that to "by the end of 2021". But it has missed that deadline too, especially thanks to the shortage of semiconductor circuits. The company announced its first wholesale partner in the southern hemisphere, Australia's Vocus. Its CEO Kevin Russell said: "Helping to scale and deliver OneWeb's low latency and telco-grade satellite systems means we can provide more opportunity for customers to access the high-quality connectivity they need to be successful, particularly in remote and regional operations." Vocus and OneWeb said that "first commercial customers are planned for middle of 2022", later than in those parts of the northern hemisphere north of 50°N, in which Mittal said services would begin in October 2021. Senior staff at OneWeb and its previously announced wholesale partners – including AT&T, BT and Verizon – are no longer being forthcoming about service dates for that area between 50°N and the North Pole, even though the satellites now offer 100% coverage there. One BT person said: "It's a bit too early to say when we will launch services for UK customers, and we're looking to do some lab and customer trials early next year." But that person did not define either "looking to do" or "early next year". But Capacity understands from sources in the industry that BT is also looking at Starlink, the broadband satellite company owned by Elon Musk's SpaceX, as an alternative way of delivering fast internet in remote areas. SpaceX showed its lively interest in the UK market in July 2021 when it was revealed that there is a third ground station operating in UK territory. That is now in operation on the Isle of Man, though not technically part of the UK, in the Irish Sea. This joins two others, in Buckinghamshire and Cornwall, both in England. Because low Earth orbit (LEO) satellites such as OneWeb's or Starlink's are so low, they require ground stations every thousand kilometres or so, with more for resilience. The UK regulator, Ofcom, put out on 10 December a statement that some in the satellite industry are seeing as significant, largely focused on which of many of the new LEO satellite operators have priority under international rules. OneWeb is trusting that the fact it had 10% of its satellites in orbit by February 2021 means it has secured its right to frequency slots over such rivals as SpaceX and Amazon's Kuiper. Capacity understands that both those US rivals lobbied against OneWeb's prior claim. The main challenge for OneWeb has not been getting its satellites in orbit – it already has 358 in service, of a planned total of 648 by mid-2022 – but obtaining and delivering receivers. Telecoms industry insiders have suggested to Capacity that potential wholesale partners have received only tens of prototype receivers to try out in northern Canada, the UK and the US state of Alaska. All of the UK lies north of 50°N latitude, in OneWeb's initial coverage area. Delivery, which started in November, has been slowed first by the global lack of semiconductor circuits and second by supply-chain delays caused by the Covid pandemic. OneWeb's main terminal partner is South Korean company Intellian, which signed a deal in March 2021. Another potential terminal supplier is Hanwha Systems, which invested US$300 million in the company in July 2021. Wholesale partners – which include Alaska Communications and Pacific Dataport as well as AT&T, BT, Verizon and now Vocus – then have to load software on to the terminals before subjecting them to rigorous tests. One person who is aware of the project said it is likely that the software engineers will need to work on the receivers before they can be released to paying customers. OneWeb has had a 100% successful launch record so far, all by the French company Arianespace on Russian Soyuz rockets – originally designed by the Soviet Union to destroy western Europe and North America in a nuclear war. Its 11th launch in a row was on 14 October, from the Vostochny cosmodrome in eastern Russia, in what had been an approximately monthly sequence since early 2020. There was no November launch, because Arianespace took that slot and rocket to launch satellites for the EU's Galileo positioning service. The next, number 12, is scheduled for 27 December, from Baikonur, a Russian-controlled enclave in Kazakhstan. There will then be two launches in January and one in February, to take OneWeb to its total complement of 648 active satellites, including in-orbit spares, in its first generation. Two of those planned 2022 launches are from Kourou, in French Guiana in South America, and one is from Baikonur. Meanwhile OneWeb has raised $2.7 billion from shareholders since it was rescued from bankruptcy by Mittal's Bharti Global, part of the group that owns Bharti Airtel, and the UK government in 2020. They put an initial $500 million each into a successor company. The original OneWeb, which blamed Covid for its bankruptcy, pre-paid for all satellites and launches, leaving the successor free to spend its money elsewhere. Since then Bharti has doubled its stake to $1 billion and others have come into the list of shareholders, including Eutelsat, which is now the second biggest, outstripping the UK government, along with Softbank, Hughes – part of EchoStar – and Hanwha. Apart from continuing operations, that money is largely earmarked for what Mittal told Capacity back in January 2021 was "gen two" – the second generation of satellites, due to be in service in 2024-25. OneWeb also plans that the second generation will have the ability to run positioning services, in competition with the US GPS, Europe's Galileo and Russia's Glonass. It was that ability, still a few years away from reality, that the supporters of OneWeb used to promote the project to sceptical UK politicians and the political establishment in 2020. But in the same interview Mittal also said: "Let's say before Christmas this year the UK will have them in their homes," he added. Four days before Christmas, that's not happening.

Four Companies Shortlisted for Nepal's Satellite Installation

Four companies have been shortlisted for carrying out the study required for placing Nepal's own satellite into orbit. Nepal Telecommunications Authority (NTA) shortlisted four out of eight international companies that had presented technical and financial proposal last month. The shortlisted companies are Euro Consult of France, Turksat of Turkey, S3Tel Inc of the UAE and Thailand's Thaicom. Based upon the technical and financial proposal presented by the shortlisted companies, one company will be selected to work towards launching Nepal's satellite, said NTA's spokesperson Santosh Poudel. The government has set the target of operating country's own satellite within 2022 and also released a policy for it last July. Earlier, 22 companies from 12 various countries had submitted their expression of intent for putting into orbit Nepal's satellite.

Starlink to Launch Satellite Internet Across Pakistan

SpaceX has expressed eagerness to launch Starlink's satellite broadband internet in Pakistan. In this regard, a delegation of US-based global satellite broadband provider called on Minister of IT and Telecom Syed Aminul Haque on Tuesday to discuss the policy and operation model. The group comprised SpaceX Director Middle East and Asia Ryan Goodnight and Head of Global Site Acquisition Ben Macwilliam. On the occasion, Haque mentioned that 40,000 schools and small and medium enterprises presented a unique opportunity to the company. He said the Starlink internet could also be expanded to the unserved and underserved areas of Pakistan.

World Mobile Launches Internet Balloons Over Zanzibar

World Mobile Group, under a partnership with Input-Output Global (IOG), has launched its internet balloon service to cover the Tanzanian island of Zanzibar. The solar-powered aerostatic balloons act as floating base stations and will provide backbone connectivity for the company's hybrid mobile network, which aims to expand coverage to remote areas and inshore fishing waters. Micky Watkins, CEO of World Mobile, said: 'Zanzibar will become the world's first smart region powered by World Mobile, connecting businesses, schools and society as a whole.'

Satellite Operators Join to Shape the Communications Ecosystem of the Future Through the Transformation of the EMEA Satellite Operators' Association to the Global Satellite Operators' Association

Chief Executives of the world's leading satellite operators announced today in Paris on the occasion of World Satellite Business Week 2021 that ESOA, the EMEA Satellite Operators Association, is expanding to include satellite operators from all world regions and will change its name to GSOA, the Global Satellite Operators' Association. They also announced that seven new members – Amazon, APT, ARSAT, Intersputnik, Lockheed Martin, Omnispace and Star One – had already agreed to join GSOA. GSOA will remain the only CEO-driven satellite industry association. It will focus on a core mission of providing a unified voice and a platform for collaboration for satellite operators globally to ensure their continued success and for broadening the opportunities for policymakers and industry players to leverage satellite services to fulfil their objectives. "The creation of GSOA reflects a strong belief in the satellite communications sector that a strong, global voice is needed to ensure that the sector is well positioned to helping create a more connected and sustainable world," said Stephen Spengler, ESOA Chairman and CEO of Intelsat. "The fact that new members are already joining us is a demonstration of support for GSOA's mission and the need to ensure that, together, we have a strong voice in shaping the communications ecosystem of the future."

Leading Change

GSOA is structured to drive industry leadership in the face of three key trends: unparalleled innovation in the space sector, an insatiable demand for all types of connectivity, and a need to bring sustainability to space. In this regard, the GSOA Board has approved three broad industry goals.

GSOA is committed to:

On earth: extending connectivity globally where other networks don't, connecting unconnected communities, schools, households, planes, ships, businesses, humanitarian agencies, peacekeepers and governments, aiming to increase the number of satellite data connections by 250% by 2030 and increase the data consumed by those connections 15 fold. In space: preserving the space environment for future generations by designing, launching and operating satellites in a responsible way and minimizing the creation of space debris. For all: supporting the UN Sustainable Development Goals by providing access to secure, reliable and sustainable broadcast & broadband connectivity to people, schools, enterprises, organizations and devices wherever they may be, whether on the move, at work, or at play. With the industry's multi-orbit offering, the satellite sector will respond to the great majority of connectivity requirements presented by the data driven economy of tomorrow. From bridging crippling social, education, healthcare and other divides that exist due to the lack of communications infrastructure on all continents to enabling a host of 5G and IoT use cases for different vertical sectors. Satellite operators will continue to build on the successes of ESOA which include providing the support the industry needed to push ahead with 5G standards and vital leadership on issues such as satellite spectrum and space sustainability. Through GSOA, the satellite sector will now be able to drive such global activities leveraging a global operator base. GSOA will provide its members with the opportunity to shape the future of the satellite communications industry and the frameworks in which it operates by participating in key activities that impact the sector. Specifically, GSOA members will be able to engage in cross-sector initiatives, drive common positions, represent the industry on topics such as spectrum and 5G in events on all continents and contribute to ITU work concerning the development agenda, emergency communications and of course spectrum. The association will continue to have a CEO-led Board, which has proved invaluable to the success of the ESOA to date, a strong Secretariat, and member-driven working groups that execute the broad agenda set by the Board. "This is an important change that will help ensure the industry is positioned well into the future", said Aarti Holla-Maini, the secretary general of ESOA. "We also recognize that there are other industry associations who will want to understand the implications of this change and we look forward to working with them to ensure the satellite communications sector has the strongest possible, unified global voice." The Global Satellite Operators Association now counts among its members: Airbus CIS, Amazon, Amos Spacecom, APT, Arabsat, Arsat, Avanti, Azercosmos, Echostar-Hughes, HellasSat, Hispasat, Inmarsat, Intelsat, Intersputnik, Lockheed Martin, Nigcomsat, Nilesat, Omnispace, OneWeb, Rascomstar, SES, SSI- Monacosat, Star One, Telenor, Telesat, Telespazio, Thuraya, Turksat, Viasat and Yahsat as well as representatives of the broader space industry including Airbus Defence and Space, Arianespace, Astroscale, Mansat, ST Engineering and Thales Alenia Space.

UK Space Agency Funds New Laser-Based Satellite Communications System

The UK Space Agency has awarded almost £650,000 to Northumbria University to continue world-leading work to develop the first commercially available laser-based inter-satellite communicatiorld-leading expertise in space law, undertaking pioneering work on the governance framework for human activity in outer space.

Inmarsat Teams for Satellite IoT

RBC Signals will use the Inmarsat global mobile satellite network to drive IoT and other data and communications services and solutions for customers. RBC Signals has signed a strategic agreement with Inmarsat to use the UK-based satellite operator's global network for the Internet of Things (IoT). The global multi-year leasing agreement pairs Inmarsat's worldwide ELERA and Global Xpress satellite networks with RBC Signals' range of new and existing data and IoT applications for use across multiple verticals, including oil and gas, maritime, agriculture and utilities. RBC Signals will incorporate Inmarsat's L-band and Ka-band networks into its applications and solutions, enabling new levels of flexibility and service customization. Where previous leasing agreements were based on static, pre-set network connectivity specifications, the new partnership will enable RBC Signals to adjust dynamically, reallocate and scale up variables such as spectrum, power levels and geographical reach, according to the changing connectivity needs of individual customers. "The Internet of Things is transforming how businesses and industries around the world operate," said Mike Carter, President, Inmarsat Enterprise. "The positive impact of IoT depends on reliable, secure and scalable global connectivity, which is where Inmarsat's experience, expertise and technology come into their own. Our new agreement with RBC Signals will allow more businesses to benefit from the efficiency, productivity and sustainability gains IoT enables. We look forward to working with RBC Signals to bring new, innovative IoT and other data-driven products and services to market." "Companies are increasingly demanding innovative connected products and services, especially around the Internet of Things," said Christopher Richins, founder and CEO, RBC Signals. "These products and solutions must have global reach to perform optimally and satellite connectivity is essential to meet the needs of enterprises with assets beyond the reach of terrestrial fixed and mobile networks. IoT, and especially Industrial IoT, is a significant growth area for RBC Signals. Inmarsat with their uniquely positioned network and global coverage is the ideal partner for us to take advantage of this opportunity. "This partnership will help RBC Signals achieve our aim of being a complete end-to-end solution provider for every organization that needs best-in-class multi-network solutions. We are proud to announce this new strategic partnership with Inmarsat at such an exciting moment in their history, with the imminent launch of world's most advanced commercial communications satellite, the new Inmarsat I-6 F1, later this month."

FCC Considers Satellite Rule Overhaul

The Federal Communications Commission (FCC) proposed revisions to rules governing non-geostationary (GEO) satellites, potentially making it easier for newcomers to operate Low Earth Orbit (LEO) birds. A Notice of Proposed Rulemaking (NPRM) adopted today (14 December) proposes ending interference protections granted to existing operators of non-GEO satellite services. The agency is seeking public feedback on methods to enable coordination among relevant satellite operators by requiring them to share information including satellite beam pointing data. In addition, the FCC will consider limiting existing spectrum sharing mechanisms to operators approved in the same processing round. Satellite systems subsequently approved would be required to protect those cleared earlier. The FCC noted its proposal grants part of a petition made by SpaceX, which is deploying satellites for broadband services and backhaul for mobile operators. FCC Chair Jessica Rosenworcel endorsed the "entrepreneurial activity in our skies" and told a meeting the agency "needs to make changes" to accommodate this. Rosenworcel noted existing rules were put into place when almost all spacecraft were launched by the government, contributing to a "first mover advantage", which the FCC will consider mitigating. She noted a need to strike a balance between rewarding entrepreneurial initiative and encouraging competition.

Inmarsat Launches World's Most Sophisticated Commercial Comms Sat

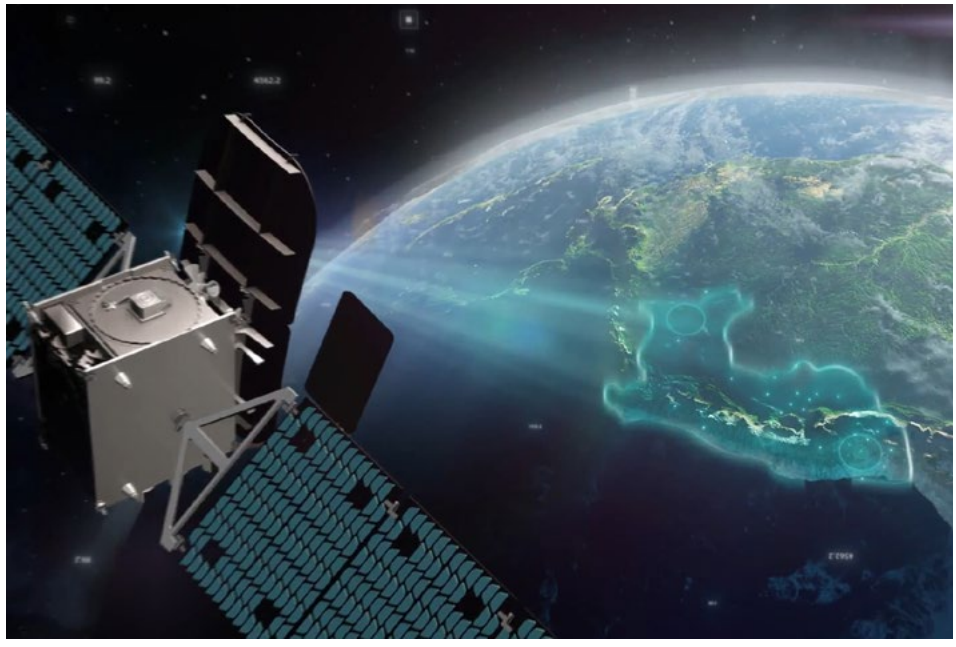
When it comes to mobile satellite communication, Inmarsat tops the list. The British satellite company has now launched its first Inmarsat-6 satellite, I-6 F1, by Mitsubishi Heavy Industries (MHI) from the JAXA Tanegashima Space Center in Japan. What makes the Inmarsat-6s (I-6) interesting is that it delivers an enhanced platform for those looking to embrace the next wave of world-changing technologies that ELERA enables, including the rapidly growing Industrial IoT satellite connectivity (IIOT) market segment, by providing dramatically increased network capacity and resilience. According to Verified Market Research, the global satellite communication market size was valued at US$65.68 Billion in 2020 and is projected to reach US$131.68 Billion by 2028. Some companies are already building their own satellites with the hopes of providing better communication and connectivity for their services. For Industrial IoT services like applications involving remote assets, regular reporting to headquarters is key. The new satellite enables everything from shipping containers to smart bulldozers to make regular reports back to their base of operational status. Compared to previous satellites, this is the first-ever hybrid L- and Ka-band satellites, incorporating increased capacity and new technological advances for ELERA's transformational L-band services alongside additional Global Xpress (GX) high-speed broadband capacity. The new satellite adds to an existing global fleet of 14 geostationary satellites to extend Inmarsat's commitment to mission-critical services while enabling a new generation of pioneering technologies to connect and sustain the world. The launch is the first of seven planned for Inmarsat by 2024 in the company's fully funded technology roadmap. The most sophisticated commercial communications satellite ever launched, I-6 F1 is comparable in size to a London double-decker bus, with a deployed solar arrays 'wingspan' similar to a Boeing 767 and a 9-meter-wide L-band reflector that will be deployed over the coming days. The satellite will then be raised to geostationary orbit (GEO) approximately 36,000km above the Earth via its all-electric propulsion system and then undergo a thorough and extensive testing program. I-6 F1 will enter service in 2023. Ground stations in Western Australia will support I-6 F1. According to Rajeev Suri, CEO of Inmarsat, the launch marks Inmarsat's newest technological leap forward as they maintain its strong commercial momentum and sector leadership. The satellite extends Inmarsat's world-leading mobile satellite communications services for customers and partners, especially in the Indo-Pacific region. The I-6 satellites demonstrate Inmarsat's ongoing investment and commitment to its global leadership in L-band satellite services to 2040 and beyond for the benefit of mobility customers worldwide. These new capabilities from the I-6s mean greater capacity and coverage, greater speeds, and a greater portfolio of innovative connectivity solutions for ELERA and Global Xpress (GX) networks. The I-6 satellites, like all Inmarsat ELERA and GX spacecraft, are backward-compatible with existing terminals, ensuring that current and future customers will continue to benefit from new advances. The I-6s also substantially increase the effective capacity of the network available to ELERA customers with double the beams, 50% more spectrum per beam, and double the power of the I-4s, matching customer demand as and where it is needed. They also add further depth in Inmarsat's global coverage for even greater assurance to customers of the redundancy and resilience of Inmarsat's world-leading L-band network. The GX6 payloads hosted on the I-6s add targeted high capacity to Inmarsat's high-speed GX network, ensuring it continues to support the growing need of commercial and government customers for data, particularly in congested regions or hotspots where it is needed most. The launch of the I-6s is further evidence of the momentum underpinning Inmarsat's business and technology leadership in global mobility communications. I-6 plays an integral role in the reliable GEO infrastructure that underpins Inmarsat ORCHESTRA – the world's first network that will combine GEO, highly elliptical orbit (HEO), low Earth orbit (LEO), and terrestrial 5G into one harmonious solution.

Telefonica Uses Intelsat Satellite to Boost Mobile Connectivity

Telefonica Deutschland, which provides services under the brand name O2, has revealed that it is now using satellite connections from Intelsat at mobile phone locations in regions that are difficult to supply. The geographically or topographically challenging areas cannot be connected using traditional technologies such as radio relay or fiber-optics. The satellite connection from Intelsat provides guaranteed data transmission rates of 50Mbps, thereby enabling customers to receive not only 2G GSM but also 4G LTE connectivity.

Astranis Signs Deal to Bring Satellite Internet to 3 million People in Peru by 2023

Astranis, a San Francisco-based company with an alternative approach to providing internet access from satellites, announced a deal that would bring broadband to millions of people in Peru in two years. The company's agreement, which it says is worth over $90 million, with Latin American service provider Grupo Andesat will see Astranis deploy one of its small form factor satellites specifically for Peru. "This first satellite, which will go into service in 2023, will light up about 1,000 cell sites and provide broadband internet to approximately three million people across the country," Astranis CEO John Gedmark told CNBC. "This is the first time that the people of Peru have had their very own dedicated satellite," Gedmark added. The Astranis deal with Andesat includes an option for a second satellite under the same terms, which Gedmark noted could be deployed as early as 2024. Gedmark emphasized that Astranis' satellite will deliver broadband service to many locations for the first time, and upgrade current 2G service in others. "This capacity is primarily used for cell backhaul – meaning our satellite is being used to connect cell towers so individual users in Peru are going to be getting 4G broadband internet on their cell phones," Gedmark said. "It's a total game changer." Astranis' is one of a number of next generation broadband satellite systems in development, as companies race to meet a growing global demand for data – including SpaceX's Starlink, British-owned OneWeb, Amazon's Project Kuiper, satellite-to-smartphone specialist AST SpaceMobile, Lockheed Martin's partnership with start-up Omnispace and Canadian satellite operator Telesat's Lightspeed. But unlike the low Earth orbit focus of other companies, Astranis' approach features a small form factor satellite combined with proprietary technology and placed in geosynchronous orbit, the operating location of existing players like Viasat. Astranis launched a prototype in 2018 and is now finishing work on its first commercial satellite, set to launch next year and provide service to Alaska. Gedmark emphasized that the world's "demand for data is effectively unlimited," creating far more demand than there is supply from satellite internet services. Astranis sees this Andesat deal "as a model we can replicated across Latin America," Gedmark said. "Giving the people of these countries their very own satellite assets for the very first time, and with that comes a huge amount of capacity at very low cost," Gedmark said.



Starlink Set to Launch Broadband Services in Lithuania

Lithuania's Minister of Transport and Communications, Marius Skuodis, has revealed that Starlink satellite broadband services are set to be launched for consumers in early 2022. The service, which is backed by Elon Musk's SpaceX venture, will initially provide speeds of up to 150Mbps, but this will increase in the near future, according to the Minister. 'We aim to create opportunities for residents and businesses in Lithuania to use innovative, state-of-the-art solutions, to have the widest possible range of services and the widest possible choice,' Skuodis said in a press release, adding: 'The satellite broadband provided by Starlink is also particularly valuable in regions where there is a lack of terrestrial infrastructure and no mobile or fiber connection.'

Virgin Orbit Adds Spire Satellite to Next Launch

Virgin Orbit will fly a Spire cubesat in addition to several other payloads on its next LauncherOne launch, scheduled for no earlier than Dec. 22. Virgin Orbit announced Dec. 9 that Spire's ADLER-1 three-unit cubesat had been added to the manifest for that upcoming launch, called "Above the Clouds" by Virgin Orbit. The satellite, whose name is derived from Austrian Debris Detection Low Earth (orbit) Reconnoiter, was developed in partnership with the Austrian Space Forum and Findus Venture GmbH. It will collect data on the environment of "micro" space debris in low Earth orbit using a short-range radar provided by Spire. In the statement, Dan Hart, chief executive of Virgin Orbit, said only 20 days elapsed between initial discussions and the agreement to add the satellite, and from there 36 hours to get Federal Aviation Administration authorization to add the satellite to the mission and integrate it onto the vehicle. "Spire's recent addition to Above the Clouds is a great example of the flexibility of LauncherOne's capabilities, the agility of both our teams, and the flexibility and support of the FAA in enabling rapid and responsive deployment of satellites to low Earth orbit," Hart said. Virgin Orbit announced the mission in November. At the time the two customers were the Defense Department's Space Test Program (STP) and Polish satellite manufacturer SatRevolution. STP is flying several smallsats from government agencies to test communications and navigation technologies, as well as a university payload. SatRevolution is flying its STORK-3 imaging satellite and SteamSat-2, a satellite that will test water-fueled thrusters developed by British company SteamJet Space Systems. In the statement about adding the Spire satellite, Virgin Orbit said the launch is scheduled for some time between mid-December and mid-January. According to a notice to mariners published by the U.S. Coast Guard Dec. 8, the company is planning a launch between 5 and 8 p.m. Eastern Dec. 22, with backup dates of Dec. 23 and Jan. 8–10. The launch will be the fourth flight of LauncherOne. An inaugural launch in May 2020 failed to reach orbit when the rocket's first-stage engine shut down several seconds into flight. The company reached orbit on its second launch in January, followed by another successful launch in June. Virgin Orbit is also nearing conclusion of its merger with NextGen Acquisition Corp. II, a special purpose acquisition company (SPAC). The merger, announced Aug. 23, would turn Virgin Orbit into a publicly traded company on the Nasdaq and raise up to $483 million to fund the company's expansion. The two companies announced Dec. 8 that the Securities and Exchange Commission had declared effective the registration statement for the merger, a key step to completing the deal. Shareholders of NextGen are scheduled to vote on the merger Dec. 28, with the companies completing the deal "as soon as practicable" after the vote.

FCC Approves LEO Satellite Application from French Firm Kineis

The US Federal Communications Commission (FCC) has granted a petition from French satellite company Kineis to offer satellite services in the US market. As detailed in the company's application, the proposed constellation of 25 small Low Earth Orbit (LEO) satellites would provide connectivity for IoT devices, as well as enhancements to maritime domain awareness through the monitoring of maritime communication. Kineis petitioned the FCC for access to the US market using frequencies for non-voice, non-geostationary (NVNG) mobile-satellite service (MSS) and earth exploration satellite service (EESS) through a constellation of satellites that will be authorized by France. The US regulator has granted Kineis market access in the 399.9MHz-400.05MHz and 401MHz-403MHz uplink bands, and the 400.15MHz-401MHz downlink band, subject to certain conditions.

South Africa Signs Satellite Navigation Agreement with China

South Africa and China are developing closer ties in the space industry, and this now extends to satellite navigation. The nations announced that the South African National Space Agency (SANSA) and China Satellite Navigation Office (CSNO) have signed an MoU for cooperation in satellite navigation. The MoU includes the intention for collaboration within the field of satellite navigation, strengthening exchanges and cooperation in the domains of satellite navigation technologies, talent cultivation, applications and industrialization as well as research and applications of BeiDou Navigation Satellite System (BDS)/GNSS in geophysics, space science, geodetic survey and other sectors based on GNSS data amongst other interest areas. This MoU is supported by bilateral cooperation between South Africa and China and has been facilitated through South Africa's Department of Science and Innovation. "This is an exciting endeavor for the country as greater investment and support to the space engineering industry will mean growth in scarce engineering skills, strengthening of the knowledge economy and support to government's goal of addressing poverty through unemployment," said Mmbonene Moefe, DDG at the Department of Science and Innovation.

InterSAT Partners with Kymeta and Azercosmos for Mobility Service in Africa

InterSAT has signed a partnership agreement with Kymeta and Azercosmos to deliver mobile satellite communication services using Kymeta's U8 terminals and InterSAT's SkyMOVE services across Africa, and carried by the Azerspace-2 satellite. The partnership agreement enables InterSAT to deliver a complete connectivity solution for on-the-go communications with the Kymeta U8 terminal. The u8 terminal was designed with Kymeta's software-defined, electronic beam steering technology and is low profile and mounts easily on vehicles and vessels for seamless communications on the move. Kymeta's antenna technology is uniquely positioned to meet the demand for mobile broadband, providing internet access via satellite or hybrid satellite-cellular networks on a user-defined basis to enable connectivity while on the move or on the pause. Commenting on the partnership, Bill Marks, EVP, Chief Development Officer, Kymeta, said: "This new satellite mobility partnership offers limitless opportunities for communication and collaboration in Africa. We are committed to providing customers with the most advanced, reliable, easy-to-manage and flexible solutions to meet their connectivity requirements. We are pleased to have InterSAT join our partner network as we grow in this rapidly expanding market." Mark Guthrie, Chief Commercial Officer at Azercosmos, added: "We are pleased to expand the scope of our longstanding relationship with InterSAT, to now enter into this partnership for the delivery of comm's on the move services over the Azerspace-2 satellite throughout Africa." Hanif Kassam, CEO of InterSAT, stated: "With end-markets for high-speed satellite-based networks growing, this partnership with Kymeta and Azercosmos is a significant step in enhancing our solution offerings. Being technology-agnostic supports our notion that there is no one size fits all solution for our diverse customer base in Africa, and this unique partnership is another step in enhancing our portfolio." Subrata Roy, CTO of InterSAT, commented: "We are thrilled to collaborate with forward-thinking companies like Kymeta and Azercosmos to provide affordable service to our customers, with the quality and reassurance they expect from our innovative companies."

Datagroup Takes Internet Speeds to New Heights Across Ukraine with Cisco Routed Optical Networking

Datagroup, a leading Ukrainian telecom operator for business and home users, launched a large-scale national project to modernize its backbone network with Cisco. The new Datagroup network is based on Cisco Routed Optical Networking and Converged SDN Transport solutions, which help service providers build high-speed networks with greater security and reliability. The pandemic significantly increased the importance of fast and reliable internet connections for consumers and businesses across Ukraine. As a result, Datagroup's network traffic increased by 35%. In 2021, traffic growth continued, increasing an additional 30% over a nine-month period. Datagroup decided to scale up its backbone network to promptly address the changing external environment, increasing throughput and bringing quality of services to new heights. Cisco Converged SDN Transport architecture, based on the Cisco NCS series of routers, will serve as the foundation for Datagroup's updated backbone network. This architecture will help Datagroup deploy one of the most flexible, automated, and efficient networks in the Ukrainian telecom market. Combining services into a single automated infrastructure optimizes network performance by increasing the resiliency and scalability of the network and simplifying the commissioning of new services. Cisco's Routed Optical Networking solution, designed to combine DWDM and IP networks for improved operational efficiencies and simplicity, will also support Datagroup's new network architecture. This converged infrastructure simplifies network design, planning and management, with the ability to save up to 45 percent in total cost of ownership (TCO). Cisco Routed Optical Networking integrates open data models and standard APIs, enabling Datagroup to focus on automation initiatives for a simpler topology. "As part of the first stage to modernize our network, we have a fully operational central hub in Kiev built on Cisco equipment which has already increased the resiliency of our network and significantly improved the level of service for our corporate customers," said Mikhail Shelemba, CEO of Datagroup. "For home subscribers, access to more capacious Internet channels and faster speeds is gradually becoming easier. We expect the completion of the first stage of modernization by the end of the year." "Cisco is committed to a more inclusive future, helping to connect more people, businesses and governments around the world," said Sergey Martynchuk, Regional Sales & Channel Manager, Cisco. "The unique competencies of Datagroup's new network architecture will help make a significant contribution to the development of telecom infrastructure in Ukraine, to connect the unconnected, or under-connected, and foster economic growth in the region."

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ARTICLE

3 Areas Satellite Strengthens Your Telecom Network

Satellite distribution complements telecommunications - not competes with them

Mobile Network Operators are faced with the challenge of expanding their client base beyond urban areas. However, these users lack access to the infrastructure required for good connectivity, forcing many telecom operators to invest substantial amounts of money in setting up a local network.

For many years satellite connectivity has been seen as a competitive force for telecommunications companies and challenging to integrate into local networks cost-effectively. But this has all changed with innovations like Eutelsat ADVANCE, which, through joint network design, is affordable and flexible for successful backhaul deployment. Eutelsat ADVANCE enables network operators to extend their service area regardless of the availability and quality of terrestrial infrastructure, ensuring connectivity for communities and businesses beyond the reach of mobile networks.

> *Eutelsat ADVANCE enables network operators to extend their service area regardless of the availability and quality of terrestrial infrastructure, ensuring connectivity for communities and businesses beyond the reach of mobile networks.*

Satellite could be the only complimentary service that offers an opportunity for these companies to expand into rural locations. Here we highlight three areas where satellites can strengthen a telecommunications network and provide essential support for backhaul deployment.

Mobile network backhaul

Telecommunications organisations have historically relied on terrestrial networks to reach their customers and provide their services. However, this has left the more remote markets untapped and unserviced. As businesses and people expand outwards across the world, communications requirements are dramatically expanding and need a new solution.

Philippe Llau
Head of Telco and Backhaul Connectivity
Eutelsat

As a mobile operator or service integrator, reaching remote areas requires extensive mobile network backhaul. The further service coverage is needed, the stronger and more reliable the connectivity solution needs to be to ensure the backhaul performs well. Mobile networks, transport services and IoT operations increasingly demand a solid backhaul transmission network from mobile operators.

Satellite offers a unique opportunity for mobile operators to keep up with the demand for connectivity while alleviating the increasing pressure to provide backhaul connectivity.

With Eutelsat ADVANCE, you gain resilient connectivity with satellite redundancy covering all markets and regions, effectively connecting cell site air interfaces to wireline networks and data centres. Satellite's resilience and reliability also ensure that companies and users can rely upon the connection quality of a telecommunications company, no matter where they may find themselves.

Ultra-rural backhaul

Untapped, emerging markets are a future opportunity for telecommunications organisations as businesses, people, and industries establish themselves in more remote areas of the world. Soon ultra-rural industries such as agriculture and maritime will be relying upon technology that will require connectivity to function.

Terrestrial networks face multiple challenges in ultra-rural areas due to the challenging terrain and lack of development. This often means that telecommunications companies miss out on the opportunity to service these areas, leaving opportunities for further business on the table unconnected.

Eutelsat ADVANCE enables mobile operators to capitalise on this growing opportunity, with a flexible, scalable solution that offers coverage across vast regions, no matter how remote. Satellite provides the ability to reach and connect any challenging terrain that would otherwise be impossible for terrestrial networks to operate in.

Services such as ADVANCE Backhaul embrace the multitude of advantages satellite offers and provides them in a way that makes sense for telecommunications companies and their users. It extends 2G, 3G and 4G, and soon 5G, via satellite to rural areas to ensure connectivity for communities and businesses beyond the reach of mobile networks.

Private networks and trunks

For many private networks, keeping up with high running costs hinders their ability to grow and expand. Private trunks often face the challenge of creating efficient network access between separate nodes and providing multiple signals at once.

To provide for multiple signals while supplying a quality service, private networks and trunks need to offer greater reach with economical solutions for the long term.

Eutelsat ADVANCE offers dynamic plans to accommodate seasonal volumetric changes. It provides for private networks using radio technologies, regions trunking for carriers and service integrators in rural or dispersed areas.

With dynamic plans that accommodate your needs, ADVANCE's services and solutions can adapt to your needs in the moment and ensure business continuity no matter your challenges on the day, season or year.

> *Eutelsat ADVANCE offers vital connectivity with reliable high-speed communications to manage critical data and telemetry connectivity across vast coverage areas. It is specifically designed to act as a complementary service to extend your reach and access to remote markets and challenging terrain.*

Ensure connectivity for your operations

It's time to hybridize the terrestrial. Satellite connectivity enables telcos to expand beyond their historical constraints, access entirely new markets and continue to grow and offer their services with greater reach.

Eutelsat ADVANCE offers vital connectivity with reliable high-speed communications to manage critical data and telemetry connectivity across vast coverage areas. It is specifically designed to act as a complementary service to extend your reach and access to remote markets and challenging terrain. ADVANCE is flexible and scalable with overlapping beams to better align with customer needs and provide network resiliency.

Consider Eutelsat ADVANCE to connect your network and customers anywhere and anytime. Only Eutelsat has a proven track record for supplying reliable and resilient connectivity to the far reaches of the world. Visit the official Eutelsat ADVANCE website for more information.

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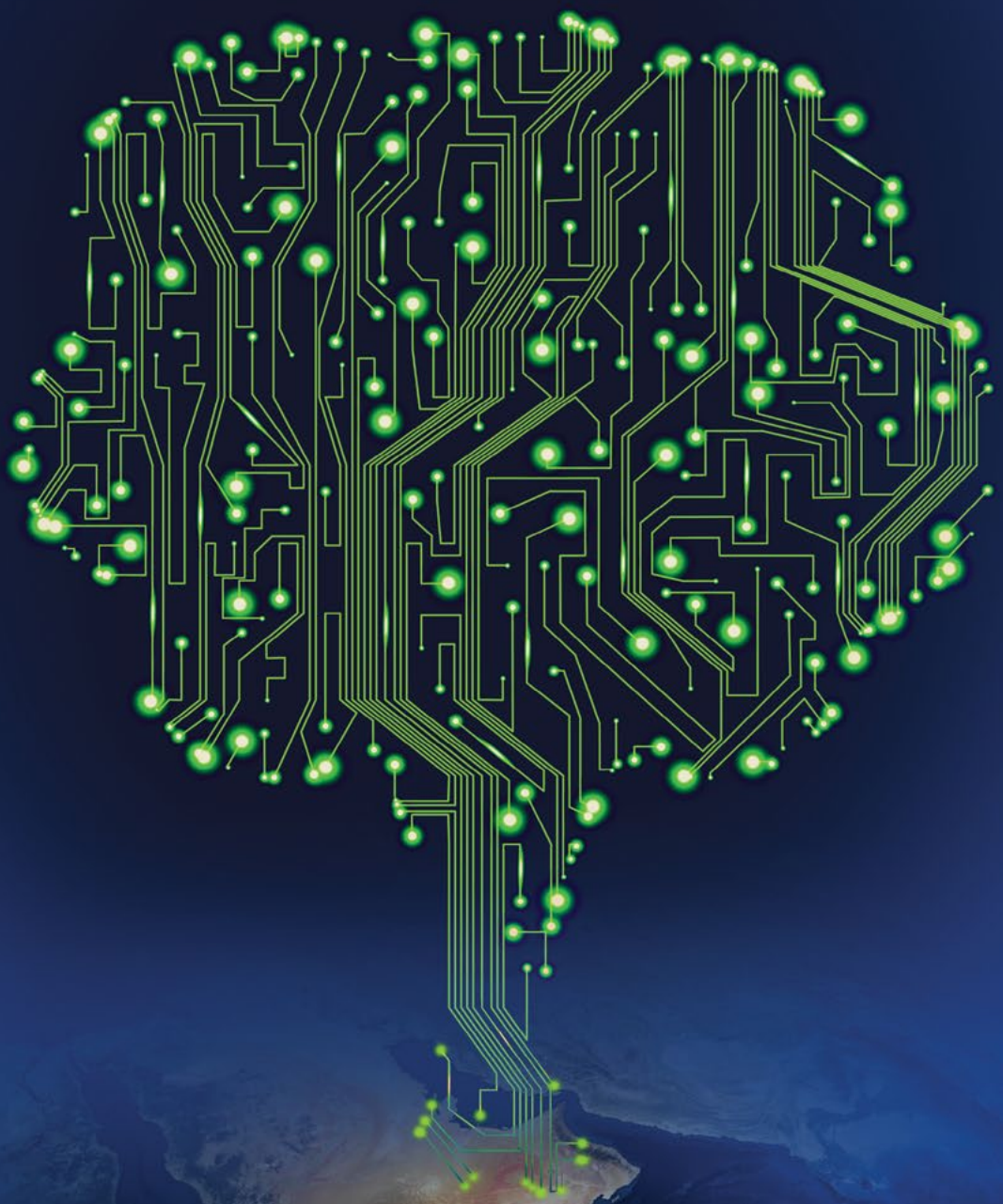


C.R. No: 1640747

WHOLESALE NEWS

EU Agrees to Extend Roaming Rules to 2032

The European Parliament reached an agreement with European Union (EU) member states to extend regulation allowing citizens to roam without incurring additional charges when travelling in the bloc by a further ten years, along with introducing further advantages for consumers. In a statement, the European Commission (EC) welcomed the decision to extend current roaming rules to 2032. The Commission first proposed the extra time in February, with the Parliament voting in favor in October. The existing set of rules were introduced in 2017 and abolished consumer surcharges for using mobile data, calls and SMS across EU countries. The original term expires in July 2022. In addition to the extension, the EC explained those travelling across the EU will have improved access to communications regardless of their location, and greater information around unexpected charges. Commissioner for the Internal Market Thierry Breton said travelling in Europe without having to worry about phone bills "is a tangible part of the EU single market experience for all Europeans". "Today we are not only ensuring that this experience continues, but we are upgrading it. Better quality, better services, even more transparency." The EC added the updated rules lower wholesale charges to ensure operators can "sustain and recover the cost of providing roaming services to consumers at domestic prices". Going forward, the EC noted it was also looking to evaluate measures on calls and SMS rates from a home country to another member state, and if there was a need for caps to protect consumers.

NCC Sets New International Termination Rate

The Nigerian Communications Commission (NCC) has determined the new international termination rate (ITR) for voice services paid by overseas telecoms carriers for terminating international calls on local networks in Nigeria at USD0.045 per minute. The new rate will take effect on 1 January 2022 and has been set in US dollars (USD) to enable Nigerian operators to receive an increasing rate in Nigerian naira (NGN) terms to accommodate devaluation. The ITR rate is the minimum that can be charged; operators will be free to negotiate a rate above the floor and this will be entirely left to commercial negotiation between the operators and international carriers/partners. Previously, the ITR for inbound traffic was increased from NGN3.90 (USD0.009) to NGN24.40 per minute in October 2016 and the rate was maintained at this level from 1 June 2018. The NCC has added that the mobile termination rate (MTR) of NGN3.90 for generic 2G/3G/4G operators and NGN4.70 for new entrant LTE operators determined in 2018 will continue to apply for local call termination until a new rate is determined by the regulator. 'The Commission has carefully considered the information provided by stakeholders and taken a view on parameters and regulatory measures in the light of relevant information such as international experience, cost model results, the state of competition in the sector and the Nigerian macro-economic environment,' commented the NCC's Executive Vice Chairman Umar Garba Danbatta, adding: 'We are confident that the result the review will make a significant contribution to the development of the telecoms sector in Nigeria and be beneficial to subscribers, operators and the country at large.'

Orange Poland Plans Push to Expand Wholesale Services

Orange Poland says it is looking to ramp up its wholesale operations, including offering fiber-optic access to other telcos and hosting MVNOs on its mobile network. Maciej Nowohonski, member of the management board of Orange for Wholesale Market and Real Estate Sales, commented: 'The telecommunications market has changed a lot in recent years. Today, operators are more and more often not only competitors, but in many areas they are able to jointly work out solutions that benefit everyone.' The first MVNOs are expected to launch on Orange infrastructure in the first half of next year. Meanwhile, Swiatlowod Inwestycje, the wholesale fibre provider established by Orange, plans to deploy a network covering 2.4 million premises by 2025.

Communications Authority Slashes Calling Rates

Consumers will enjoy lower calling rates following the review of mobile termination rates and fixed termination rates by the Communications Authority of Kenya (CA). The Authority cut the rates from Sh0.99 to Sh0.12. CA said the cut will have a positive impact on both consumers and operators, adding the review will reduce the need for consumers to own multiple SIM cards as charges across networks come down. "The review was founded on the recognition that higher mobile termination rates and fixed termination rates mean higher calling rates for consumer making it difficult go them to enjoy affordable communications services," CA said in a statement. The Authority further noted that at the retail level, consumers will enjoy access to a variety of affordable services across networks while at the wholesale level operators will have more price flexibility. Mobile termination rates and fixed termination rates are the costs that operators charge each other to allow customers communicate across networks. The initiative is aligned with the Authority's Vision of a Digitally Connected Nation, as well as the National ICT Policy Guidelines 2020 broad goal of ensuring accessibility and affordability of ICTs by Kenyans. This is not the first time that the Authority is lowering the rates. The first such determination was issued in 2007 and followed by another in 2010.

French Supreme Court Dismissed Appeal Against Orange Free Roaming

French telecommunications authority Arcep rejects the appeal filed by Bouygues Telecom and SFR against a regulatory decision issued in October 2020 that approved the extension of domestic roaming contracts between rivals. Etat) welcomed the decision. And orange. The latter sought Alsep's approval to extend the 2G / 3G roaming agreement until the end of 2022, prompting further investigation into the terms of the extension. Commenting on the decision of the French Supreme Court, Arcep said he supported the approach to network sharing. French Supreme Court dismissed appeal against orange free roaming contract.

Nkom Seeks Feedback on Fixed Broadband Market Definitions Ahead of Wholesale Analysis

Norway's National Communications Authority (Nkom) has announced the start of work on analyzing the country's fixed broadband markets, as the basis for a possible designation of one or more providers as having significant market power (SMP). In a press release regarding the matter, the Nkom said it will seek input from operators and interested parties by a deadline of 4 January 2022, with its primary aim being to gather input on the 'precise demarcations' of the product markets for broadband services as they relate to end users. According to Hans Jorgen Enger, head of Nkom's competition department, the purpose of determining these markets is so as to enable it to investigate whether there should be one or more markets at the wholesale level. The Nkom's previous wholesale broadband market rulings were published in 2018 and saw Telenor Norge designated as holding SMP at the wholesale level, with a number of obligations imposed upon it as a result. Now, in terms of its planned schedule for the next analysis, the watchdog says it will carry this out during the first of 2022, before sending notifications of any decision related to those companies holding SMP for consultation. With draft decisions to then be sent to the EFTA Surveillance Authority (ESA) for notification ahead of a final ruling, the Nkom has said it does not envisage that latter stage happening until 'the end of the first half of 2023'.

UPC Poland Inks Wholesale Deal with Tauron

UPC Poland has signed a new deal to share the fiber networks of utility firm Tauron. The wholesale agreement will add 100,000 people to UPC's footprint in 132 communities in the Dolnoslaskie, Slaskie and Malopolskie regions. Tauron deployed the networks under the government-backed Operational Program Digital Poland (Programu Operacyjnego Polska Cyfrowa, POPC), which was established to subsidize fiber rollouts in underserved areas.

Malaysian Cellcos Call for Second 5G Wholesale Operator as DNB Switches on Its First Sites

Digital Nasional Bhd (DNB), Malaysia's sole 5G wholesale service operator, has switched on its first live 5G sites, local press outlet Lowyat.net reports. The sites are located in Kuala Lumpur, Putrajaya and Cyberjaya, and it is understood that the operator has around 300 5G base stations in operation initially, although it is expected to increase that figure to 500 within the next few weeks. In terms of access to the network for consumers, YTL Communications – which offers services under the Yes banner – is reportedly the first of the country's telcos to have launched a commercial offering over the DNB network. YTL is marketing SIM-only 5G plans on both a pre-paid and post-paid basis, with the latter costing MYR49 (USD11.6) per month and offering 100GB of 4G data in addition to unlimited 5G data until 31 March 2022. In addition, it is also offering a range of handset and 5G SIM bundles. Meanwhile, Telekom Malaysia is expected to become the next to introduce 5G; the operator confirmed earlier this month that it had struck a deal to trial 5G connectivity with DNB, and it has been suggested that the operator's 'unifi Mobile' branded post-paid customers will be able to access the 5G network for the trial's duration. Notably, however, neither YTL nor Telekom Malaysia have confirmed yet whether they have signed a long-term agreement on the usage of DNB's 5G wholesale infrastructure. In separate but related news, Reuters reports that several Malaysian mobile network operators (MNOs) have, in fact, recommended that the authorities allow for the setup of a second 5G wholesale network in the country, with the news outlet citing three sources and documents it had seen. As previously reported by CommsUpdate, earlier this month the government said it would look to make a final decision in January 2022 as to whether to allow multiple 5G network access providers, following reports of concerns from local cellcos over matters of pricing and transparency. According to Reuters, representatives from all six MNOs – Celcom Axiata, Digi Communications, Maxis, U Mobile, Telekom Malaysia and YTL – met with government officials on 13 December to propose solutions to the deadlock. It is claimed that Celcom, Digi, Maxis and U Mobile recommended that the state allow the construction of two wholesale 5G networks, with each to be built and operated by a consortium of carriers. For its part, YTL was said to have objected to such plans, expressing support for a single 5G network, while Telekom Malaysia indicated it would back any decision made by the government. DNB said, though, that it was not privy to the discussions held, with a response regarding the matter from the company's CEO Ralph Marshall saying only: 'We will respect the process adopted by the government and will make our representations at the appropriate forum.'

Malaysia Prepares for 5G Wholesale Pilot

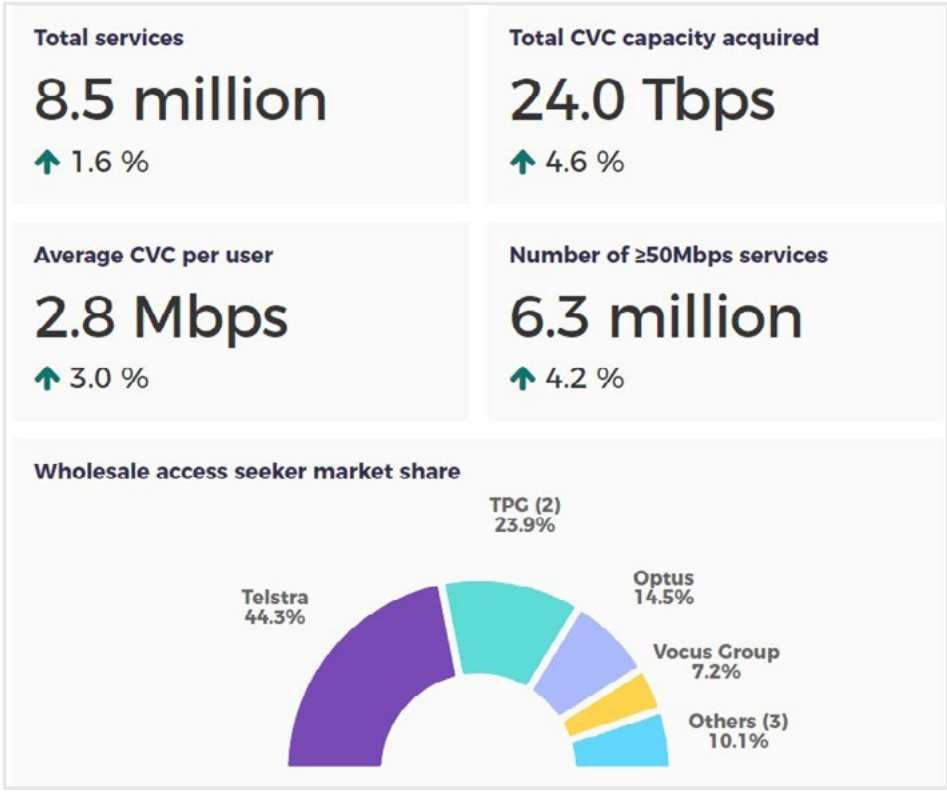
Digital Nasional (DNB), Malaysia's state-owned 5G wholesale network operator, was tipped to begin trials of the technology in parts of three major cities next week, with the service to be delivered at no cost during the pilot phase, Reuters reported. The organization said the cost of 5G wholesale would be lower than 4G and the trial period will end on 31 March 2022, the news agency stated. DNB is reportedly looking to finalize wholesale arrangements and sign contracts with operators in early 2022. The Straits Times reported Telekom Malaysia signed up to participate in the 5G trials, with Celcom Axiata likely to follow. Last month, Reuters reported DNB had not worked out long-term contracts with the five major mobile operators in Malaysia, raising concerns because commercial service is scheduled to start by the end of the year. The government first needs to approve the 5G access cost, following a public consultation. DNB is a special purpose vehicle set up by the government to manage the a single national 5G network.

T-Mobile Poland Expands Fiber Coverage with Wholesale Deal

T-Mobile Poland has signed an agreement to lease capacity on fiber-to-the-home (FTTH) networks operated by Swiatlowod Inwestycje, the wholesale operator set up by Orange Poland. The deal will add 730,000 households to T-Mobile's fiber footprint, taking its overall coverage to 4.7 million premises.

ACCC Publishes Latest NBN Wholesale Indicators Report

The Australian Competition and Consumer Commission (ACCC) has revealed that there are now more than 8.5 million fixed broadband subscriptions connected via the National Broadband Network (NBN), of which 75% are signed up to a service with download speeds of at least 50Mbps. In publishing its latest 'NBN Wholesale Market Indicators Report', the regulator noted that in the three months ended 30 September 2021 retail service providers (RSPs) signed up a combined 450,000 residential and business fixed broadband subscribers to tariffs offering maximum downlink speeds of either 50Mbps or 100Mbps services. Of that figure, around 150,000 were reported to be subscriptions that were upgraded from entry level plans, which offer speeds of either 12Mbps or 25Mbps. However, the ACCC did also reveal that the number of subscriptions on a plan offering speeds of 100Mbps or more had declined by around 195,000 – to 455,720 from 651,267 at mid-2021 – with the drop attributed to 'the scaling back of NBN Co's 'Focus on Fast' promotion, which saw customers on promotional offers returning to their previous speed tiers'. Meanwhile, with regards to a breakdown of access types being used to connect, the ACCC's quarterly report confirmed that fiber-to-the-note (FTTN) continued to account for the largest portion of NBN subscriptions. A total of 3.090 million subscriptions were connected via that technology at end-September, up from 3.006 million a year earlier, while HFC-based accesses represented the next largest slice of the pie – 1.955 million, up from 1.812 million at 30 September 2020. Finally, in terms of the market share of RSPs offering services via the NBN, the ACCC noted that Aussie Broadband had continued to make 'strong gains', with that provider accounting for almost one third of the wholesale services added in Q3 2021, lifting its market share to 5.1%. Superloop was also said to have increased its share in the quarter, and after acquiring Exetel in August 2021 now has the sixth highest market share at 1.5%. Telstra, however, remains ahead of the pack, accounting for 44.3% of all NBN-based subscriptions at 30 September 2021, down from 45.7% a year earlier. Commenting on the inroads being made by smaller providers, meanwhile, ACCC Commissioner Anna Brakey said: 'Smaller niche providers have injected competition into the market for broadband services and they now go some way to constraining the big four of Telstra, TPG, Optus and Vocus. Smaller providers give consumers real choice in the service quality and range of products to meet their needs.'



Nkom Finalizes Price Regulation for Telenor Norge's Wholesale Fixed Wireless Broadband Service

Norway's National Communications Authority (Nasjonal kommunikas-jonsmyndighet, Nkom) has announced a final decision related to the price regulation of Telenor Norge's wholesale fixed-wireless broadband service. Having sent a draft decision on the matter to the EFTA Surveillance Authority (ESA) last month, the watchdog has now revealed that the ESA has responded to this, confirming that no changes were required. As such, Nkom has issued its final decision – which requires that Telenor must offer wholesale fixed-wireless broadband at prices which mean that the buyer of access is not put in a margin squeeze – with this taking effect immediately. To ensure the obligation is complied with, meanwhile, Nkom notes that it will conduct margin squeeze tests and gross margin tests on the operator's retail fixed-wireless offerings twice a year.

South African Wholesale Open Access Network Put on Hold

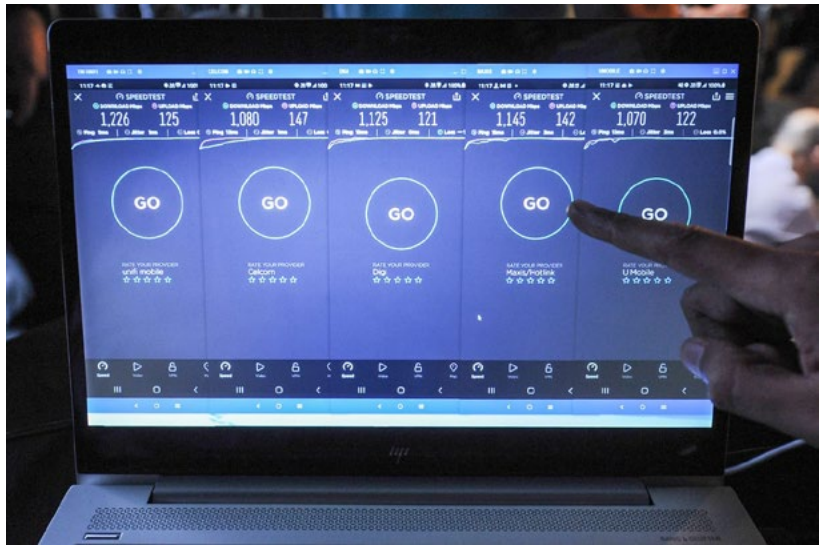
Plan for licensing a wholesale open-access network (WOAN) in South Africa have been put on hold by the regulator, the Independent Communications Authority of South Africa (ICASA). This is quite a turnabout for the regulator. As part of the timetable published for South Africa's planned spectrum auction next year a consultative document related to WOAN licensing was due late last week. As for what caused the change of heart, an ICASA statement said, "Given the sensitivity of the spectrum licensing process and the ongoing consultation processes in that regard, as well as numerous continuous related considerations including legal imperatives, ICASA has resolved to temporarily suspend the timetable relating to the licensing of the WOAN." It continued, "This is done to allow the conclusion of the consultation process relating to the permanent licensing of the IMT spectrum, thus enabling the Authority to interrogate the impact of the outcomes on the licensing of the WOAN." It may seem rather late in the day to, as ICASA puts it, "engage other international jurisdictions to draw lessons from their experiences on the licensing of a typical WOAN". However, given that one of the highest-profile examples, ALTAN Redes (on which the South African WOAN was reportedly partly modelled), has experienced widely reported issues, including bankruptcy, it may be that ICASA thought it prudent to take a step back, even at this late stage. The South African WOAN is intended to encourage competition at the services layer, rather than the infrastructure layer. It creates a private sector-led wholesale entity with multiple investors able to serve internet service providers and others. Operators Vodacom and MTN would be required to buy 30 percent of the new entity's available capacity, though whether the spectrum offered will be used for 4G, 5G or both isn't entirely clear. However, the concept is not too popular with private sector players. The operator association the GSMA said two years ago, "Citizens are promised better coverage, more competition, and as a result, more affordable prices. However, turning this vision into a working reality with an impact that goes beyond what traditional networks can achieve is difficult." ICASA now plans to outline its plans for the WOAN by the end of March next year – approximately when the next spectrum auction is due to be concluded. ICASA says spectrum will still be set aside for the WOAN during the licensing process.

Telkom Inks a New Roaming Agreement with MTN

Telkom inked a new roaming agreement with MTN, saying that its customers now have access to three networks – its own, Vodacom's and MTN's. The latest agreement, effective 1 November 2021, ensures that Telkom has access to MTN's 2G, 3G and 4G services. Lunga Siyo, CEO of Telkom Consumer, said in a statement: 'The access to MTN South Africa's 2G, 3G and 4G networks adds coverage while reducing Telkom's overall roaming costs. The addition of a second roaming partner is well within our current roaming spend. We remain on course with our plan to progressively reduce our roaming costs over time.' Telkom previously terminated its roaming agreement with MTN in favor of a comprehensive agreement with Vodacom (gaining access to its 2G, 3G and 4G services) in December 2018. In related news, MTN Group has reportedly expressed an interest in acquiring Telkom. However, Telkom has so far shown no interest in a sale, Bloomberg News writes citing unnamed sources familiar with the matter.

DNB Integrates Five MNOS into its Wholesale 5G Network

Digital Nasional Bhd (DNB), Malaysia's sole 5G wholesale service operator, has successfully integrated five mobile network operators (MNOs) into its 5G network, The Edge Markets reports. According to the local press outlet, during DNB's 5G Multi-Operator Core Network (MOCN) event it demonstrated having incorporated Celcom Axiata, Digi Telecommunications, Maxis, Telekom Malaysia, and U Mobile in its fifth-generation network. Integration of a sixth MNO is said to be slated 'at a later date', meanwhile. DNB claims that the development represents the world's first 5G RAN trial integration with more than two MNOs, with CEO Ralph Marshall noting that this had been made possible through the network's MOCN functionality, which allows a network operator to provide access to a single RAN by a number of other operators. 'Each operator operates its own core network, including one or more independent nodes. Each of these multiple core networks can communicate with each other as peers through the software,' the executive explained. Additionally, Marshall said that later next year, DNB's 5G network will be able to integrate up to twelve MNOs. Commenting on the integration demonstration, Malaysia's Communications and Multimedia Minister Tan Sri Annuar Musa said that DNB's 5G network seamless integration with each MNO's existing core platforms would eliminate costly duplication in infrastructure investments and drive lower prices for end users. 'This will further enable the accelerated adoption of 5G services in Malaysia and narrow the digital divide,' the minister said. Meanwhile, DNB's Chief Commercial Officer Ahmad Taufek Omar claimed that the wholesale operator is charging MNOs for its 5G network only as a form of cost recovery, revealing that its charging model comprises three mechanisms: coverage capacity (commitment to minimum capacity to provide coverage across all commissioned units built); additional capacity (option to add capacity for specific areas); and buffer capacity (additional further capacity catered for peak seasons). Ahmad Taufek also sought to stress that the prices DNB offers to MNOs are 'definitely not discriminatory', with all MNOs offered the same price for its 5G network. He did, though, note: 'However, bigger MNOs will have larger requirements and therefore prices will be affected. But once we give the bigger MNO that [modified] price, the other MNOs can also request for the same price. There is no such thing as a different price for each MNO.' In July 2021 DNB selected Ericsson for the end-to-end development of its 5G infrastructure, and the wholesale operator is now aiming to switch on its 5G network in Kuala Lumpur, Putrajaya and Cyberjaya in December 2021 as part of an initial launch phase. Looking ahead, DNB expects to achieve 40% coverage 'in populated areas' by the end of 2022, with its infrastructure to subsequently be extended to cover other urban and rural areas and industrial parks, with a target of approximately 80% population coverage by end of 2024.



Veon Bangladesh Unit to Use Nationwide Wholesale Network

Veon's Bangladesh subsidiary is to use the country's national wholesale network provided by BTCL. The company, Banglalink, announced that has joined rivals Teletalk, Grameenphone and Robi to use the BTCL network recently. Erik Aas, the CEO of Banglalink, signed the deal to use the nationwide telecommunication transmission network at a meeting with BTCL managing director Rafiqul Matin in the presence of the country's posts and telecommunications minister, Mostafa Jabbar. Just before the ceremony Banglalink announced revenue growth of 7.2% year-on-year despite the impact of lockdown, said Aas. "Banglalink's performance in 3Q21 is yet another reflection of efforts in providing quality digital services in Bangladesh. Thanks to a staggering 32% year-on-year data revenue growth, we managed to post a 7.2% year-on-year total revenue growth in this quarter," he said. Aas said that Banglalink is now serving 11.4 million 4G users, 33% of its total customer base. "Our entertainment app Toffee continued to lead our progress in the digital service segment with its active user-base reaching 6.3 million." He said that Veon is considering listing of the Bangladesh company on the country's share market. "The decision … depends on the shareholders of the mother company, not by the management of the company," he said.

Paratus Namibia, MTN Sign Roaming Agreement

Paratus Namibia and MTN Namibia have signed a national roaming agreement, the first of its kind in the Southern African country, allowing them to expand their own networks without duplicating coverage in specific areas. In a press release, Paratus and MTN claimed the deal marks a milestone for the country's telecoms sector, as it 'will provide not only a better mobile LTE service to customers, but also a very attractive competitive option in the market'. Paratus Namibia MD Andrew Hall commented: 'By partnering with MTN, we are now able to realize a faster mobile LTE roll-out as, in the past, we have been unsuccessful engaging with the dominant operators to achieve our goals. We are proud to be making telecommunications history in Namibia and to embark on this journey together with MTN, because national roaming agreements are the next natural step in developing the market and in delivering what customers need.' MTN Namibia MD Elia Tsourous added: 'We are delighted that this agreement has been signed with Paratus Namibia. We believe that everyone deserves the right of access to a modern, connected digital life and this agreement helps us realize our business objectives of delivering better service to customers in Namibia. We see only positive benefit from this agreement for all.' Paratus Namibia launched mobile LTE data services in 2016 and has since expanded coverage to Walvis, Swakopmund, Okahandja, Rehoboth and Otjiwarongo, while MTN first deployed its TD-LTE network in 2019 and now covers Windhoek, Swakopmund, Walvis Bay, Ondangwa, Oshakati and Ongwediva.

European Commission Opens In-Depth Investigation in the Proposed Regulation of Wholesale Mobile Access Market in Czechia

The European Commission opened an in-depth investigation into the Czech national regulatory authority's (CTU) draft market analysis with regard to the regulation of the wholesale market for access to mobile services in the Czech Republic. Access and call origination are services which mobile network operators ("MNOs") supply to themselves and to other mobile network operators or mobile virtual network operators (operators who do not own a network, "MVNOs") hosted on their networks. Such services can be provided also to other MNOs who have their own network and access rights to spectrum, but their network is still underdeveloped (e.g. due to late market entry, or due to a commercial decision to rely on national roaming in certain areas, rather than deploy its own network). CTU proposes to designate three MNOs (i.e. O2, T-Mobile and Vodafone) as having joint Significant Market Power ("SMP") in this wholesale mobile market and consequently to impose regulatory obligations on these three operators, that are the main operators in the Czech market. In its serious doubts letter, the Commission does not question as such that the Czech mobile market may not display the characteristics of a fully competitive market. However, the Commission questions the reasoning supporting the finding of the joint SMP, and hence the proposed regulation. At this stage, the Commission considers that there is sufficient evidence to conclude that in the Czech market, the three main mobile operators kept their networks open and this enabled the successful commercial market entry of more than 100 MVNOs. Although MVNOs typically do not reach a size allowing them to represent a threat to the existing MNOs, the fact that a new operator entered the market with 5G spectrum rights and is set to build its own infrastructure is very likely to have a positive impact on the market in the foreseeable future. In addition, the view of the Commission, based on the spectrum conditions that are already in place, CTU is able to enforce efficient market entry through the existing access obligations. Moreover, at this stage, the Commission has serious doubts as to whether CTU has demonstrated the existence of the joint SMP (i.e. collective dominance) on the mobile market in Czechia. In particular, the Commission has serious doubts whether the MNOs have the ability to adopt a common policy and the nature of the commercial behavior inducing such coordination, the question whether the market is sufficiently transparent to allow such common behavior, and the MNOs' ability to take counteraction the others party (ies) deviate (s) from the common policy (given that access to MVNOs is already granted). The Commission therefore has serious doubts as to the compatibility of the related draft measures with EU law and considers it necessary to initiate an in-depth investigation. The Commission has two months to further investigate the draft measures and the evidence presented therein, in close cooperation with the Body of European regulators (BEREC). At the end of the Phase II investigation period, the Commission may either lift its reservations or issue a veto under Article 32 of the European Electronic Communications Code. During this period, CTU will not be able to adopt its draft measures.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TECHNOLOGY NEWS

UK Sets 2030 Open RAN Target

The UK government announced a major push around accelerating the deployment of open RAN in the country, upping its funding for related projects and securing operator commitments regarding the approach. In a statement, the UK Department of Culture, Media and Sport (DCMS) explained it agreed with the four domestic operators to fulfill a goal to boost deployments so 35 per cent of the nation's mobile network traffic is carried over open RAN by 2030. It increased previous funding of £30 million to a total of up to £51 million to back projects for trials of open RAN and next-generation technology. Of the overall funding, £36 million will go to the 15 winners of Future RAN Competition (FRANC), a government scheme focused on developing elements including radio transmitters and signal processing equipment needed for open RAN rollouts. Up to £15 million will be poured into SONIC Labs, a facility allowing suppliers to test early-stage products in real-world mobile network environments. The moves are part of the government's broader strategy to diversify the 5G supply chain which it unveiled in November 2020, months after banning the use of Huawei equipment from the next-generation networks. Alongside the announcement, the UK government explained it has agreed with Vodafone, EE, Virgin Media O2 and 3 UK to switch off all public 2G and 3G networks by 2033. The aim is to free up spectrum for the mass deployment of 5G and other future networks which the government said can be used for driverless vehicles and drones, immersive VR and AR experiences, and innovations around sustainability and healthcare. New suppliers entering the telecoms market and deploying next-generation networks is also an expected result from the shutdown, alongside benefits from reduced power use and simplification in management of the networks.

2degrees Starts 5G Testing in Auckland and Wellington

New Zealand operator 2degrees has switched on its 5G network in central Auckland and Wellington for testing and optimization. The new 5G sites, which the company noted have been deployed ahead of the scheduled Q1 2022 commercial launch, are part of a rollout that will initially provide contiguous 5G coverage across Auckland, Wellington and Christchurch. Announcing the network activation, 2degrees CTO Martin Sharrock commented: 'The 2degrees team is gathering valuable data on network and device performance, upload and download speeds, latency and handovers. Early test results have demonstrated speeds over 1Gbps. Work has also begun in Christchurch with the first 5G sites due online for testing in December. Over the coming months the team will be rigorously testing 5G on numerous devices so when this new network and technology is launched for customers it will be fully optimized on a range of 5G enabled devices.' 2degrees' approach to network design and build combines the upgrade of cell sites with new Ericsson 3G, 4G and 5G radio access network (RAN) equipment and the upgrade of the core network. The program of work has been underway for over two years and builds on the NZD1 billion (USD682 million) already invested in the network. The operator plans to launch its 5G network with up to 100 sites on air and expects to continue to activate additional BTS throughout 2022 as it builds out the network across the country's main cities. The company notes these network upgrades will also result in significantly increased 4G capability, with average LTE capacity set to double.

Croatia Gets First 5G Home Broadband Service

A1 Croatia has launched the country's first home internet service via a 5G network. The offer has two service tiers: Premium uses an external antenna for a more stable connection, while Basic provides an indoor unit. The telco says that the new service provides access at download rates up to 200Mbps and is aimed at those users within its 5G footprint who cannot access fiber connectivity. Its 5G network currently covers Zagreb and 20 other cities. A1 introduced Croatia's first home broadband service over a 3G network in 2006 under the name Homebox.

MTN Deploying 250 Rural Sites in South Sudan with NuRAN

Rural communications firm NuRAN Wireless has signed a ten-year deal with MTN Group to deploy at least 250 sites across rural South Sudan. Under the terms of the deal, NuRAN will deploy the sites over the next two years, with the first 50 sites using towers already owned by MTN to ensure the rollout has a swift start. The infrastructure will be operated on a network-as-a-service model (NAAS) basis while revenue will be shared using the BOOT (build, own, operate, and transfer) model. Surveys on MTN's sites have already commenced, with NuRAN working with local firm Tandem Solution on the deployment. CommsUpdate reports that the in its current form deal represents approximately CAD57 million (US$44.5 million) in revenues, although it will be possible to build out more sites as well as leverage terrestrial backhaul networks to boost capacity, thereby increasing ARPU and overall revenue. Diatile Zondo, CFO of MTN South Sudan, said: "At MTN we believe that everyone deserves a connected life therefore our strategy is to bring connectivity to these rural parts. We hope that this is the beginning of a growing relationship with NuRAN."

Telkom SA Builds Africa's Top VoLTE Network Based on Single Voice Core

As of Nov 2021, Telkom VoLTE users in South Africa have reached 4.6M, becoming the largest VoLTE service provider in Africa. Telkom serves 16M mobile users, and launched VoLTE in 2018 and 5G NSA in 2020 respectively. Regarding voice services, Telkom focuses on VoLTE services. In order to develop VoLTE, Telkom orchestrated a holistic KPI system and optimization plan, which has been proven to improve the VoLTE user experience significantly. Through intelligent identification of VoLTE users and auto-provisioning, Telkom saves users the steps to activate VoLTE services. In addition, Telkom cooperated with Apple, Samsung, OPPO and other handset manufacturers to turn on the terminal VoLTE switch by default. With above measures, the number of Telkom VoLTE subscribers has increased by over 3M in last one year. The rapid development of VoLTE enables Telkom to re-farm 2G/3G spectrum for the development of 4G and 5G. As the global deployment of 4G and 5G becomes more and more widespread, how to realize seamless transition from last-generation to next-generation telecom technologies has become an urgent problem for all operators. "We had a successful introduction of VoLTE and subscriber migration from 2G/3G to LTE and VoLTE, and would like to shutdown 2G/3G services to make the spectrum available for newer technologies. The legacy services do not allow us to immediately turn off 2G/ 3G." said Brite Devassy, Executive of Technology & Strategy, Telkom SA. On October 13, 2021, at the 5G Core Summit in Dubai, Brite Devassy gave a wonderful speech about the evolution of Telkom's voice network. Telkom has always been committed to leveraging cutting-edge technologies of telecom industry to roll out new services and optimize networks. Telkom chose Huawei's Single Voice Core solution to develop VoLTE. This initiative enables 2G/3G/4G/5G/Fixed users to access the same IMS network, solving the operation & maintenance and investment problems caused by the coexistence of multi-generation networks. The simplified network enables Telkom to pack lightly and focus on 4G/5G. "The timing of Huawei SVC product is perfect for us." said Brite Devassy. The achievement of VoLTE has showcased Telkom's capabilities to utilize innovative solutions. Telkom will continue to enable more and more users to enjoy high-quality VoLTE calls while surfing the Internet at high speed.

Kenya Power Considers Move into Retail Broadband Sector

Electricity distributor Kenya Power plans to connect millions of homes in rural locations with broadband internet via its fiber-optic network infrastructure, reports Business Daily. The company currently leases the fiber cables on its transmission lines to broadband operators including Safaricom, Wananchi and Jamii Telecommunications, but now plans to directly offer high speed internet services to customers in rural locations. Kenya Power had over 8.2 million customers at the end of June 2021.

European Open RAN Advocates Demand EU Support

A quintet of heavyweight operator groups urged European authorities to take immediate action to stimulate the open RAN sector to ensure the continent does not lag North America and Asia in the 5G era and beyond. In a joint statement Deutsche Telekom, Orange, Telefonica, Telecom Italia and Vodafone Group pressed for regulatory adoption of five recommendations pulled from a wider Analysys Mason report commissioned by the group. The operators argued moves to secure Europe's place in the open RAN ecosystem should be "urgently prioritized" by politicians, European Union member states and industry stakeholders, with a call for all parties to collaborate. "Open, intelligent, virtualized and fully interoperable RAN is essential if Europe is to meet its target of 5G for all by 2030," the operators stated. "It will help drive stronger, more resilient supply chains and platforms, as well as promote digital autonomy and continued technology leadership." Citing conclusions from the Building an open RAN ecosystem for Europe report, the heavyweights said if the continent is to "maintain its competitiveness, technology leadership and resilience, decisive action and collaboration is needed now". The report flagged a lack of presence of European vendors in the "six major technology and service categories that comprise the open RAN value chain", pointing to cloud hardware as one area. A limited number of semiconductor suppliers in the region was also highlighted. Deutsche Telekom CTIO Claudia Nemat pressed for immediate, decisive action. "In North America and Asia there is strong backing for open RAN. Europe should not fall behind but seek a leading position".

Algar Telecom Launches 5G Using 2.3GHz Band

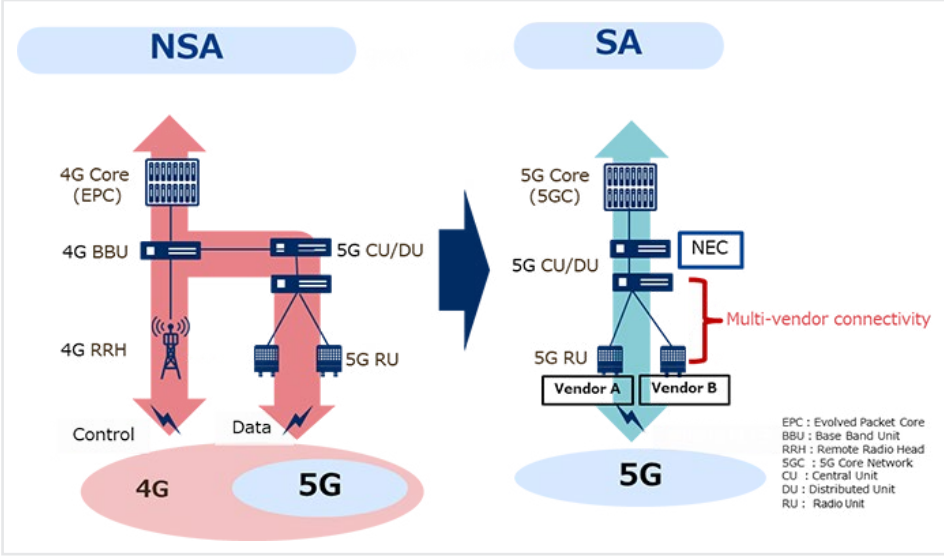
Brazilian regional operator Algar Telecom has launched a commercial Non Standalone (NSA) 5G service using its newly acquired 2.3GHz spectrum. The launch means that Algar is the first Brazilian player to utilize frequencies secured in the recent multi-band spectrum auction. The 5G network went live on 15 December and covers selected parts of Uberlandia and Uberaba, as well as Franca in Sao Paulo. TeleGeography notes that Algar acquired regional spectrum in the 2.3GHz, 3.5GHz and 26GHz bands in the country's 5G spectrum auction. Unlike the 3.5GHz band, the 2.3GHz band does not require cleaning for interference before 5G use. Algar executive Marcio De Jesus commented: 'The company already had a good part of its infrastructure adequate or easy to adapt to the 5G offer. We made investments in backhaul structures, network core and service platforms.'

Telefonica Connects 5G Mobile Stations Via Microwave Relay Solutions

Telefonica Deutschland has announced that it is connecting its 5G mobile stations via high-capacity microwave radio relay systems where no fiber-optic infrastructure will be available in the foreseeable future. Thanks to technological progress, innovative radio relay solutions now support bandwidths of several gigabits per second. Reliable transmission of mobile radio signals from mobile radio systems to a core network almost in real time, as required by the 5G mobile radio standard for broadband applications, among other things, is therefore also possible via directional radio. In rural areas in particular, Telefonica will therefore increasingly use high-capacity 80GHz directional radio ('E-band') in addition to fiber-optics, depending on the location, when expanding its 5G network. 'By shifting the previously applicable physical limits for microwave radio relay systems and due to the high flexibility as well as the cost and time savings, the microwave radio relay solution thus supports the goal of a rapid 5G network expansion,' a press release from the company said. Telefonica is aiming to supply the entire population of Germany with 5G by the end of 2025.

DOCOMO and NEC Complete Test of 5G SA With O-RAN Compliant Spec in Multi-Vendor Setup

Japanese mobile operator NTT DOCOMO and NEC Corp have announced the successful conclusion of interoperability testing for 5G Standalone (SA) technology using a 5G base station conforming to O-RAN open interface specifications and radio units (RUs) of different vendors. In a press release, NEC noted that the multi-vendor test used a software upgrade to introduce SA capability to NEC's 5G Non-Standalone (NSA) operating on the cellco's commercial network. As a result, the system was transformed from a 5G NSA system into a 5G SA system using the same 5G CU/DU hardware. Since the 5G CU/DU can also accommodate existing NSA, the unit can be used to flexibly and quickly upgrade a 5G network. Going forward, the pair reportedly aim to introduce the 5G base station for DOCOMO's SA services in order to further expand fifth-generation services.



Huawei, Haier, and China Mobile Announced 5G Implementation Breakthroughs for Smart Manufacturing

With support from Huawei and China Mobile, Haier, China's largest consumer electronics and home appliance producer, successfully applied innovative manufacturing solutions combining 5G and mobile edge computing in its smart factories. Developed at the joint-innovation base established in February, the solutions integrate 5G edge computing with artificial intelligence and particularly machine vision in manufacturing environments. They are applicable to various manufacturing scenarios where they can perform a variety of functions. Haier has launched the technologies at seven smart factories in China, and plans to expand the implementation at 20 factories by the end of 2022. Huawei is expected to help Haier deploy the 5G solutions and transform about 100 of its manufacturing facilities globally within five years. 5G provides manufacturers with a lot of bandwidth — up to 20GBps— and latencies as low as 1 millisecond. Mobile edge computing, one of 5G's main features, delivers extremely low-latency cloud computing. But it's still early days for manufacturers aspiring to take advantage of 5G's full capabilities. The solutions enable the implementation of high-performance machine vision in a manufacturing environment through low-latency connections between high-definition cameras, the AI modules at the factory site, and the training servers located off-site. Deployed on a 5G-enabled production line, machine vision saves manufacturers costs by rapidly performing QC checks with over 99% accuracy, at least 10% more accurate than without the function. Compared with visual inspection performed by humans, machine vision delivers much fewer false positive and false negative results. Unlike traditional video surveillance systems that only have a recording function, AI-surveillance can automatically create alarms in real time when it detects anomalies on the factory floor. The technology can identify non-authorized individuals, process safety violations, and workers who aren't where they should be. In addition, the new solutions help to efficiently coordinate the large number of people, machines, and materials involved on a complex production line as a whole. The solutions achieve this through high-definition cameras, 5G gateways, and smart industrial terminals that work in unison with the help of artificial intelligence. In future, the solutions will be further improved to provide “digital twins” visualization. Digital twin is the reproduction of a real and dynamic production floor into a virtual digital world, a meta-universe. Digital twin makes just-in-time preventive maintenance a reality and enables the simulation of changes to the production process before they are implemented. The three are also experimenting how 5G environment can support automated guided vehicles to transfer items in warehouses or manufacturing lines more accurately and efficiently. Haier, China Mobile, and Huawei look forward to continue their collaboration on developing 5G manufacturing applications for the benefit of partners and customers in China and abroad.

Big Name Operators, Vendors Support GSMA 5G mmWave Initiative

The GSMA announced the formation of a global accelerator initiative designed to drive awareness of 5G mmWave technology, with major industry players China Unicom, NTT Docomo, Telstra, TIM, Verizon, Ericsson and Qualcomm committing to the project. In a statement, the GSMA said the initiative will see the companies involved share mmWave intelligence, best practices and use cases to "educate and inspire stakeholders" globally, with a major aim of the project seeking to underline the role mmWave plays in unlocking the full potential of 5G. Underlining the importance of 5G, the industry body said it is estimated that by 2025, the technology will contribute $5 trillion to the global economy, with 1.8 billion 5G IoT connections. 5G mmWave (24 GHz and above) is touted to deliver increased bandwidth, fast speeds and low latency to users, with benefits coming particularly in densely populated areas such as entertainment and sports venues. On the flip side, mmWave cannot cover as wide an area as lower frequency spectrum. The GSMA continued to state that a combined mmWave and 3.5GHz network can contribute to savings of up to 35 per cent of the total cost of ownership compared to the sole use of sub 6-GHz bands, while it can also help expansion into areas including fixed wireless access (FWA). To date, there are more than 140 pre-commercial and commercial devices supporting 5G mmWave, according to the GSA, and all major network equipment vendors are now offering mmWave solutions. However, actual commercial network deployment has been limited so far. In the US, the use of mmWave spectrum in FWA networks was first adopted by Verizon in 2018 and now all of the country's big three operators support the high spectrum band. This first stage of the project should be completed in time for MWC Barcelona in February 2022, added GSMA.

ETSI Specs Up Mobile Device Security

The European Telecommunications Standards Institute (ETSI) released a global standard designed to pinpoint key security and privacy risks for mobile device users, and protect their data through an arsenal of features. In a statement, the standardization organization explained the Consumer Mobile Device Protection Profile specification, ETSI TS 103 732, outlines requirements for consumer smartphones and tablets to protect data including photos, location, emails, SMS, calls and passwords. The standard provides multiple options including encryption, authentication, security management, resistance to physical attacks and trusted communication channels. ETSI noted the standard is suitable for initiatives including the European Cybersecurity Act, a certification framework for ICT offerings.

"Today our smartphones and tablets are fundamental for citizens and hold a wide range of user data and apps. At same time, security attacks have increased with malicious applications and network eavesdropping", ETSI noted.

KDDI's Chuba Telecommunications Unit Picks Nokia for Sub-6GHz 5G SA Trial

Nokia announced that it is carrying out a 5G Standalone (SA) network trial with Chubu Telecommunications (ctc), a subsidiary of KDDI (au), in Japan. In a press release the Finland-based vendor confirmed it is supplying its AirScale product portfolio and Compact Mobility Unit (CMU) to support both 5G indoor and outdoor connectivity. The trial will utilize a local 5G network which is independent of a traditional mobile network and use the sub-6GHz (n79) 4.6-4.9 spectrum band for enhanced capacity. The high-band sub-6GHz spectrum supports high capacity and extreme mobile broadband capabilities, it noted, adding that the trial will verify how Nokia's 5G SA network can enable ctc to provide commercial high speed, high-capacity, low latency Fixed Wireless Access (FWA) services including internet and telephony to subscribers without the need for a fiber-optic installation at a customer's home.

TIP, WBA Team on 6GHz Wi-Fi

The Telecom Infra Project (TIP) and Wireless Broadband Alliance (WBA) announced plans to work together on software for Wi-Fi devices, with a goal of automating frequency coordination so outdoor equipment can operate in the 6GHz band while protecting incumbent users. WBA works to help mobile network operators integrate and provision Wi-Fi. It will participate in TIP's Open AFC Software Group, which is working to develop a reference open source implementation of an automated frequency coordination (AFC) system. The 6GHz band has been approved for Wi-Fi use by 41 countries, but frequency coordination is necessary to ensure outdoor devices do not disrupt the fixed microwave links already active in it. These links are used by public safety systems, mobile network operators and utilities, often to backhaul sites lacking access to fiber. The collaboration builds on a recent adoption of the WBA's OpenRoaming standard by TIP. The system enables users to roam on Wi-Fi networks without logging in or supplying passwords. In a statement, the organizations argued AFC will enable the benefits of OpenRoaming by making it easier to deploy

outdoor access points in the 6GHz band, and complement TIP's OpenWiFi initiative, designed to boost equipment interoperability through open source code. WBA CEO Tiago Rodrigues stated AFC "will enhance Wi-Fi" connectivity and user experience in a range of locations.

Operators Warn of Open RAN Fragmentation Risk

Executives from Orange and BT Group warned a Telecom Infra Project (TIP) forum of a risk of fragmentation in open RAN if the approach is not carefully managed and coordinated, noting vendors require clear guidance on the direction to take. During the TIP Insights 2021 event, Orange head of software and RAN architecture Atoosa Hatefi noted there are already variances in the approach to open RAN which could ultimately result in fragmentation. She argued this risk makes it "important to move from standardized to prioritized" approaches in open RAN specifications. Paul Crane, converged network research director at BT and a member of TIP's technical committee, concurred, noting a "need to provide clarity and certainty and avoid fragmentation". He noted TIP is currently involved in 35 tests and trials, and had published more than 40 technical requirement specification documents this year.

Providing guidance for vendors is an objective for TIP, along with testing and validation of disaggregated network equipment. Hatefi cited a push by Orange and four other major European operators as a means of preventing open RAN fragmentation, noting the companies plan to communicate priorities to the broader market, solicit feedback and then "rely on TIP to develop, test and certify in line with our needs". But she cautioned vigilance was required to "avoid new vendor lock-in with open RAN". Crane cited the RAN Intelligent Controller (RIC) as "probably the most interesting component" of open RAN, because it could allow operators "to focus on the customer experience" by using APIs to implement RAN policy and segregate service levels. "It is early days and there is going to be a lot of work to do to make sure ambition comes to fruition and we don't suffer from getting back to a vendor lock-in".

Celcom Conducts VoNR Trial Call

Malaysian mobile network operator (MNO) Celcom has reportedly carried out the country's first Voice-over New Radio (VoNR) trial call, SoyaCincau reports. According to the local press outlet the trial was conducted as part of a 5G demonstration project and innovation trial in Langkawi to validate its end-to-end 5G voice call capability and 5G data session in parallel over a 5G Standalone (SA) network. Citing a statement issued by Celcom, the report noted that the 5G VoNR call had been made between the cellco's trial sites located at Kuah and Taman Berlian in Langkawi. Utilizing a cloud-native 5G SA network, the VoNR call was established directly within the network without relying on 4G LTE technology. The MNO suggested that the development represented a step towards it realizing the full potential of 5G for consumers and business, with it serving as a foundation for service and application innovations such as video conferencing and 5G interaction for augmented and virtual reality technologies. Meanwhile, Celcom CEO Idham Nawawi was quoted as saying that, as Malaysia prepares for Digital Nasional Berhad's (DNB's) 5G infrastructure launch – which is scheduled to take place before the end of and will see that company offer wholesale access to its network to all local MNOs – the VoNR trial had demonstrated Celcom's continuous commitment to 5G innovation and readiness to provide high-quality fifth-generation services.

Rostelecom Testing 10Gbps-Capable GPON in St Petersburg

Rostelecom is testing 10Gbps-capable GPON ('10 GPON') fiber broadband access in St Petersburg in partnership with Huawei, with a pilot launch of the technology scheduled for the first quarter of 2022. The telco said in a press release that end user internet access speeds of '3-5Gbps' will be made possible, opening up new opportunities for businesses and city residents, improving the quality of existing services and supporting new services such as UHD video streaming, AR/VR online gaming, education and medical applications, combined with the latest Wi-Fi 6 standard for enhanced Wi-Fi coverage for homes and smart businesses. Rostelecom's North-west regional director Alexander Loginov noted: 'In St Petersburg, our company has a well-developed optical network, suitable for the introduction of 10 GPON. We do not need to upgrade the existing cable infrastructure; we only need to replace some of the equipment and home routers. The pilot will be in the Nevsky District, where we will offer subscribers, whose homes are connected using optical technologies a comprehensive solution with the installation of equipment that supports Wi-Fi 6.'

Nepal Telecom Issued License for 5G Trials

State-owned telecommunications pro-vider Nepal Telecom (NT) has finally received the green light from the National Telecommunications Authority (NTA) to proceed with 5G network testing, reports Nepalitelecom.com. Following submission of its 5G work plan earlier this year, NT has been licensed to conduct trials in the 2600MHz band for a maximum period of one year using 60MHz of spectrum (2500MHz-2560MHz) assigned by the regulator. Although the Ministry of Communications & Information Technology (MoCIT) instructed NT to begin 5G network testing in four cities by mid-July this year, delays in appointing a new communications minister had prevented allocation of the necessary spectrum. The NTA also confirmed that it has yet to decide whether to grant rival mobile network operator (MNO) Ncell's application to stage its own trial. According to Xinhua News Agency, NT is keen for the regulator to confirm which frequencies will ultimately be allocated for commercial operations before it proceeds to import the network equipment required for the trial. 'We're concerned whether the NTA provides us the same frequency for commercial operation as we're going to use for conducting trails,' explained NT spokesman Rajesh Joshi, adding: 'We have to invest in telecommunication gear for 5G testing. If we don't get the same frequency for commercial use, our investment in gear for 5G trials will be wasted.' Under the 5G network testing procedures approved by the NTA in July, companies are required to apply for permission to perform trials. The NTA will then allocate the necessary frequencies – exempt from standard spectrum fees – for a twelve-month period on condition the service is provided to customers free of charge during the trial. The provided bandwidth is held on a temporary basis and must be returned to the NTA following conclusion of testing, while operators must obtain permission from the regulator before potentially re-using any imported equipment for their existing 4G networks, failing which the hardware must either be sealed or returned to the vendor.

China to Triple 5G Base Station Count by 2025

China's Ministry of Industry and Information Technology (MIIT) laid out plans to more than triple the number of 5G base stations over the next four years, targeting a total of 3.64 million by end-2025, China Daily reported. The MIIT's plan aims to increase the number of sites supporting 10,000 people from five in 2020 to 26 by end-2025, the newspaper stated. China reportedly had nearly 634 million 5G package subscribers at end-September. Currently the nation has 1.2 million 5G sites nationwide, which make up about 70 per cent of the global total, with the number of customers on compatible plans accounting for 38.7 per cent of the nation's tally. Xie Cun, director of the MIIT's information and communication development department, told China Daily all prefecture-level cities have full 5G coverage, with rural towns at 40 per cent. The plans also forecast the cumulative investment in telecoms infrastructure to grow from CNY2.5 trillion ($391.7 billion) in 2020 to CNY3.7 trillion in 2025.

REGULATORY NEWS

New Data from ITU Suggest 'COVID Connectivity Boost' – But World's Poorest Being Left Far Behind

An estimated 37 per cent of the world's population – or 2.9 billion people – have still never used the Internet. New data from the International Telecommunication Union (ITU), the United Nations specialized agency for information and communication technologies (ICTs), also reveal strong global growth in Internet use, with the estimated number of people who have used the Internet surging to 4.9 billion in 2021, from an estimated 4.1 billion in 2019. This comes as good news for global development. However, ITU data confirm that the ability to connect remains profoundly unequal.

Of the 2.9 billion still offline, an estimated 96 per cent live in developing countries. And even among the 4.9 billion counted as 'Internet users', many hundreds of millions may only get the chance to go online infrequently, via shared devices, or using connectivity speeds that markedly limit the usefulness of their connection. "While almost two-thirds of the world's population is now online, there is a lot more to do to get everyone connected to the Internet," said ITU Secretary General Houlin Zhao. "ITU will work with all parties to make sure that the building blocks are in place to connect the remaining 2.9 billion. We are determined to ensure no one will be left behind." The unusually sharp rise in the number of people online suggests that measures taken during the pandemic – such as widespread lockdowns and school closures, combined with people's need for access to news, government services, health updates, e-commerce and online banking – contributed to a 'COVID connectivity boost' that has brought an estimated 782 million additional people online since 2019, an increase of 17 per cent. What it means for sustainable development The 2021 edition of Facts and Figures, ITU's annual overview of the state of digital connectivity worldwide, shows the number of Internet users globally growing by more than 10 per cent in the first year of the pandemic – by far the largest annual increase in a decade.

Strong growth since 2019 was largely driven by increases in developing countries, where Internet penetration climbed more than 13 per cent. In the 46 UN-designated Least Developed Countries (LDCs), the average increase exceeded 20 per cent. "These statistics show great progress towards ITU's mission to connect the world," said Doreen Bogdan-Martin, Director of ITU's Telecommunication Development Bureau, which oversees ITU's data and analytics work. "But a vast 'connectivity chasm' remains in the LDCs, where almost three quarters of people have never connected to the Internet. Women in LDCs are particularly marginalized, with roughly four out of every five still offline." Many of these 'digitally excluded' face formidable challenges including poverty, illiteracy, limited access to electricity, and lack of digital skills and awareness. "Digital solutions would be needed to re-energize sustainable development and help put countries back on track to meet the UN Sustainable Development Goals (SDGs) for 2030," Bogdan-Martin added. "Unfortunately, the communities identified in the 2030 Agenda as most at risk of being left behind are the very same communities now being digitally left behind."

Key report findings:

The digital gender divide is narrowing globally, but large gaps remain in poorer countries.

- Globally, an average of 62 per cent of men use the Internet compared with 57 per cent of women.
- Although the digital gender divide has been narrowing in all world regions and has been virtually eliminated in the developed world (89 per cent of men and 88 per cent of women online) wide gaps remain in Least Developed Countries (31 per cent of men compared to just 19 per cent of women) and in Landlocked Developing Countries (38 per cent of men compared to 27 per cent of women).
- The gender divide remains particularly pronounced in Africa (35 per cent of men compared to 24 per cent of women) and the Arab States (68 per cent of men compared to 56 per cent of women).

The urban-rural gap, though less severe in developed countries, remains a major challenge for digital connectivity in the rest of the world.

- Globally, people in urban areas are twice as likely to use the Internet than those in rural areas (76 per cent urban compared to 39 per cent rural).
- In developed economies, the urban-rural gap appears negligible in terms of Internet usage (with 89 per cent of people in urban areas having used the Internet in the last three months, compared to 85 per cent in rural areas), whereas in developing countries, people

in urban areas are twice as likely to use the Internet as those in rural areas (72 per cent urban compared to 34 per cent rural).
- In the LDCs, urban dwellers are almost four times as likely to use the Internet as people living in rural areas (47 per cent urban compared to 13 per cent rural).

A generational gap is evident across all world regions.

- On average, 71 per cent of the world's population aged 15-24 is using the Internet, compared with 57 per cent of all other age groups.
- This generational gap is reflected across all regions. It is most pronounced in the LDCs, where 34 per cent of young people are connected, compared with only 22 per cent of the rest of the population.
- Greater uptake among young people bodes well for connectivity and development. In the LDCs, for example, half of the population is less than 20 years old, suggesting that local labour markets will become progressively more connected and technology-savvy as the younger generation enters the workforce.

ITU continues monitoring the world's evolving digital divide.

- ITU figures also point to a glaring gap between digital network availability versus actual connection. While 95 per cent of people in the world could theoretically access a 3G or 4G mobile broadband network, billions of them do not connect.
- Affordability of devices and services remains a major barrier. The widely accepted target for affordable broadband connectivity in developing countries sets the cost of an entry-level mobile broadband package at 2 per cent of gross national income (GNI) per capita. Yet in some of the world's poorest nations, getting online can cost a staggering 20 per cent or more of per capita GNI.
- Lack of digital skills and an appreciation of the benefits of an online connection is another bottleneck, compounded by a lack of content in local languages, as well as by interfaces that demand literacy and numeracy skills that many people do not possess.

Optus and Telstra Lay Claim to Spectrum in ACMA's 850MHz/950MHz Auction

Optus and Telstra have been named as the two winning bidders in the Australian Communications and Media Authority's (ACMA's) auction for spectrum in the 850MHz and 900MHz bands. In a press release, the regulator revealed that with all 16 available lots having been sold, the auction had raised a total of AUD2.092 billion (USD1.48 billion) for state coffers. Optus emerged as the biggest spender, agreeing to pay a total of AUD1.476 million for twelve lots of spectrum across both bands, with it laying claim to the following regional 'products': 'downshift metropolitan' (824MHz-825MHz/869MHz-870MHz); 'downshift regional' (824MHz-825MHz/869MHz-870MHz); '900 lower major population' (890MHz-895MHz/935MHz-940MHz); '900 lower regional' (890MHz-895MHz/935MHz-940MHz); '900 upper major population' (895MHz-915MHz/940MHz-960MHz); and '900 upper regional' (895MHz-915MHz/940MHz-960MHz). For its part, Telstra bid AUD616 million for a total of twelve lots in the 850MHz band, comprising the follow spectrum packages: '850 major population' (814-824MHz/859MHz-869MHz); and '850 regional' (814MHz-824MHz/859MHz-869MHz). All licenses will come into force on 1 July 2024, for a 20-year term ending in 2044, although the ACMA noted that winning bidders may have the opportunity to obtain early access to the spectrum 'under special circumstances' before the concessions officially commence. Commenting on the matter, ACMA acting Chair Creina Chapman said the frequency allocations will help support the deployment of 4G and 5G networks across Australia, noting: 'This spectrum will support the deployment of more wireless broadband services, facilitating higher speeds and more reliable networks for consumers … The successful allocation of 850MHz/900MHz band spectrum is another important step forward for Australia's transition to 5G, and the deployment of new technologies.'

MTN Rwanda Requests Additional Time to Improve QoS

Mobile operator MTN Rwanda has requested an extension to enable it to fix network issues before the Rwanda Utilities Regulatory Authority (RURA) hands down the fines which it threatened several months ago. The telco was ordered to improve its quality of service (QoS) nationwide by 30 November 2021 or face sanctions. A report from New Times says RURA is set to review the situation in two weeks. Ernest Nsabimana, Director General of RURA, is cited as saying: 'We have received a report of what they have fixed so far and we are evaluating it; we will evaluate the factors that made them delay the fixing of issues, and on what levels the issues have been fixed and from there we will take a decision.'

FCC Approves Searchlight's Takeover of Consolidated

The US Federal Communications Commission (FCC) has confirmed that its International Bureau has granted permission for private equity firm Searchlight Capital to acquire a greater than 25% interest in Consolidated Communications. The added scrutiny appears to be a result of Searchlight's indirect multinational shareholder structure. As per FCC documentation, Searchlight Capital Partners III GP – one of the holding companies involved in the transaction – is based in the Cayman Islands, while other shareholders hold German and Canadian citizenship. The watchdog noted: 'After a review of the Petition and record in this proceeding, we find that the public interest would not be served by prohibiting the foreign ownership of Consolidated Communications Holdings'. According to TeleGeography's GlobalComms Database, in September 2020 Searchlight agreed to invest USD425 million in Consolidated Communications, in a move that will ultimately help it to secure a 34.55% voting stake in the telco (49.21% equity stake). The investment has been structured in two stages; at the closing of the first stage (2 October 2020) Searchlight invested USD350 million in the regional telco.

Singtel Group Loses Landmark Tax Case Related to Optus Acquisition

Singtel Group has estimated that it faces AUD304 million (USD216 million) in tax exposure, interest and penalties following the dismissal of an appeal against an assessment by Australia's Commissioner of Taxation. With the matter related to the acquisition financing of Optus back in 2001, Singtel's Australian subsidiary – Singapore Telecom Australia Investments (STAI) – was reported to have received amended assessments from the Australian Taxation Office for primary tax of AUD268 million, interest of AUD58 million and penalties of AUD67 million in 2016 and 2017. Meanwhile, it was noted that STAI's holding company, Singtel Australia Investment Ltd, would be entitled to a corresponding refund of withholding tax estimated at AUD89 million. Consequently, the net tax exposure and related interest and penalties amounted to AUD304 million. In a statement regarding the matter, Singtel confirmed it has now received an 'unfavorable judgement' from the Federal Court of Australia of its appeal against the assessments. Commenting, the company said: 'The Singtel Group will consider the details of the judgment, explore available options and determine next steps. If the above tax exposures are assessed to be probable, provisions shall be made in the accounts.'

Estonian, Russian Telecommunications Regulators Discuss Use of Radio Frequency Bands

The regulatory bodies governing the telecommunications systems of the Republic of Estonia and the Russian Federation held negotiations on the use of radio frequency bands. The goal of the meeting was to coordinate the use of radio frequency bands on the two states' border areas by reaching agreements and entering into coordination contracts that ensure better conditions for building telecommunications networks, said the Consumer Protection and Technical Regulatory Authority (TTJA) representing Estonia at the talks. (TTJA) said that while radio frequency bands exceed state borders, they must not disrupt the other state's telecommunications systems. Hence, it is international good practice to coordinate the use of frequency bands between states. As a result of the three-day meeting, changes to the agreement on the coordination of the 3G, or the 1900/2100 MHz, mobile telecommunications frequency band were agreed upon to enable to better implement 5G technologies. Other mobile telecommunications contracts were likewise discussed at the meeting, including the future 5G frequency bands of 700 MHz and 26 GHz, with regard to which Estonia is expected to make contract proposals. Also discussed was the 3.6 GHz mobile telecommunications frequency band; however, the two neighboring states did not arrive at an agreement in this regard due to their technical plans for using the frequency band differing to a great degree. Topics discussed at the meeting also included future plans for television and a possible transition to the DVB-T2 digital television standard. The meeting had been planned from 2019 but it had repeatedly been postponed due to coronavirus restrictions. The meeting in December was held via a video link.

NTA to Develop a Cyber Security System

NTA is developing a cyber security system to safeguard Nepali cyberspace from possible breaches, with a consulting firm. The Telecommunicates Authority released a notice seeking Expression of Interest from interested consultants to build its security system. NTA has named the project – Cyber Security System for the Protection of International Internet Gateway and Domestic/National Network. Interested candidates shall submit their EoI application within 15 days at www.bolpatra.gov.np/egp only e-GP on or before 10-01-2022 at 12:00 AM. NTA will award the contract to a consultant based on its qualification, and experience and capacity, and key personnel. It assigns 40% of credentials on qualification, 50% on experience, and 10 on capacity on the consultant. NTA will only invite the shortlisted firms to submit the technical and financial proposal afterward. Any firm which scores 60% or above will qualify for the EoI. Malware, Phishing, Ransomware, Man-in-the-middle attack, etc. have compromised sensitive data, such attacks are becoming more sophisticated these days. NTA says, "these attacks from the internet generally come to the service providers networks via International Internet Gateways." "Around 20-30 % of the internet traffic generally comes to the territory of Nepal through International Gateways. Despite attempts to forfeit, International Internet Gateways are often vulnerable to such attacks. For the remaining internet traffic in Domestic/National Networks, efforts need to be made to safeguard the national ICT infrastructure," NTA adds. Often such cyber attacks seem like proxy attacks. It means the origin of the attacks seems coming from China, but actually, it's coming from within." The attacks into the cyber system put national security at risk by divulging crucial information. Some of these breaches have sinister objectives in mind. Therefore, NTA is stepping up to develop a more sophisticated security system to protect Nepali cyberspace. Cybersecurity war is real and often a tool by the state or state-funded entity to carry out branches on foreign organizations, government data, and other crucial communication systems. Such attacks can put national security at risk as well as citizens'. Therefore, a highly-advanced firewall should be implemented to guard the nation's cyberspace against foreign as well as national attacks.

CMA Suggests Cellnex-CK Hutchison Tower Deal Could Harm Competition, Lead to Higher Prices

The UK's Competition and Markets Authority (CMA) has released its provisionally findings on Cellnex's proposed purchase of CK Hutchison's telecoms towers, adjudging it could harm competition and lead to higher mobile charges. In reporting its initial findings on the matter, the CMA said that, having reviewed 'a range of evidence' in relation to CK Hutchison's internal decision-making, it had provisionally found that if the deal with Cellnex had not been agreed, then the former's passive infrastructure assets would most likely have been sold to an alternative buyer. It added that its investigation had provisionally determined that the deal could raise 'significant competition concerns', with the CMA arguing that the sale of this business to Cellnex, rather than an alternative buyer, may prevent the emergence of a third major national player – instead leaving a duopoly in which Cellnex and Cornerstone Telecommunications Infrastructure Limited (CTIL) would account for over 90% of the market. Such a situation, the competition watchdog argued, could 'materially reduce competition to supply the infrastructure requirements of mobile networks in future contract negotiations, running the risk of those networks facing higher prices and more onerous contracts. Meanwhile, the CMA said it was concerned that this could result in higher prices or lower quality services for mobile network operators (MNOs), which in turn could mean an adverse impact for users of mobile networks across the UK. The CMA is now seeking feedback on its findings by 14 January 2022, as well as on its notice of possible remedies by 7 January 2022, while it has said it expects to issue a final decision by 7 March 2022. As previously reported by CommsUpdate, back in July 2021 the CMA announced that it had referred the proposed acquisition of the passive infrastructure assets of CK Hutchison and its subsidiaries in the UK by Cellnex for a full investigation. That announcement came after Spain-based mobile tower firm Cellnex in November 2020 confirmed an agreement to acquire 24,600 towers from CK Hutchison in the UK, Italy, Ireland, Austria, Sweden and Denmark in a deal valued at around EUR10 billion (USD11.3 billion).

Ofcom Looks at TeraHertz Spectrum for Terabit 6G Future

Ofcom is asking for views on how to maximize the long-term value of the TeraHertz (THz) spectrum, extremely high frequencies that could provide huge bandwidth for applications of the future and enable 6G networks. The TeraHertz band sits at the very top of the spectrum range between 100GHz and 3THz and is currently only used for limited scientific applications, such as weather forecasting.

GCRA Finds that JT and Sure Infringed Competition Law

The Guernsey Competition and Regulatory Authority (GCRA) has adjudged that JT and Sure broke competition law by 'attempting to illegally control the provision of mobile networks in Guernsey, including the future introduction of 5G'. In a press release regarding the matter, the regulator said that – after opening an investigation into a suspected anticompetitive agreement between JT and Sure in relation to their respective mobile networks in the Bailiwick – it had determined that 'the nature and purposes of the exchanges [between the companies] uncovered by the GCRA were found to go well beyond legitimate purposes'. Of note, the GCRA said that its investigation had initially focused on a suspected agreement in relation to 5G, but as further evidence was uncovered it was expanded to include all mobile networks operated by the JT and Sure. According to the GCRA, its investigation found that over a period of approximately one year, through repeated contacts and exchanges of information, JT and Sure developed a joint plan that would mutually benefit each in their home markets without disclosing it to either the GCRA or the Jersey Competition and Regulatory Authority (JCRA). Further, the two companies were said to have exchanged information on their commercial strategy for introducing next generation mobile network at a slower pace than sought by the States of Guernsey; the duo, it is claimed, had discussed a common 'line to take' that they were working to roll out 5G in line with, or ahead of, the UK, while privately agreeing not to do so. In terms of the next steps, the GCRA said it would be minded to impose a financial penalty where it found 'a restriction of competition by object', and it will now consider whether it would be appropriate to issue a draft penalty statement to JT and Sure.

Regulator Approves China Mobile Shanghai Listing

China Mobile received approval from the nation's financial regulator to raise billions of dollars by listing in Shanghai, nearly a year after being delisted from the New York Stock Exchange (NYSE). The China Securities Regulatory Commission approved the company's application to list A-shares, with plans to issue up to 845.7 million. China Mobile stated it will conduct "preliminary price consultations" on 16 December and 17 December, and announce the final issue size and price of the share listing. The state-owned company is listed on the Hong Kong Stock Exchange and stated the proceeds will be used to develop 5G networks, new cloud infrastructure, gigabit broadband and smart home offerings, and the next-generation of information technology. China Mobile and rivals China Telecom and China Unicom were removed from the NYSE in January following a regulatory crackdown on companies deemed to be owned or controlled by the Chinese government. In August, China Mobile detailed a plan to raise CNY56 billion ($8.8 billion) with a listing in Shanghai. China Telecom raised CNY47.1 million when it was listed on the Shanghai Stock Exchange, while China Unicom began considering listing a stake in its smart internet technology unit on a domestic exchange.

Philippines Senate Approves Bill to Open Up Foreign Ownership of Telcos

The Philippines' Senate yesterday (15 December) approved on the third and final reading Senate Bill 2094 which aims to open up industries to foreign investors, including for public services such as telecommunications providers. With the Bill having passed through the House of Representatives back in March 2020, the Senate has now approved it by a margin of 19 to three in favor. The measure reportedly seeks to clarify the definitions between the terms 'public utility' and 'public service', noting that under the 1987 Constitution, only corporations that are at least 60% owned by Filipinos will currently be given the franchise, certificate, and authorization to operate as a public utility. Going forward, telcos could now be considered as a public service and, as such, 'no longer bound by restrictions on foreign ownership'.

Commission Recommends Scrapping Mobile Tax

A parliamentary commission in the Democratic Republic of Congo (DRC) has recommended that the government scrap the controversial mobile phone tax that was introduced last year, on the basis that it has not been able to trace the funds raised so far, Reuters writes, citing a government report. According to the report, the commission recommended that the state 'put a definitive end to the levy … the resource of which are not trace either in the general budget or in the special accounts.' As noted by TeleGeography's GlobalComms Database, the tax – known as the Register of Mobile Devices (Registre des Appareils Mobiles, RAM) – requires customers to register the International Mobile Equipment Identity (IMEI) number of their device with the regulator, for which they are charged an annual fee of USD1 for 2G devices and USD7 for 3G and above. Devices that are not registered risk being blocked by the watchdog. At the outset the government faced criticism for its lack of transparency with regards to the RAM, including its plans for the funds collected by the levy and award of the contract for establishing the RAM collection system.

UK's Ofcom to Expand Monitoring of BT's Openreach

Ofcom said it will expand its future monitoring of BT Group PLC's Openreach subsidiary to include areas relating to its full-fiber regulatory framework. The regulator has been providing annual monitoring reports on Openreach's progress towards becoming more independent since BT agreed to make Openreach a legally separate company in 2018. In a statement, Ofcom said Openreach continues to operate in a way that is strategically independent from BT. Earlier this year, Ofcom set out new regulations for the wholesale telecoms markets as part of plans to bring faster, more reliable broadband to people across the UK. The regulator said Openreach has an important role to play in ensuring that competition operates effectively, for example by allowing other builders access to its underground ducts and telegraph poles. It will therefore expand its future monitoring of Openreach and encouraged companies to alert it to any competition concerns that risk undermining the development of competing full-fiber networks. It said it had already been alerted to some issues and told Openreach to engage with its customers on these areas of concern.

HK Creates Spectrum License for Private Services

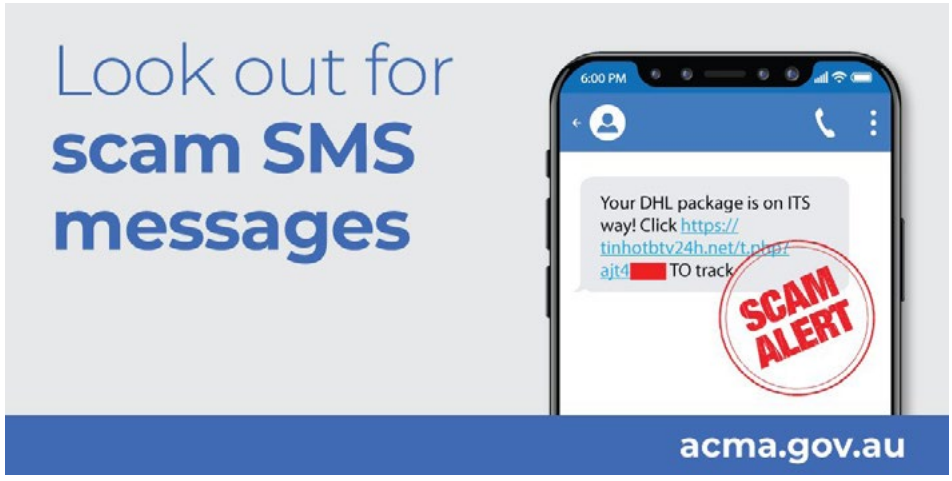
Hong Kong's Communications Authority (CA) called for organizations to apply for a newly-created localized wireless broadband service (LWBS) license to establish related communications systems for private use. In a statement, a CA representative explained the license has a restricted scope of operation compared with the existing LWB permit, by limiting the network coverage area to 1 square km and prohibiting third parties from offering services using it. The agency noted the permit "is subject to more light-handed regulation and a lower license fee". A holder will be assigned up to 400MHz of spectrum in the 26GHz and 28GHz bands, which will be shared on a geographical basis. It will "enable individual entities" across various sectors to "adopt 5G or other advanced wireless technologies to meet their own operational needs". The annual cost includes a fixed license fee of HKD10,000 ($1,282) and a variable charge based on the number of radio base stations installed. Licenses are valid for five years and can be extended by the same. Hong Kong created the first LWBS private license in 2019.

USTDA Awards Grant to PLDT-Smart to Further 5G Deployment

The US Embassy in the Philippines has revealed that the US Trade and Development Agency (USTDA) awarded a grant to PLDT Inc.'s mobile arm Smart Communications for training to advance the cellco's plan to expand 5G services to 96% of the Filipino population. The press release noted that USTDA made the award to support Smart's investment in equipment and services from Cisco Systems. 'This grant demonstrates USTDA's commitment to supporting cutting-edge information and communications technology infrastructure in the Philippines, while promoting innovative solutions from U.S. companies,' said Ambassador Vinai Thummalapally (ret.), USTDA's Acting Director. 'We are proud to partner with Smart and Cisco on this project, which will strengthen digital connectivity and bring faster, higher quality, and more affordable digital services to the people of the Philippines.' The grant reportedly builds on previous USTDA assistance to advance PLDT-Smart's efforts to modernize the company's national fiber-optic network and prepare the Philippines for the transition to 5G.

Australia Steps Up Action to Curb SMS Scams

Australia's government amended telecoms law to make it easier for operators to identify and block scam text messages, a move welcomed by Telstra and Optus. In a statement, Minster for Home Affairs Karen Andrews explained the regulatory amendment gives mobile operators the authority to block malicious SMS at scale and protect Australians from scammers. She added the government is committed to working with industry to tackle new and emerging threats, including scams which "exploit digital technologies for nefarious ends". Telstra CEO Andrew Penn commented in a blog the government "is providing the necessary guidance" to "support the development and use of" new capabilities to stop scam communications. Penn stated Telstra received 11,100 reports of SMS scams from customers so far in 2021 compared with 50 in 2020. He added Telstra is piloting a tool designed to detect and block scam SMS as they travel across the network. Optus CEO Kelly Bayer Rosmarin welcomed the clarity the change provided those seeking to identify and block scam communications, explaining in a statement the operator "is vigilant about protecting our customers and these amendments provide us with even more options to safeguard our customers from scammers and fraudsters". She added its services have never been more critical, but "are also being used to prey on Australians, particularly the most vulnerable". Minister for Communications, Urban Infrastructure, Cities and the Arts Paul Fletcher cited figures from Scamwatch showing reports of SMS and phone scams doubled so far in 2021 compared with 2020, with Australians losing AUD87 million ($62.2 million). Fletcher said a government code to lower spam calls resulted in more than 214 million being blocked since December 2020.



Transtelco Closes Maxcom Acquisition

Texas-based Transtelco Holding has confirmed that it successfully completed the acquisition of Maxcom Telecomunicaciones on 15 November. The deal was carried out through 'concurrent and co-dependent public tender offers for Maxcom's equity and debt'. The combined company presides over 25,000km of fiber throughout the US and Mexico that passed over 6,000 enterprise buildings. Transtelco's CEO, Miguel Fernandez, commented: 'This complex acquisition marks an important milestone for Transtelco. After 20 years of being the leading binational B2B digital infrastructure service provider, this acquisition cements Transtelco's position in Mexico as having one of the most unique, scalable, and low latency networks with access routes to transport the country's data.'

ICA Approves the Sale of Vodafone, Nova Passive Infrastructure

The Icelandic Competition Authority (ICA, known locally as Samkeppniseftirlitid) has given its unconditional approval to the sale of Syn (Vodafone Iceland) and Nova's passive mobile infrastructure to ITP ehf, itself controlled by US fund management company Digital Bridge Group (formerly Colony Capital). In order to approve the deal, the ICA requested information on Digital Bridge's collaboration with Ardian, a prospective buyer of Mila (Siminn's infrastructure company), though according to both companies there is 'minor collaboration and a small ownership relationship, as Ardian has a negligible share in the projects in which both companies have invested'. TeleGeography notes that in March 2021 Icelandic telecoms/media company Syn signed agreements relating to the sale and leaseback of passive mobile infrastructure to unnamed at the time international investors for a profit of over ISK6 billion (USD47 million). The terms include a long-term lease agreement which will guarantee Syn's access to the passive mobile infrastructure, while all active mobile equipment will be owned and operated by it.

NTA to Slash Mobile Interconnection Charges

NTA is planning on slashing interconnection charges on phone calls. The telecom authority is implementing "Nepal Interconnection Guidelines 2076" from Magh 1 that will see the service fees reduced by 0.44 paisa. Interconnection fees are a type of charge one mobile company pays to another when a call is established between two separate networks. NTA made the decision to drop the interconnection charges on calls after its board meeting on Kartik 29. Previously, the telecom operators paid 0.54 paisa when a call was made from one to another mobile network in Nepal. NTA has now fixed the charges at 0.10 paisa per minute. After this implements, the interconnection calls would drop by 0.44 paisa when a call is made between Nepali telcos. This includes calls among Nepal Telecom (NTC), Ncell, and Smart Cell. The slashed interconnection charges will apply from Magh 1 onwards. This shall reduce the costs of off-net mobile calls on both prepaid and post-paid services. Currently, the inter-operator call charges on outgoing calls from NTC prepaid to other networks are Rs.2.00. The charge for NTC postpaid on outgoing calls is Rs.1.50 paisa per minute (excl. taxes). With the Interconnection 076 Guidelines, these off-net call charges will come down to Rs.1.56 for prepaid and Rs.1.06 paisa on postpaid SIM cards. Meanwhile, the guidelines also make changes to Ncell's off-net call charges. Previously, outgoing calls charges from Ncell to other mobile networks were Rs.1.99. This will drop to Rs.1.55 paisa after NTA implements the new costs policy. Smart Cell's present off-net call costs of Rs.1.92 will also come down to Rs.1.48 after the new tariff sets in. The revised interconnections charges were about to implement from Chaitra 2076. The subsequent effects on telcos' incomes derailed it's coming into effect. The COVID-19 had also subdued its applications. Now, NTA is strictly demanding that the telcos comply with the new tariffs. The charges will enforce on domestic interconnection calls only. NTA says it will revise the interconnection charges on international calls after studying COVID-19's effects on telcos and their income profiles.

Nkom Proposes Updated Legislation Relating to Telenor's Copper Network Shutdown Plans

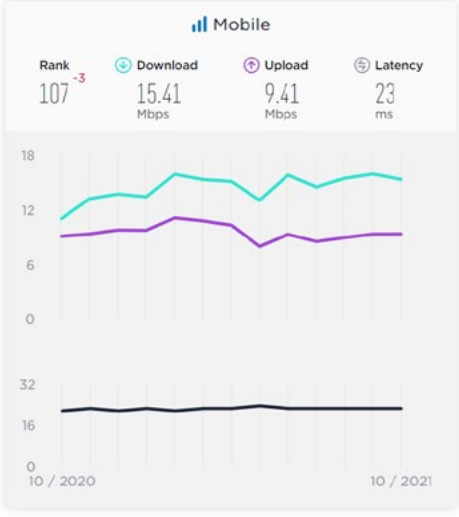
Norway's National Communications Authority (Nkom) has unveiled proposed changes to legislation related to fixed line incumbent Telenor Norge's planned switch-off of its legacy copper network. With the watchdog claiming its proposals are designed to ensure competition in the fixed broadband sector during the transition to more modern access technologies, it has set a deadline of 6 December 2021 for comments from interested parties. In a press release regarding the matter, Nkom noted that it has already directed Telenor to maintain access to its copper infrastructure until September 2025. Under existing regulations, the watchdog notes, the operator does have scope to close its copper network before September 2025 where it encounters matters beyond its control, for example where a construction project by another company requires existing copper lines to be removed or rerouted. However, according to the regulator, the current system 'partly undermines' the purpose behind its existing copper shutdown rules, with Nkom's competition department director, Hans Jorgen Enger, saying: 'The extent of copper closures appears to be high, and closures are notified to Telenor's wholesale customers with short deadlines and little information … We therefore believe that the current regulation related to "matters beyond Telenor's control", does not sufficiently address the consideration of predictable access to the copper network for companies that buy and resell access to Telenor's copper network to its own.' As such, the newly-proposed regulation stresses that Telenor has a duty to maintain wholesale customers' access, even in those instances where the copper network owner encounters issues outside of its control. Meanwhile, Nkom has said it will continue to allow Telenor freedom of choice with regards to what technologies can be offered in place of the legacy copper infrastructure, with these including both fibre-based broadband and fixed wireless broadband. Finally, the watchdog has said its new proposals emphasize that wholesale customers should be more involved in the copper network shutdown process and be provided with 'sufficient and timely' information.

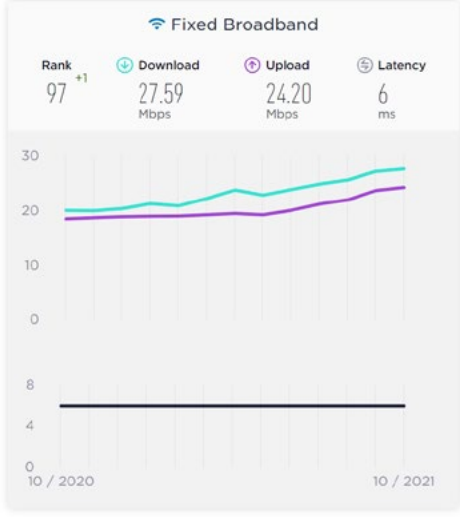
Vodafone Egypt Reportedly Negotiating with NTRA on Possible 5G Trials

Mohamed Abdullah, CEO of Vodafone Egypt, has said that his company has been in negotiations with the National Telecom Regulatory Authority (NTRA) regarding the possibility of undertaking 5G trials in the New Administrative Capital. In an interview with Daily News Egypt the executive confirmed Vodafone Egypt had been 'conducting many meetings and discussions with NTRA regarding the launch of 5G', the cellco aims to begin trials in the New Administrative Capital, with it said that its proposals in this area 'are currently being studied technically with NTRA regulators', though it was stressed the two parties were 'still in the process of studying and exchanging ideas'. Meanwhile, as part of the same interview Abdullah said that development of its infrastructure one of his company's key priorities, noting that the Vodafone Egypt had recently built 590 portable communication towers, while having obtained an initial approval for the construction of a further 250 towers, with another 100 towers pending approval. In addition, the executive confirmed that, with Vodafone Egypt having invested nearly EGP8 billion (USD509 million) to obtain spectrum in the 2.6GHz band (a development announced in late-2020), it was 'working on developing an optimal preparedness strategy for these frequencies'. Further, it was confirmed that the operator has now paid 50% of the cost of this spectrum, with the second payment instalment understood to be due in January 2022.

Nepal Improves Fixed Broadband Speed

Nepal's Fixed Broadband broadband speed has improved in Speedtest's latest Global Index. Meanwhile, mobile broadband speed has jumped down in the October index. Globally recognized internet data analytic organization Speedtest has just released its Global Index for October. As per the data, Nepal has a mixed bag impression. In Speedtest's October Index, Nepal's fixed broadband download speed was 27.59 Mbps on average. The upload was speed was also very encouraging at 24.20 almost equaling the download speed with 10 ms latency. As per the data, Nepal's rank in mobile broadband has gone down by 3 positions. Resting at 107th, Nepal's mobile broadband download speed was recorded at an average of 15.41 Mbps. Similarly, the upload speed was just recorded at 9.41 on average with 23 ms latency. As per Speedtest, the global fixed broadband average for download speed clocked 56.09 Mbps and 23.53 Mbps upload speed on average. Meanwhile, the latency was 10 ms on average. Singapore, the broadband utopia was atop with 188.11 Mbps download speed and 161.52 Mbps upload speed. Thailand and Hong Kong earned 2nd and 3rd rank respectively in the index. Chile and Denmark rest at fourth and fifth. The South American nation's download speed clocked at 163.49 Mbps on average. Meanwhile, Denmark's download speed was at 146.64 Mbps. Among SAARC, India stays at the top with 46.18 Mbps speed, and Bangladesh follows at second with an average 29.01 Mbps speed on average. Nepal ranks third at 27.59 Mbps speed. Sri Lanka, Maldives, and Pakistan follow at fourth, fifth, and sixth respectively. They averaged 17.27, 10.72, and 8.75 Mbps download speed on average. Bhutan and Afghanistan perched at seventh and eighth positions among their SAARC siblings with 7.46 Mbps and 1.76 Mbps download speed on average. The global average speed of mobile broadband was recorded at 28.61 for download. Ookla recorded upload speed at 8.32 Mbps and latency at 23 ms. While Nepal was able to improve its Fixed Broadband profile by one rank further up at 97th, the Mobile broadband position has faltered down to 107th. UAE (United Arab Emirates) leads Speedtest's Global Index for Mobile Broadband at the top with 130.19 Mbps speed. The Gulf country's upload speed though is minimal compared to its download speed which is 23.93 Mbps only. Norway and South Korea follow at second and third with 107.50 Mbps and 98.93 Mbps respectively. Qatar and Netherlands rank at fourth and fifth respectively. Speedtest recorded Qatar's download speed at 92.83 Mbps and the Netherlands at 91.96 Mbps. Nepal which rests at 107th position has 15.41 Mbps download speed and 9.41 Mbps upload speed with 23 ms latency.





Arcep Concludes Examination of 5G Applications in Reunion, Mayotte

The Authority of Regulation for Electronic Communications and Posts (Autorite de Regulation des Communications Electroniques et des Postes, Arcep) has concluded the examination phase of its procedure to award 5G spectrum in the French overseas territories of Reunion and Mayotte. The process was kickstarted on 3 August 2021 and the deadline for applications was 12 October. In Reunion the watchdog has received bids from Orange, Societe Reunionnaise du Radiotelephone (SFR Reunion), Telco OI (Free Reunion) and Zeop Mobile. The regulator said that all four companies are qualified to receive spectrum in the 700MHz and 3.4GHz-3.8GHz bands. Orange, SFR and Telco OI would be awarded 100MHz each in the 3.4GHz-3.8GHz band, while Zeop Mobile would receive 80MHz. Regarding the 700MHz band, the four candidates have subscribed to the four commitments provided for in the specifications and will be able to obtain, at the end of this procedure, a block of 2×5MHz spectrum each. Further, the four companies are also authorized to participate in the auction phase for the allocation of two blocks of 2×5MHz spectrum still available in the 700MHz band. In Mayotte, meanwhile, Orange, SFR Mayotte, Telco OI Mayotte and Maore Mobile have qualified for the 700MHz allocation procedure, with each set to obtain 2×5MHz in the band. Maore Mobile and Telco OI Mayotte have also qualified for 900MHz spectrum. Maore Mobile also obtained 1.6MHz duplex in the 900MHz band as part of the 5MHz duplex block building phase in the 900MHz band. The watchdog expects to hand over the frequency authorizations by March 2022.

Open Fiber Sale Approved by EC

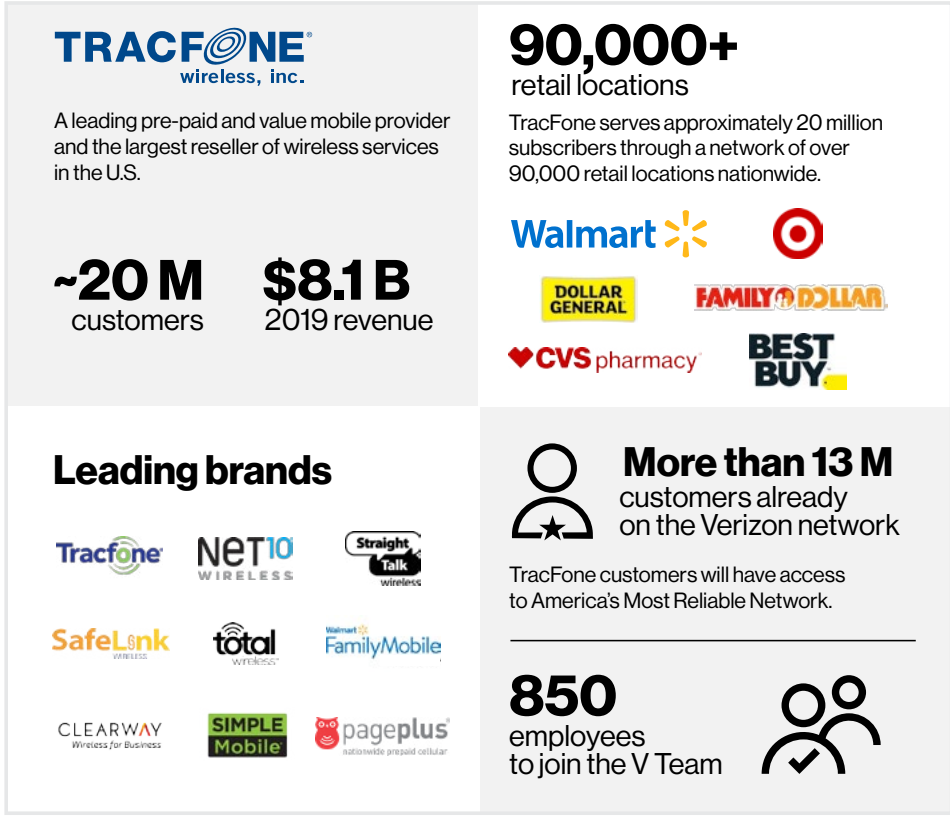
The European Commission has approved the sale of a 50% stake in Italian wholesale telco Open Fiber. Australian infrastructure investment firm Macquarie has been cleared to acquire a 40% interest, while Italy's state lender Cassa Depositi e Prestiti (CDP) is increasing its stake by 10% to 60%. The 50% holding was offloaded by Open Fiber's founding shareholder, utility group Enel. EC regulators said the deal would not raise competition concerns.

EC Preliminary Assessment Highlights Competition Concerns in Czech Market

The European Commission (EC) has published its initial assessment in Case AT.40305 'Network Sharing – Czech Republic' concluding that, after careful analysis, it has concerns over the compatibility of the horizontal network sharing agreements (NSAs) concluded between T-Mobile Czech Republic and O2 Czech Republic and Czech infrastructure provider CETIN, and the Mobile Network Services Agreement (MNSA) between O2 CR and CETIN, that they hamper competition in breach of Article 101 of the TFEU and Article 53 of the EEA Agreement. In a filing, the agency noted: 'According to the Commission's preliminary assessment, the NSAs, as well as the MNSA, may restrict competition in violation of Article 101(1) of the TFEU by their effects. The Commission considers that the NSAs (together with the MNSA), considered in their specific market context, reduce the Sharing Parties' ability and incentives to unilaterally invest in network infrastructure and therefore may negatively affect the ability and incentives of T-Mobile and O2 to compete on the retail and wholesale markets for mobile telecommunications services in Czechia.' The EC went on to say that the effect of the NSAs was to limit the rollout of 2100MHz capacity in the east of the country by T-Mobile, as well as restricting the partners' 'individual flexibility' to deploy 1800MHz band services. It also led to disincentives in terms of 'unilateral network deployments of any type due to financial disincentives as well as information exchange', in turn potentially affecting T-Mobile and O2's 'ability and incentive' to compete in both the retail and wholesale segments. To address the EC's competition concerns, the parties involved have reportedly offered to: modernize the mobile network; to set and review the financial conditions for unilateral network deployments; to improve the NSAs contractual provisions to limit information exchange; and to implement measures to the MNSA to prevent information leakage between the companies. Having invited comments on the proposed commitments, the Commission will now assess whether the commitments address its competition concerns.

Verizon Gets FCC Nod for Tracfone Deal

The US Federal Communications Commission (FCC) cleared a $6.25 billion Verizon acquisition of MVNO Tracfone Wireless, enforcing a number of conditions to ensure the tie-up is in the public interest and protects low-income consumers. In a statement, the FCC mentioned it voted to approve the deal following a rigorous review, deeming Verizon and Tracfone would be stronger providers of prepaid services and the US Lifeline subsidy program. The regulator stipulated protections against price rises for low-income consumers to ensure Tracfone remained influential to the broader Lifeline scheme, guarantee availability of affordable 5G handsets and customers were not overlooked as they transition to Verizon. Another major condition requires Verizon to offer Tracfone's Lifeline-supported services over the same service areas for at least seven years. The FCC explained it adopted independent mechanisms for enforcing the conditions through an internal and external compliance officer with the aim of ensuring the deal did not impact low-income or other consumers. Verizon is required to provide regular reporting to prove it is meeting the conditions. In its own statement, Verizon SVP and DGC for public policy and government affairs Kathy Grillo highlighted consumer benefits through "enhancements in devices, network performance and innovative products and services". The deal was announced in September 2020 and received approvals from the Department of Justice and California Public Utilities Commission.



True, dtac Tie-Up Draws Regulatory Scrutiny

A proposed merger between True Corp and dtac which would create the largest mobile player in Thailand by connections and leave the country with only two major operators, attracted the attention of the National Broadcasting and Telecommunications Commission, which summoned executives from both companies to discuss the impact of consolidation, Bangkok Post reported. The boards of both companies acknowledged plans to make conditional tender offers for all the shares of True and dtac, and approving proposals to work out a merger. The proposed transaction values the deal at THB282.8 billion ($8.6 billion), Reuters reported. GSMA Intelligence figures show the merged company would have held a 53.7 per cent market share at end-Q3 versus the 43 per cent of leader AIS. In a joint statement the companies explained they aim to reach an agreement by Q1 2022. Suphachai Chearavanont, CEO of True Corp's main shareholder and chairman of the operator, predicted the combined "telecom-tech company" could "help unleash the enormous potential of Thai businesses and digital entrepreneurs". Sigve Brekke, president and CEO of dtac parent Telenor Group, noted a focus on boosting "Thailand's digital leadership role, by taking global technology advancements into attractive services and high-quality products". Any final agreement requires approval by the operators' shareholders of and standard regulatory clearances. The deal comes as Telenor Group looks to pull back its operators in Asia, which led to a deal to combine its Malaysian unit with Axiata Group and a move to exit Myanmar.

Ofcom and BT Adopt Changes to Help 10Mbps Broadband USO

Ofcom has finalized the changes that were first confirmed in July to improve how BT handles delivery of the UK's Universal Service Obligation (USO), which aims to bring faster broadband ISP speeds to those who can't yet receive a 10Mbps+ capable download speed and aren't planned to do so in the near future. We've already covered this topic and the changes extensively before (summary), so on this occasion we'll just cut right to the chase. In short, some of those who applied to request a USO connection from BT have faced a number of problems with poor communication, unreliable cost quotes and others were also asked to pay materially higher amounts than they should have been (e.g. some of those who initially requested the USO were footing a big chunk of the bill for everybody else). Back in May 2021 BT revealed that they'd moved to improve their processes and communication. Furthermore, they also introduced a new cost sharing "option" for their USO quotes (here), which enabled communities to "crowdfund and share the excess cost of a broadband network upgrade "(preferable to lumping all the costs on to the first accepted quotes / homes). In addition, if more than 70% of premises in a cluster register their interest, a contribution of an "additional £3,400 per premise" was included, thus lowering the excess costs that a community might have to pay (it's very tricky to get this kind of thing right). On top of that, the 4G solution that BT shipped in response to most other USO requests was upgraded to include unlimited data (some people can also get an external antenna installed, if necessary). Ofcom's proposals in July largely put what BT had already done – to improve how the costs of USO connections are calculated and or shared between properties – into the rules. But it also made a few other clarifications and changes too, which have today been formally adopted. The regulator recognized that BT had agreed to change its approach for quotes where the cost of connecting a property is not significantly above the £3,400 threshold. BT also agreed to refund affected customers and re-issue quotes it has previously provided. Crucially, this won't solve all of the much more complicated underlying problems with areas that are simply far too expensive to resolve via the USO (e.g. some people have been quoted hundreds of thousands, even millions of pounds). At a certain point, the value for money side goes well out of the window and keeps on running. Like it or not, the cost of deploying Fiber-to-the-Premises (FTTP) infrastructure into some extremely remote rural areas can be insane, which is an unavoidable reality. Such barriers cannot easily be swept aside by good intentions or small tweaks. Indeed, in some cases it would literally be cheaper to build somebody a new house, in a better connected area, than to run a new fiber line. Nevertheless, the changes that BT and Ofcom have made should still result in a

number of customers receiving lower quotes in the future. Meanwhile, the Government's £5bn Project Gigabit program has similarly warned that those in the final 0.3% would be prohibitively expensive to reach (here) and they're consulting on how to solve this (we expect new wireless networks and LEO satellites to be options). On the other hand, BT may find the new approach to be quite challenging. Likewise, there is a risk that the new approach to shared costs could cause some confusion for those who apply for the USO after the fiber has been run down a street or lane, following the first customer request (i.e; some of those who apply later might not realize that they still have to pay their share of the USO cost for delivery, which could be hefty).

T-Mobile Netherlands Loses Appeal Against KPN Copper Switch-Off Schedule

T-Mobile Netherlands has lost a court appeal against rival KPN's planned copper network shutdown schedule, and says it will now argue its case to the regulator, the Authority for Consumers and Markets (ACM). In late September T-Mobile launched a court case in an attempt to postpone national PSTN operator KPN's plans to switch off copper lines and migrate services to fiber-optics, arguing that it will not have adequate time to transfer its own customers. KPN aims to decommission copper network services at more than two million addresses in Q1 2023, a plan it announced in February 2020. T-Mobile, while in the process of rolling out its own fiber infrastructure, relies on wholesale access to KPN's network for wide internet coverage, and the company has requested a two-year delay in the copper switch-off process.

Millicom Takes Full Control of Tigo Guatemala For $2.2B

Millicom agreed to take full control of Tigo Guatemala by buying out a 45 per cent stake from its JV partner for $2.2 billion, reinforcing its focus on Central and Latin America in a deal tipped to be the highest non-domestic investment in the country in more than 50 years. In a statement, the operator explained it expected the transaction, which was sealed with local partner Miffin Associates, to be finalized today (12 November) and to help it consolidate its position as a leader in Central America. Millicom has secured bridge financing from a group of international banks to fund the deal, which it plans to refinance by debt and an equity rights offering in Q1 2022. The operator believes the deal will boost its free cash flow to equity by approximately $200 million in 2021. Millicom chief Mauricio Ramos commented the deal will help the company transform its financial profile by increasing its cash flow and net income, and "greatly simplify our structure." Ramos highlighted Tigo Guatemala as one of its "most successful businesses", and explained the investment into the operation reflected its confidence in "the thriving economy of Guatemala and our renewed commitment to the digital transformation of its society". The transaction appears to be the biggest non-domestic direct investment in Guatemala since at least 1970, the Financial Times reported, citing data from the World Bank. Millicom has been on the lookout for ways to boost its presence in Central and Latin America for years, including through a deal it scored in 2019 to take over Telefonica's operations in Panama, Costa Rica and Nicaragua. It also eyed concentrating on the region by exiting the African continent in April and committed $135 million in July into network improvements in its Honduras, Paraguay and Bolivia operations.

MTN Nigeria Receives Approval for Public Sale Offer

MTN Group has announced that Nigeria's Securities and Exchange Commission (SEC) has approved an offer for the sale of up to 575 million ordinary shares in MTN Nigeria, by way of a bookbuild to qualified investors ('institutional offer') and a fixed price to retail investors ('retail offer'). The institutional offer opens on 23 November and closes on 26 November, after which a fixed price will be determined for the retail offer. An announcement on the retail offer will be published once clearance is obtained from the SEC. 'MTN Group is pleased with the launch of this public offer. This is the first step in a series of offers over the near to medium-term for MTN Group to sell-down a total of up to 14% shareholding in MTN Nigeria. This should result in greater ownership by Nigerian institutional and retail shareholders, and increased liquidity of the share on the Nigerian Stock Exchange,' said Group President and CEO Ralph Mupita.

US C-Band Tension Escalates

The US Federal Aviation Administration (FAA) reportedly prepared to issue a warning stating 5G transmissions in the C-Band may interfere with flight safety, projecting flight delays and cancellations could result from operators' upcoming launches. A report by The Wall Street Journal revealed the FAA is drafting guidance to explain how 5G in the C-Band spectrum may impact the performance of radar altimeters on aircraft. The agency projected airline schedules will be impacted if pilots do not use cockpit systems relying on the altitude equipment. Radar altimeters use spectrum in the 4.2GHz to 4.4GHz band. In the US, mobile operators are expected to use C-Band n77 spanning 3.3GHz to 4.2GHz, with the Federal Communications Commission (FCC) allocating blocks in the 3.7GHz to 3.98GHz following an auction earlier this year. Satellite companies are in the process of clearing the spectrum for mobile operators, with 5G services set to begin in 46 US markets on 6 December. The US aviation industry expressed concern before the C-Band auction. Early last month, FAA deputy administrator Bradley Mims wrote about "deep concern" regarding potential interference, Reuters reported adding the FCC argued its track record demonstrated a continuing commitment to aviation safety. Outside the US, several operators operate C-Band 5G networks.

NCC Extends Deadline for Submission of 3.5GHz Spectrum Bids

The Nigerian Communications Commission (NCC) has extended the deadline for the submission of bids and initial bid deposits for the upcoming auction of spectrum in the 3.5GHz band. The date has been pushed back from 24 November to 5pm on 29 November due to 'the challenges posed to air travel as witnessed recently and considering that it may have some impact on intending bidders regarding the submission of their bids'. The regulator plans to auction off two lots of 100MHz TDD spectrum in the 3.5GHz band, ranging from 3500MHz-3600MHz and 3700MHz-3800MHz, on 13 December. Each lot has a reserve price of USD197.4 million, with the nationwide spectrum licenses valid for ten years. To qualify to bid in the auction, applicants will not have to be an existing licensed network operator in Nigeria, although any successful bidder which does not already have a Unified Access Service License (UASL) will be granted one upon payment of the specified fee. Winning bidders will be required to launch commercial services within twelve months of the effective date of the license, and coverage should reach at least one state in each of the country's six geo-political zones within two years.

Brazil's 5G Auction Closes with US$8.5 Billion in Bids

Brazilian regulator Anatel has closed bidding in the country's multi-band 5G spectrum auction. The long-awaited auction brought in a total of BRL47.2 billion (USD8.5 billion) in bids, with the 3.5GHz concessions attracting the highest bids – a total of BRL22.79 billion for national permits and BRL7.92 billion for regional permits. The 2.3GHz band brought in BRL9.45 billion, with the 700MHz band generating BRL3.57 billion and the 26GHz band raising BRL3.45 billion. Brazil's three biggest players Claro Brasil, Telefonica Brasil (Vivo) and TIM Brasil were the major spenders, although regional telcos - including Algar Telecom, Brisanet and Sercomtel - also lodged significant bids to obtain licenses. Winity Telecom was a major winner in the 700MHz band. President of the Special Bidding Commission Abraao Balbino e Silva underlined the importance of 5G spectrum to Latin America, saying: "We never had an auction with such economic volume involved: privatization did not yield that, 3G did not yield that, 4G did not yield that." TeleGeography quoted Silva as saying that of the total bids, around BRL7.44 billion would be converted to goodwill bonds, with the winning bidders required to supply network coverage to pre-selected underserved regions in Brazil.

US Players Splash $21.8B in Latest Mid-Band Auction

The US Federal Communications Commission (FCC) received winning bids worth $21.8 billion in its latest mid-band spectrum sale, a total the authority lauded as making the auction among the highest grossing in its history. During the so-called clock phase, where companies competed for generic blocks of spectrum in the 3.45GHz to 3.5GHz range, all but 19 of the 4,060 lots offered were won. In the next part of the process operators and other winning parties will vie for licenses for specific blocks. The auction started in early October with 33 companies qualifying to place bids, including the three major operators and newcomer Dish Network. Up for sale was 100MHz of spectrum split into 10MHz blocks with licenses set to cover specific geographic areas. In its statement, the FCC noted license winners "will operate within a cooperative sharing framework that will enable commercial use by an array of service providers, while also ensuring coexistence with federal incumbents where and when they require continued access to the band".

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A SNAPSHOT OF REGULATORY ACTIVITIES IN THE SAMENA REGION

Afghanistan

The Afghan government has announced that the Afghanistan Telecom Regulatory Authority (ATRA) will be merged into the Ministry of Communications and Information Technology (MCIT), along with state-owed telco Afghan Telecom (Aftel) – which offers mobile services under the Salaam brand – and Afghan Post. The development is part of the restructuring of the nation's government institutions following the takeover by the Taliban in August this year. Under the plans, Aftel and Afghan Post will be transferred to the framework of the MCIT, with leadership and technical and financial management of the companies to be the responsibility of the Minister for Telecommunication and Information Technology. The ATRA, meanwhile, will be transferred to the MCIT where it will continue its activities as a non-budgetary unit, albeit under the direction of the telecom minister. The MCIT claims that the merger of the departments will lead to 'more coordination to achieve the goals of this sector and … will help to improve services under a single leadership.'

(December 17, 2021) commsupdate.com

Algeria

During the year 2021, more than two million commercial operations via electronic payment terminals were recorded in Algeria, local news agency Algérie Presse Service reported. The Algerian government has worked to encourage this type of operations. Prime minister and Finance minister Aïmene Benabderrahmane said electronic payments reached an overall amount of nearly DZD 15 billion (USD 109 million), up by 220% compared to 2020 where the overall amount reached DZD 4.7 billion (USD 33 million), the result of 711,000 operations. At the signing ceremony of the agreement on the official launch of interoperability between the platforms of Algeria Post and banks, dedicated to payment by Internet, Benabderrahmane said that the Internet payment has experienced a promising development, as it has passed from 3.3 million operations in 2020 to more than 6.3 million operations in 2021 where the amounts of operations have exceeded DZD 8 billion (USD 57 billion) while they were at DZD 4 billion in 2020 (USD 29 billion). (December 26, 2021) menafn.com

The country's independent telecoms watchdog the Authority for Regulation of Post and Electronic Communications (Autorite de Regulation de la Poste et des Communications Electroniques, ARPCE) has awarded extra 900MHz mobile spectrum to the country's three cellular network operators. In a brief statement on its website the regulator said that it assigned additional frequencies in the E-GSM band (880MHz-890MHz/925MHz-935MHz) to Mobilis, Djezzy and Ooredoo 'as part of improving the quality of service of mobile telephony networks' and added that it 'will continue its efforts in the planning and assignment of frequencies, in order to offer the best quality of service to users.'

(November 25, 2021) commsupdate.com

Bahrain

The Chief Executive of the Information and eGovernment Authority (iGA) Mohammed Ali Al-Qaed announced details of the new digital policies adopted by the Council of Ministers under the chairmanship of His Royal Highness Prince Salman bin Hamad Al Khalifa, Crown Prince and Prime Minister which aim to enhance the provision of e-services and facilitate their use by various sectors to encourage creativity and business development in accordance with the best international standards and indicators. This announcement came during a press conference held by the iGA in cooperation with the National Contact Centre. Al-Qaed explained how new digital policies relate to government performance and reflect them at the level of public government services by reviewing a set of items, principles, and goals that fall under those policies, which include open data policy, e-participation, digital services first policy, digital government as a right policy, and single data entry policy. Mr. Al-Qaed said that

all these policies were developed in coordination with the Ministry of Finance and National Economy, the Economic Development Board, the Telecommunications Regulatory Authority, the Legislation and Legal Opinion Commission, the Central Bank of Bahrain, and the National Communication Centre. He pointed out that the participation of these various entities has contributed to covering many aspects necessary in order to formulate advanced policies that lead to achieving their desired goals, such as encouraging innovation, attracting investments, ensuring the security and privacy of user information, and increasing customer satisfaction with government services. He added that the iGA is keen to achieve more progress in the United Nations e-government index, so it formed a committee to study the readiness of the Kingdom of Bahrain in the United Nations e-participation index report, the next version of which will be issued next year. These digital policies have been introduced and linked to the report's indicators, in order to make progress in it. Al-Qaed explained that these policies are based on the government's confidence in spreading a government approach based on comprehensive digital orientation for all sectors in the Kingdom, in line with the latest global trends. He added that the iGA is working in cooperation with various authorities in the Kingdom to develop implementation plans for these policies, stressing that the importance of community awareness of them, so that future trends are based on the provision of services in accordance with these policies based on cooperation between government agencies and the beneficiaries of their services. Deputy Chief Executive of Electronic Transformation Dr. Zakaria Ahmed Al Khaja spoke about the open data policy, explaining that it urges government agencies to make their data available through the Bahrain Open Data Platform and update them periodically. The government of the Kingdom of Bahrain considers data sharing with the public a crucial step towards enhancing transparency and accountability with regard to governance. He pointed out that to this end, the government strives to disseminate open data in order to encourage cooperation and involvement of all segments of the public, which will result in innovative solutions that seize opportunities and overcome the challenges facing everyone in order to improve the quality of life. Dr. Al-Khaja also touched on digital policies, which include the digital services policy first, the digital government policy as a right guaranteed to all, and the single data entry policy. He pointed out that through these three policies, the government seeks to achieve higher levels of transparency, openness and inclusiveness in government operations, establish a data-based culture within government agencies, as well as encourage the integrated government approach and encourage participation in the design of public service delivery and the development of policies. Dr. Al Khaja reviewed the e-participation policy, which highlights the government's commitment to providing traditional means of participation electronically and enhancing social media channels, in addition to achieving a quantum leap in the use of e-participation. He added that the iGA, during its policies, has been keen to learn about the Gulf and international experiences, to obtain the best terms and principles presented, and employ them in line with the e-transformation movement in the Kingdom of Bahrain Over recent years, the expectations of different audiences about the quality of public services have doubled, with technical innovations increasingly permeating most details of their daily lives day by day which prompted the government to promote modern technologies as an essential component of any services it plans to develop, implement, and launch so that these services keep these services in line with the needs of the public and meet their requirements efficiently. The comprehensive e-government initiatives implemented by the Kingdom over the past decades have helped to empower government agencies and direct them towards improving the levels of effectiveness of their operations and the efficiency of service delivery.

(November 6, 2021) newsofbahrain.com

Bangladesh

Bangladesh joined more than 60 other countries as it rolls out the fifth-generation (5G) of mobile internet connectivity on 12 December 2021. State-run mobile phone operator Teletalk will be the first to launch the super-speed technology, while the private operators are expected to jump on the bandwagon next year after the auction for spectrum in March. Teletalk will introduce the updated service on an experimental basis in six areas: the Prime Minister's Office, Parliament, Secretariat, Bangabandhu Museum on Dhanmondi 32, Bangabandhu Sheikh Mujibur Rahman's birth place Tungipara in Gopalganj, and the National Martyrs' Memorial in Savar, said its Managing Director Md Shahab Uddin yesterday. So, Teletalk's 65 lakh mobile phone subscribers will have to wait for more days as the operator is yet to get the clearance for its Tk 235 crore project to set up equipment at 200 points. Subscribers of the private mobile phone operators will have to wait until the spectrum auction. The trial run of 5G will be inaugurated at a program at the Radisson hotel in Dhaka, according to an invitation of the telecommunication division. But the launch comes at a time when Bangladesh is yet to benefit from its 3G and 4G technology deployments. The reach of mobile networks has expanded with 95 per cent of the population covered by 4G mobile broadband networks. Still, only 28 per cent of the mobile phones are connected to 4G, while 25 per cent use 3G and the rest 47 per cent 2G, said the GSM Association, an industry organization that represents the interests of mobile network operators worldwide, in a report in March. Bangladesh has 12.92 crore internet subscribers as of October. Of them, 11.91 crore access internet through mobile phones and the rest through internet service providers. "It was in the election manifesto of the government that it would launch 5G by 2021," said Subrata Roy Maitra, vice-chairman of the Bangladesh Telecommunication Regulatory Commission. He says 4G and 5G services are not the same.

While 4G deals with connectivity, 5G's application is industry-based. "So, the two should not be compared." Teletalk Managing Director Shahab says the operator has urged the finance ministry to convert the spectrum fee into equity as the government is the owner of spectrum. Responding to the absence of smooth service for its subscribers, he says the number of towers, also known as base transceiver stations (BTS), of Teletalk is a third of Grameenphone's. And, it could not invest to expand BTS for a lack of investment. "The service will improve following an increase in investment." In March, the GSMA called for improving affordability by adopting appropriate policy and regulation in areas such as tax, subsidies and business innovation to increase mobile internet adoption in Bangladesh. It urged the government to equip individuals with digital knowledge and develop an ecosystem to produce contents locally. (December 12, 2021) thedailystar.net

According to a decision of the Bangladesh Telecommunication Regulatory Commission (BTRC), the 'minimum speeds' for mobile internet and fixed broadband internet will be set at 15Mbps and 20Mbps respectively, increasing the official threshold guidelines from the existing 7Mbps (mobile) and 10Mbps (fixed). As per the latest decision, ISPs and mobile operators unable to maintain the minimum speed standards would not be categorized as broadband or 4G service providers. The BTRC has formed a committee to implement the initiative, which will consult with all operators before submitting a formal proposal. In 2018 the BTRC doubled its official fixed broadband speed standard to 10Mbps, but according to local reports many users across the country are still not able to access this speed.

(November 19, 2021) The Daily Star

Egypt

The National Telecom Regulatory Authority (NTRA) has obtained the ISO 9001 certificate in the Institutional Quality Management System for regulating telecommunication services in the Egyptian market by one of the major international accreditation bodies, JAS-ANZ. This comes within the framework of the agency's orientation to apply international standards in institutional management methods for the governance of telecommunications services with companies licensed to operate in the Egyptian market, which contributes to enhancing the investment climate in light of a fair and attractive competitive environment in accordance with international standards, in addition to raising the efficiency rates of the system of governance of telecommunications services provided to users. At the international level, NTRA advanced 54 positions in the international ranking in the performance index of telecommunication regulators around the world for the year 2020, issued by the International Telecommunication Union (ITU), to become 41st among 193 countries compared to 95th in 2019. The NTRA also advanced 43 international centers in the Mobile Wallet Regulation Index 2020 issued by the International Association of Mobile Networks (GSMA), becoming 36th out of 90 countries adopting this type of service globally, compared to 79th in 2019. (December 15, 2021) dailynewsegypt.com

Egypt's telecoms regulator is to spend the equivalent of US$32.6 million improving services in the Sinai peninsula. The National Telecommunications Regulatory Authority (NTRA) said it will spend 513 million Egyptian pounds from the country's Universal Service Fund (USF). "This step is in line with the role of the NTRA to regulate and disseminate telecommunications services throughout the Arab Republic of Egypt, with the aim of strengthening national and social correlations and contributing to economic growth" said the NTRA, according to the Ecofin agency. This is part of a continuing program by the Egyptian government to improve people's access to telecom services, with an emphasis was placed on rural areas and roads. Sinai, east of the Suez Canal between the Red Sea and the Mediterranean, has a population of around 600,000 in an area of 60,000 sq km. The NTRA money will be used for the construction of cell sites in 30 urban areas and along four roads. NTRA said: "This is in line with the state's strategy to achieve sustainable and comprehensive growth, as well as to provide telecommunications services, in Sinai. This would in fact help to increase national income, create new employment opportunities and widen areas suitable for housing and growth." The Egyptian government, which has been engaged since last year in a program of digital transformation of the country, has made universal access to telecom services a priority. (December 14, 2021) capacitymedia.com

The National Telecom Regulatory Authority (NTRA) greenlit the usage of higher network frequencies for Vodafone, Etisalat, and WE and is expecting an improvement in network services by early 2022, according to a statement released by the NTRA. The three network providers' services will now run at 40 MHz of 2.6 GHz on the Time Division Duplex Spectrum, a new frequency band that is expected to expand the capacity of networks and improve services. According to the statement, Minister of Communications and Information Technology Amr Talaat explained that the step aims to improve the quality of telecommunications services, help keep pace with the heightened demand for network services in the Egyptian market, and support Egypt's digital transformation. He added that the new frequencies will help significantly improve the quality of voice and data services over the coming period. The Egyptian telecommunication regulator signed investment agreements estimated at $1.170 billion in 2020 allowing Vodafone Egypt to start operating at a frequency of 40MHz, and Etisalat and WE at 20MHz. The statement added that the NTRA directed the three mobile network operators (MNOs) to take the necessary measures to leverage the new frequencies as well as follow the technical procedures that will prepare the networks for the new frequencies and overcome the hurdles that may negatively affect the quality of services. The NTRA is aiming to see remarkable improvement in the quality of voice and data services by early

2022 to catch up with the increased rate of cellular tower installations. In recent months, complaints have surfaced about the poor network coverage and data services provided by MNOs nationwide. In a NTRA report measuring the quality of calls and data services in the third quarter of 2021 in 81 cities and districts countrywide, Vodafone came in first and Orange last. The authority has enforced several measures to raise the quality of services provided, including fining telecommunication companies EGP 25 billion for violating phone service quality standards in accordance with the licenses they have been granted. The measures also include establishing 641 new mobile stations in the third quarter of 2021 to provide 500 villages with 4G network services, said the report.

(November 22, 2021) english.ahram.org.eg

Iraq

The RIPE Network Coordination Centre (RIPE NCC), in collaboration with the Communications and Media Commission in Iraq (CMC), successfully organized the 5th edition of the RIPE NCC Government Roundtable dedicated to Arab ICT Ministries and Regulators in the Middle East region. The meeting was held virtually under the theme, "Internet in a Changing Environment". The event was attended by Ministers, Regulators, Director General and high-level governmental delegations from the Kingdom of Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Oman, Qatar, Iraq, Lebanon, Jordan and Egypt. The meeting was inaugurated by H.E. Arkan Shahab Al-Shaibani, Minister of Communications in Iraq. Minister Al-Shaibani pointed out the significance of such high-level discussions and dialogues and stated: "The topics presented for discussion today are very important to keep pace with the development of the Internet sector in our countries, which requires all of us to join hands and cooperate to reach tangible results. Despite our different priorities, we are certain that this distinguished gathering that brings together decision-makers on one hand and experts on the other hand will meet the desired aspirations of our societies and achieve comprehensive development for our countries.

(December 20, 2021) zawya.com

Jordan

The Ministry of Interior announced that it completed the digitalizing of all its services, making it the first Ministry to offer all services electronically to citizens and residents. Interior Minister Mazen Faraiah, in a ceremony marking the conclusion of the fifth and final phase of the ministry's digitization project, said that the total transformation to e-service platforms is a "quantum leap" in government work, the Jordan News Agency, Petra, reported. He stressed that the completion of the project would not have been possible without the cooperation and efforts of other stakeholders, including the Ministry of Economy and Entrepreneurship and the Jordan Free and Development Zones Group. According to Faraiah, the ministry now offers a total of 51 e-services, of which more than 500,000 service recipients benefitted, indicating that about 325,000 applications and service requests have been processed so far using these channels. (December 11, 2021) zawya.com

Arab Cyber Security Sector Chairman Wael Ibrahim said that Jordan is taking positive steps in the field of cybersecurity, and has advanced in the global cybersecurity index from the eighties to the seventies among more than 170 countries. In a lecture organized by the Jordan Society for Scientific Research, Entrepreneurship and Creativity on challenges facing digital transformation and cybersecurity, he stressed the importance of government support in this endeavor and investment in Jordanian potentials both internally and externally. He said that Jordanian universities seek to build digital content in line with the national digital transformation strategy, urging the launch of e-government bodies, and adding: "digital transformation is not a luxury, but there is a fourth industrial revolution that we must adapt to and prepare for what comes next to build a cybersecurity system." Ibrahim called for cooperation between the government, private sector and civil society institutions to promote education programs and initiatives for all groups of society, including children and adults, to create an advanced state of awareness in the face of any breaches, piracy or electronic attacks through prevention. He also urged building digital transformation systems in countries, governments and institutions with parallel integrated cyber protection platforms and regulatory and supervisory legislation and electronic security centers, along with effective bodies to build educated, qualified and trained human resources, starting with schools, institutes and specialized training centers, and even universities. Ibrahim outlined such cyber breaches, including cryptovirology attacks, like ransomware, and their aim of fraud, theft, sabotage, privacy breach, character assassination and defamation, as well as "electronic flies" on digital media platforms. (November 17, 2021) en.ammonnews.net

Kuwait

The usage of Internet in Kuwait increased 12% during 2020 compared to 2019 especially the mobile broadband networks as a result of the preference for wireless communications. The daily quoting Communications and Information Technology Commission (CITC) said the monthly cost of a broadband subscription basket ranges from 5 to 6 dinars per month in Kuwait (equivalent to 16 to 20 dollars), and is among the lowest in the world and revealed there are about 5.6 million people who subscribe to mobile broadband communications in Kuwait, with a penetration rate of more than 100% at a rate of 1.3 subscriptions per person. The communications via optical fibers currently have a 45% share, compared to 31% in 2019, and the speed of the majority of connections is 53%, or about 10 megabytes or more. The commission stated that the monthly cost of the basic plan provides a reasonable amount of calls and data, and this varies depending on the type of connection, and is at least 5 gigabytes for a fixed broadband connection, while it ranges from 500 megabytes to 1.5 gigabytes for a mobile broadband connection. In terms of a fair comparison between countries, the prices represent a percentage of the average per capita income in the country or region, and the prices of fixed broadband communication are ranked second in terms of the cheapest prices in the world, according to data issued by the CITC which also revealed that all residents in Kuwait have access to the fourth generation network for mobile phones. This is in addition to Kuwait being one of the pioneers of the fifth-generation technology and covers about 97% of this network. The commission stated families in Kuwait spend an average of 5.1% of their annual income on communications and information technology and regarding the spread and use of devices, the CITC stated almost all people in Kuwait use mobile phones and the Internet on a daily basis, while 88% of homes own computer devices, such as PCs, laptops and tablets, while the Smart TVs saw an amazing growth in accreditation rates during the past 5 years, as the prevalence rate in the Kuwaiti domestic sector increased from 3.4% in 2015 to 74% in 2020. Meanwhile, the sources say digital age is developing rapidly, as "we see individuals and institutions using digital technologies in homes and workplaces at an unprecedented rate, and in 2020, the Covid-19 pandemic doubled the speed of adopting digital methods for living, working and transactions to reach new high levels."

(November 23, 2021) arabtimesonline.com

Libya

The Prime Minister Abd Alhamid Aldabaiba has said that the country's telecoms sector needs to be opened up to competition to improve services. Speaking at the Taqnya 2021 ICT exhibition in Tripoli, Aldabaiba criticized the sector's poor services and high prices, saying his government will seek to increase competition by privatizing the sector and allowing foreign competitors to enter the market. Warning that the state-dominated monopoly would struggle to compete with the leading private telcos, the PM complained that current services are basic and too expensive when compared to neighboring countries, especially given the public's reliance on mobile services.

(November 12, 2021) Libya Herald

Morocco

The number of internet users in Morocco has reached a new high, with 93% penetration rate. The country's National Agency for Telecommunications Regulation released its latest report which shows there are nearly 34 million people who have access to the web through either mobile or fiber optic connections--a 17 percent increase from last year and 18 percent annual growth rate over time! In the past year, more than 17 million people in Morocco have become internet subscribers. The penetration rate has climbed from 93% to nearly 34 million with a total of 18%. Mobile devices remain dominant at 31 Million-subscribers (91%). But fiber optic connections saw an increase higher than most other types; 82%. With 1.6 million users at the end of September 2021, ADSL connections stabilized with more than 43% having access to speeds greater than 10Mbps and 2.46 million Moroccans subscribing for a fixed telephone service which marks an increase in usage compared to last year by 6%. In terms traffic during 3 months - 14 billion minutes were registered this semester (low 0-4%) but slightly higher when considering only mobile telephony (0-1%). SMS traffic increased by 6.89% to reach 762 million messages, while the average monthly mobile usage decreased by 6%. Morocco's top level domain (.ma) saw nearly 103,000 new websites established between June and September 2022 which shows an increase of more than 14%. The report notes that many people attributed this rise in their internet

& digital services use due largely due COVID-19 containment measures such as distance learning/education or ecommerce." Improving the accessibility and quality of broadband internet in the country has previously been cited as a priority for Morocco's government, especially during confinement and with the rise of online businesses in the country. In recent years, the government of Morocco has expressed a desire to improve internet accessibility and quality. As online businesses are on the rise in that country—especially during times when there is confinement like now--improving broadband connections will be necessary for this development trend not only continue but also prosper even more so than before! (December 5, 2021) anrt.ma

Nepal

The Nepal Telecommunications Authority has prepared a draft of the Internet of Things (IoT) and Machine-to-Machine Communications (M2M) Regulation Framework 2021 to legalize the system where physical objects are connected to the internet allowing them to communicate with one another without human intervention. As per the International Telecommunication Union (ITU), the internet of things is a global infrastructure for the information society enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving, interoperable information and communication technologies. The devices connected to the internet of things range from ordinary household objects to sophisticated industrial tools. Machine-to-machine communications is the exchange of data between a remote machine and a back-end information and technology infrastructure. Ambar Sthapit, Director of the Authority, said that a wide range of internet of things and mobile-to-mobile communications are emerging and increasing, and it has become important to introduce such a system in Nepal too. The internet of things is used for autonomous vehicles, smart meetings and remote sensors that monitor and control office or home equipment, including things required for smart cities. "If any firm wishes to provide internet of things and mobile-to-mobile communications services by developing a network, the authority will provide licenses to them," he said. The draft has categorized internet of things and machine-to-machine communications services based on network size and coverage into indoor and outdoor internet of things and mobile-to-mobile service. The indoor internet of things and mobile-to-mobile service category includes applications and services that use wired and wireless networks created only inside a building. These IoT and M2M devices cannot be connected to the internet or the corporate intranet. The outdoor category includes internet of things. As per the draft, the authority will provide authorization to provide outdoor internet of things and mobile-to-mobile communications services to authorized telecom service providers, network service providers, internet service providers, authorized IoT and M2M service providers or any firm willing to provide the services. The authorized internet of things and mobile-to-mobile communications service providers shall provide services by using the network provided by telecom service providers, network service providers and internet service providers as traditional value-added service providers. According to the draft, the cellular internet of things will be provided only by the mobile service licensee and basic telecommunications service licensee. The non-cellular internet of things and mobile-to-mobile communications, license exempted bands for IoT, ultra-wideband (UWB), short-range device (SRD) bands and industrial, scientific and medical (ISM) bands as specified by the authority will be used under given conditions for non-cellular IoT and M2M applications. For the internet of things and mobile-to-mobile device identification, number ranging will be used in the National Numbering Plan following the ITU-T E.164 and 164.1 standard. However, depending on the growth of IoT and M2M services, the requirement can be reviewed by the authority. ITU-T E.164 describes the international public telecommunication numbering plan.

(December 5, 2021) kathmandupost.com

Oman

Ahead of what is anticipated to be a strong inflow of electronic devices incorporating Internet of Things (IoT) technology, the Telecommunications Regulatory Authority (TRA) of the Sultanate of Oman is formulating regulations to ensure that connected devices and networks are safe from security and cyber threats. Our world is awash with IoT devices – pieces of hardware and machines that can communicate with each other and exchange data over the Internet. They are found in everything from household appliances and consumer gadgets to industrial machines and infrastructure systems and even transportation equipment. But, given the ubiquity of IoT devices and with their presence expected to grow exponentially going forward, they can pose a threat to users – individuals, businesses, infrastructure systems, and government institutions – if not suitably secured from potential attacks from hackers and cyber-criminals. To this end, the TRA has come out with draft guidelines that, when adopted and enforced, will require vendors, manufacturers and service providers of IoT devices and related software services to comply with robust security standards. The draft version of the 'Internet of Things (IoT) Security Regulatory Framework', issued

by the telecom regulator last week, seeks to elicit feedback from stakeholders and the general public before it is enacted into law. "The Sultanate of Oman stands as one of the leading countries in the world in terms of digital transformation which thereby shows is a swift transition to an IoT environment. However, new technologies come with new threats. To allow Omanis to derive the most benefit from IoT technologies, their security must be ensured," the regulator noted in the preamble. "Our vision is a safe society, government, and business environment, which support and adopt developments in IoT as an essential element of Industry 4.0, without increasing vulnerability or compromising trust, while minimizing the net cost of IoT cybersecurity for the economy. With this comprehensive and compelling vision, we aim to achieve a secure IoT ground in the Sultanate with an ultimate alignment with relevant Vision 2040 priorities," it further noted. In rolling out sturdy IoT security regulations, the Authority has pledged to work closely with, among others, the Ministry of Transport, Communications and Information Technology, the Cyber Defence Centre, and other relevant authorities involved in IoT security matters. (December 21, 2021) omanobserver.om

The total fixed Internet subscriptions in the Sultanate of Oman reached 522,127 at the end of September 2021 while the number of fixed Internet subscriptions via Internet Protocol increased by 7.4 per cent compared to the same period in 2020, according to data released by the National Centre for Statistics and Information (NCSI). Of this, total fixed telephone line subscriptions reached 585,362 by the end of September 2021 while prepaid and postpaid analogue fixed telephone lines fell by 4.8 per cent to 283,891 subscribers compared to the same period in 2020. The number of fixed Internet subscriptions via Internet Protocol stood at 244,896. Moreover, ISDN channel subscriptions rose by 2.8 per cent compared to the same period in 2020 to reach 48,543. Fixed wireless subscriptions reached 1,231 at the end of September 2021, comprising a drop by 15.6 per cent. Public payphones remained the same at 6,801. The total number of mobile phone subscriptions decreased by 3.4 per cent at the end of September 2021 to reach 5,872,681. Of those, prepaid mobile phone subscriptions came first with 4,656,017, comprising a decrease by 10.2 per cent compared to same period in 2020. The number of subscribers through service providers reached 3,625,106 while subscriptions through resellers stood at 1,030,911. Fixed broadband Internet subscriptions that have more than 256 kilobytes speed went up by 5.6 per cent to 520,082 compared to the same period in 2020. Moreover, the number of internet subscriptions of a speed lower than 256 kilobytes (including phone calls and some leased Internet connections) reached 2,045, comprising a rise by 0.5 per cent compared to the same period in 2020. The number of mobile broadband subscribers stood at 5,088,357 at the end of September 2021, comprising an increase by 8.6 per cent compared to September 2020. The total international capacity of the Internet went up by 3.4 per cent to hit 1,461,777 megabytes compared to the same period in 2020. Moreover, the number of local leased circuits reached 4,949, whereas the number of Telex line subscriptions stood at 116 at the end of September 2021. (November 14, 2021) timesofoman.com

Pakistan

Information communication technologies are playing a key role in our daily lives. Personal Data and accessibility have become very significant in carrying out day-to-day personal and business activities. Acknowledging the fact regarding the power of data in the contemporary era and other related aspects like privacy, confidentiality, and integrity. Keeping that in mind, the Ministry of Information Technology and Telecom (MoiTT) has finalized the draft of the 'Data Protection Bill.' The bill holds great importance as the privacy of the personal data of individuals has become more relevant and vital than ever before because of the ever-growing use of ICT services. A meeting of Special Committee on Data Protection was held and chaired by Federal Minister for IT, Amin ul Haque. Furthermore, the meeting was attended by all stakeholders including National Security Advisor Moeed Yousaf, Ministry of Foreign Affairs and Trade, etc. In a statement, Minister Amin ul Haque said, In the next step, the final draft of the 'Data Protection' bill will be presented for approval in Parliament after scrutiny from the law department and other related forums. According to the committee members, all efforts of MoiTT for the preparation of the Data Protection Bill are laudable. Furthermore, the officials said that the basic purpose of the bill is to protect the data of citizens and to prevent its use without permission. Moreover, Minister Aminul Haq told that the attempts were being made to bring the bill in the form of a consensus law in consultation with the public and relevant stakeholders. The minister also added that the top priority in the new Bill is the protection of general civic and commercial entities and national security. (December 22, 2021) phoneworld.com.pk

The Pakistan Telecommunication Authority (PTA) has confirmed that Telenor Pakistan renewed its license on 10 December 2021. The watchdog noted that the price for the renewal was USD449.2 million, of which Telenor has already paid USD333.64 million, and that the 15-year license features 'enhanced terms and conditions for coverage and quality of service'. As previously reported by TeleGeography's CommsUpdate, the Norwegian-owned cellco's GSM license was due for renewal in 2019 but the operator protested against the terms of the updated license agreement, including a price hike and the requirement to pay the fee in US dollars rather than Pakistani rupees. Telenor's legal challenge is ongoing and is currently before the Supreme Court. The Islamabad High Court dismissed the case in August this year, on the basis that it is within the scope of the regulator's power to set license fees. (December 15, 2021) commsupdate.com

Pakistan Telecom Authority (PTA) said that it has reduced mobile termination rate (MTR) to Rs0.50/ minute from Rs0.70/minute effective January 1, 2022. Rates will be further reduced to Rs0.40/ minute from July 1, 20. "Reduction in the MTR has been made after thorough consultation with the telecom industry," the regulator said in a statement. PTA is of the view that lowering of MTR would allow more competitive and innovative offerings such as free minute off-net bundles for the consumers. "It is expected to make market healthier and beneficial in terms of lower tariffs for making off-net calls," the statement said. "It would also benefit smaller operators in terms of reduced net payments to be made to the bigger operators." In July 2021, PTA issued a consultation paper wherein it was observed that current MTR in Pakistan is still higher than the benchmarking results of the MTR determination of 2018 and the MTRs prevailing in regional countries. Further, PTA had also received requests from telecom operators to review the existing mobile termination rates. Majority of the responses received, supported PTA's recommendation to lower MTR. However, there were opposing responses too. After industry hearing and thorough analysis, PTA has determined the MTR for all types of calls -- local, long distance and international incoming calls -- terminated on mobile networks from other mobile networks or fixed networks in Pakistan and AJ&K/GB, to be Rs0.50/minute from January to June 2022, Rs0.40/minute from July 2022 to June 2023 and Rs0.30/minute from July 2023 onwards. (November 28, 2021) thenews.com.pk

The Pakistan Telecommunication Authority (PTA) has directed all of the four cellular mobile operators (CMOs) for implementing "Do Not Call Register (DNCR)" in true letter and spirit in the manner as provided in the Protection from Spam, Unsolicited, Fraudulent, and Obnoxious Communication Regulations, 2009. The authority has ordered Jazz, Ufone, Telenor, and Zong that since they have not come up with satisfactory replies; therefore, the licensees are warned not to repeat the same, otherwise, further legal proceedings will be initiated as per law. The CMOs have been directed for taking all preventive measures with regard to non-disseminating messages through alphanumeric sender ID contrary to applicable regulatory regime, messages to non-opt in subscribers, non-PTA's approved content and through non-PTA's approved short code. Panel headed by Maj Gen (retd) Amir Azeem Bajwa, Chairman PTA, heard the issue "spamming, unsolicited and fraudulent communication". The licensees are required to comply with the provisions of prevailing regulatory laws comprising the Act, the Pakistan Telecommunication Rules, 2000 (the "Rules") the PTA (Functions and Powers) Regulations, 2006 the Numbering Allocation and Administration Regulations, 2018 (the "NAAR Regulations"), the Protection from Spam, Unsolicited, Fraudulent and Obnoxious Communication Regulations 2009 (the "SPAM Regulations") as amended from time to time and the terms and conditions of the license. In accordance with license condition No 7.8.1 of the licenses, the licensee is under obligation to take all reasonable steps to track and locate and prevent the source of harassing, unsolicited, offensive, fraudulent or unlawful communication. More so, under license condition No 7.8.2 of the licenses, the licensee shall, on the directions of the PTA, terminate or suspend service to any customer that is the source of harassing, offensive or illegal communication. For transmission of any information through numbers allocated assigned under the NAAR Regulations, the licensee under sub-regulation (4) of regulation 14 of the NAAR Regulations is not allowed to translate, alter or delete the telephone number or other identification associated with its subscribers. Whereas, sub-regulation (5) of regulation 14 of the NAAR Regulations further provides that the licensee shall not translate, alter or delete the signaling or other data associated with all calls routed through its network. As per sub-regulation (6) of regulation 14 of the NAAR Regulations, each party shall program the number series in their switches in accordance with number series allocated by the Authority and National Numbering Plan issued by the authority and shall comply with the numbering provisions. Furthermore, sub-regulation (7) of regulation 14 of the NAAR Regulations provides that the parties shall ensure that sufficient and correct numbering information is sent from one network to the other for correct delivery of domestic and international calls. Sub-regulation (8) of regulation 14 of the NAAR Regulations provides that the parties shall convey to each other, telephone numbers in the national and international formats as contained in National Numbering Plan issued by the Authority. (November 9, 2021) brecorder.com

Qatar

The Communications Regulatory Authority (CRA) and Mada Center launched the Accessible Telecommunications International Best Practices report, during a seminar attended by officials from the CRA and Mada Center, and representatives of the Ministry of Communications and Information Technology (MCIT), Ooredoo Qatar Q.P.S.C. and Vodafone Qatar P.Q.S.C. The report was developed with the aim of informing stakeholders about the international best practices in the field of accessible telecommunications, in addition to the latest systems, technologies, equipment, tools, software, and services that help improve the accessibility to telecommunications services and applications by users with physical, visual, speech, and hearing disabilities and the elderly users. Additionally, the report includes a plan and future recommendations directed to all stakeholders, including the main players in the Information and Communications Technology (ICT) sector, and concerned parties and organizations, to achieve further progress towards inclusive access to telecommunications. Within the framework of the strategic partnership between the Communications Regulatory Authority and Mada Center, work was carried out for two years according to a methodology based on research and study of the international best practices in the field of accessible

telecommunications. The policies and services provided to persons with disabilities and the elderly were evaluated and discussed with stakeholders and service providers. On this occasion, Eng. Salma Al-Sulaiti, Standards and Next Generation Technology Section Head, CRA said: "We are pleased to launch this report, which we have developed in collaboration with Mada Center. The importance of this report lies in the fact that it contributes to raising stakeholders' awareness about the best practices followed in the field of accessible telecommunications, where through their adoption, they contribute to ensuring the accessibility of users with disabilities and the elderly on an equal basis with others, especially since ICT is a major part of our modern-day interactions and activities in various fields; education, health, environment, or others. It also contributes greatly to driving development and diversifying the Qatari economy; one of Qatar National Vision 2030 goals. I would like to thank Mada Center for all their efforts to develop and launch this report, and we look forward to our further cooperation in the future." Amani Al Tamimi, ICT Access Programs and Services Manager at Mada Center, expressed her pleasure about the launch of the report, saying: "We are pleased with our partnership with the CRA and with the report launch. The importance of this report lies in the fact that it contributes to ensuring inclusive access to telecommunications, by introducing stakeholders to ways of empowering users who are persons with disabilities or the elderly to access telecommunications services and applications, thus facilitating their effective involvement in learning, building capacity, development, and innovation. In addition to integrating them more in the society and the labor market, which contributes to improving the quality of life and achieving development in the various pillars of Qatar National Vision 2030. On this occasion, I would like to thank the Communications Regulatory Authority for their continued collaboration, and we look forward to more cooperation between us in the future." (December 18, 2021) cra.gov.qa

Saudi Arabia

Saudi telecoms regulator the Communications and IT Commission (CITC) has adopted new regulations on EMF exposure, establishing requirements for protecting the public from risks to their health arising or likely to occur from their exposure to radiofrequency (RF) electromagnetic fields emitted from radio devices in the frequency range 8.3KHz to 300GHz. The EMF Regulations on Exposure to Electromagnetic Fields (EMF Regulations) – up for public consultation from 11 August to 1 September – establish exposure limits and rules and procedures to ensure that transmitter sites, both individually and in aggregate, do not exceed the maximum permitted levels.

(December 16, 2021) commsupdate.com

The Communications and Information Technology Commission (CITC) announced that the new road linking the Kingdom and Oman is fully covered by the telecommunications network in the part located in the Kingdom. On its official twitter account, CITC stated that it installed 34 telecommunications towers across 564 km in the Kingdom. On Dec. 7, Saudi Arabia and Oman announced in a joint statement opening the first direct land link crossing between the two countries. The 725 km-road will contribute to the smooth movement of citizens of the two countries and the integration of supply chains. (December 11, 2021) argaam.com

The Communications and Information Technology Commission (CITC) published its 'Game Mode' report for the third quarter of 2021, ranking Saudi Arabia's telecom service providers based on their video game performance. This quarter's Game Mode report reveals that STC came in first place for quarterly performance in most video games. STC outperformed Zain, Mobily, and Salam with lower latency in all six of the most popular games in Saudi Arabia: Fortnite, FIFA, Apex Legends, Dota 2, Valorant, and OverWatch. STC and Mobily were leading in World of Warcraft, and it came in third with PUBG and AmongUs. For the online games League of Legends Mobily were leading, with it coming in second with PUBG, Valorant and third in FIFA, Apex Legends, and OverWatch. Zain topped the list in PUBG, came in second in Fortnite, FIFA, Apex Legends, League of Legends, Dota 2, World of Warcraft, AmongUs, and OverWatch. It came in third for Valorant. Local network Salam came in third place in Fortnite, FIFA, Dota 2, World of Warcraft, and AmongUs. It ranked fourth place in OverWatch, Valorant, PUBG, League of Legends, and Apex Legends. The report is part of CITC's framework to promote healthy competition among telecom operators to provide the best experience for gamers, raise the level of transparency in the market, and provide investors and the public with key data and indicators on the sector's performance. The Q3 2021 Game Mode report also unveils valuable insights on the overall latency performance of telecom companies within fixed, mobile, and 5G networks. CITC's Game Mode initiative includes quarterly reports that compare response times among service providers across some of the most popular video games in the Kingdom. In addition, the initiative consists of an award for the internet service provider with the best response time for video gaming, a key indicator of the network's performance.

(Nov 17, 2021) citc.gov.sa

Sri Lanka

The Telecommunications Regulatory Commission of Sri Lanka (TRCSL) has reportedly opened discussions with Elon Musk's SpaceX venture concerning the possible launch of Starlink internet services in Sri Lanka. MENFN cites a tweet from the regulator confirming that 'preliminary engagement was initiated with SpaceX in exploring the introduction of Starlink Internet Services in @SriLanka'. Apparently the first round of discussions 'focused on regulatory aspects and prerequisites of initiating the service in the near future for Sri Lanka'. As previously reported by CommsUpdate, earlier this month the US-based Low Earth Orbit (LEO) satellite broadband provider revealed that it is now serving around 140,000 subscriptions across more than 20 countries, up from 100,000 in August. The company supplied the metrics in a presentation to the Federal Communications Commission (FCC) in early November, adding that over 750,000 would-be users across the globe have placed 'orders/deposits' for satellite connectivity. On a gloomier note, however, the company warned the FCC that the ongoing chip shortage is slowing down the production of its satellite dishes. Starlink seeks to become the world's first high speed, low-latency satellite ISP, coordinating the largest fleet of operating satellites to deliver a consistent broadband service to the most disconnected areas. The public beta program commenced in October 2020 and Starlink began accepting pre-orders – priced at USD99 – in February this year.

(November 30, 2021) commsupdate.com

Nepal Telecommunication Authority (NTA), the governing body for telecommunications in Nepal is seeking consultations for the implementation & promotion of 5G in vertical sectors of Nepal. 5G is the popular name for mind-boggling internet speed and massive connectivity in this modern world. And Nepal is also awaiting 5G to join this race. That's why NTA is opening up a way to implement 5G as soon as possible. The government of Nepal has already allocated funds to prepare a Master Plan for the implementation & promotion of 5G in Nepal. For this, NTA is now inviting Expression of Interest from eligible contestant firms for consulting services. This will further assist to develop an action plan for efficient & effective use of 5G. Interested firms can get further information from NTA's official website or electronic-Government Procurement (eGP) system. The primary objective is to study the development & growth trend of 5G cases in Nepal. 5G being the fastest connection speed, is going to be the mainstream connection for broadband as well as industries. NTA also seeks for prioritizing vertical sectors to integrate 5G in those areas. This will also further bring & implement action plans. Facilitating 5G for Nepali customers as soon as possible has been the main objective. The work scope of the project is to find practical usage of 5G in various sectors. It will also focus on the pattern of Nepali users.

(November 14, 2021) nepalitelecom.com

Sudan

A Sudanese court has ordered the country's three main mobile operators to restore internet services, after access was cut off last month following a coup by military leaders. A judge ordered Kuwaiti-owned Zain, MTN of South Africa and local provider Sudatel (Sudani) to restore internet services immediately, according to lawyer Abdelazim Hassan, who raised a complaint on behalf of the Sudanese Consumer Protection Society. In a tweet, the US Agency for International Development (USAID) called the blackout 'a violation of international law'. The coup, led by General Abdel Fattah al-Burhan, halted a power-sharing arrangement between the military and civilians. Top civilian politicians have been detained and Prime Minister Abdalla Hamdok was placed under house arrest. Mediation efforts have stalled, and Burhan has said he is committed to appointing a technocratic cabinet until elections in July 2023.

(November 11, 2021) reuters.com

Turkey

The US Treasury announced that it has reached an agreement with the Turkish government on Turkey's transition from its digital services tax to the new taxing rules under the OECD-led October 8 international agreement. The agreement adopts the same terms as those reached by the US last month with Austria, France, Italy, Spain, and the UK. The terms allow Turkey's digital taxes to stay in place pending implementation of "Pillar One" of the OECD agreement, which would reallocate a portion of taxing rights to market jurisdictions. In addition, the agreement allows certain excess amounts paid in digital taxes in the interim period by in-scope companies to be creditable against future Pillar One liability. In return for the coordinated withdrawal of Turkey's digital tax, the US agrees not to pursue retaliatory trade actions.

(November 23, 2021) mnetax.com

United Arab Emirates

The National Telecom Equipment Lab at the Telecommunications and Digital Government Regulatory Authority (TDRA) hosted a delegation from the University of Dubai. During the visit, they discussed the stages of telecom devices testing, and ways of cooperation between TDRA and the University of Dubai. The visiting delegation learned about the lab, which is run by specialized national cadres, and reviewed the tasks entrusted to it. The delegation was briefed on international standards adopted by the National Laboratory for device testing, using the latest testing systems approved by international organizations specialized in this field. The National Laboratory is considered a technology reference by UAE entities and institutions, as it examines telecom devices, supports national projects, qualifies and enables Emirati cadres. The Lab team briefed the visiting delegation on the latest devices and technologies tested in the Lab, such as mobile phones, radio devices, Wi-Fi devices, early warning devices, and Bluetooth devices. Commenting on this visit, Eng. Saif Bin Ghelaita, Director of Technology Development Affairs at TDRA, said: "The National Telecom Equipment Lab is the first-of-its-kind in the Arab region, and aims to ensure that the telecommunication devices used in the UAE comply with the approved technical specifications as well as with safety and security standards, and that they do not cause any harm to individuals, networks, or the technological infrastructure that unapproved devices may inflict. The National Laboratory has raised the level of conformity of telecom devices, due to its role in monitoring the markets and imported telecom equipment to the UAE." Ghelaita added: "Today's visit of University of Dubai to the National Laboratory embodies the spirit of cooperation and the exchange of knowledge and experiences between the various UAE institutions, and their quest to introduce the new generation to the importance of ICT in achieving digital transformation and enhancing digital services, as well as the importance of technical standards of electronic devices and their impact on services and achieving sustainable development goals." They also received detailed explanations from the Lab staff about the challenges they face such as the technology rapid development, which requires continuous building, qualifying and development of specialized cadres in this field. The team presented the key achievements of the Lab, including obtaining international recognition through ISO 17025, testing more than 1,000 devices since the project's launch, building and qualifying national cadres specialized in the field of testing, in addition to contributing to many national projects such as the National Early Warning System, Emergency Call System (eCall) in vehicles, caller name detector project "Kashef". (December 15, 2021) satelliteprome.com

The Telecommunications and Digital Government Regulatory Authority (TDRA) has confirmed that the Electronic Transactions and Trust Services Law, promulgated by Federal Decree-Law No. 46 of 2021, creates a new stage of comprehensive digital transformation in the UAE. The new law improves the digital economy and consolidates the UAE's position, to become one of the leading countries in providing digital services. It will accelerate the achievement of national goals and indicators, such as the Online Services Index (OSI), Ease of Doing Business Index, the Global Entrepreneurship and Development Index, the Global Competitiveness Index, and innovation indices. "The issuance of the Electronic Transactions and Trust Services Law comes into effect at an important stage in the history of our country, as we celebrate the golden jubilee of the UAE. In this stage, we start a new chapter towards the UAE Centennial 2071 by enhancing digital transformation that impacts the economy, society, and the whole life in the UAE," said Talal Humaid Belhoul, Chairman of TDRA's Board of Directors. Majed Sultan Al Mesmar, Director-General of the TDRA, commented, "The issuance of the decree-law on Electronic Transactions and Trust Services marks a start of a new stage in the process of comprehensive digital transformation in the UAE. This law deals with many details of the daily life of the various segments of society, including individuals and companies. It will have a positive impact on the higher goals of the country, in terms of promoting the digital economy and consolidating the global reputation of the UAE as an investment hub." The new law improves the procedures of licensing processes based on new services that support digital transactions. It allows many civil and commercial transactions, such as marriage, personal status, and notary public, along with real estate transactions, such as renting, buying, selling, and contract modifications. It will increase the effectiveness of judicial procedures and the settlement of civil and commercial disputes. The digital signature assists in issuance of permissions, licenses, or approvals, in the form of electronic records, and acceptance of fees or any other payments in electronic form. It will also enable the electronic placement of bids and receiving tenders related to government procurements. (November 28, 2021) wam.ae/en

The Telecommunications and Digital Government Regulatory Authority (TDRA) announced an increase of the UAE national portal users by 50% in the 3rd quarter of 2021 as compared to the same period of 2020. Portal users amounted to 5.2 million. They paid 7.7 million visits to the portal and viewed portal pages 11.3 million times. TDRA stated that this increase in portal users reflects the user trust in the portal as the main reference of information related to the UAE. The increase further reflects the significant efforts exerted by the portal team to develop content and services. TDRA referred that the most visited pages are those related to visas, handling the COVID-19 crisis, travelling to the UAE, Emirates ID, COVID-19 vaccinations, and tests. Regarding this increase, H.E. Ahlam Al Feel, Director of TDRA's Corporate Communication Department, said: "The UAE's national portal (u.ae) is the main source of trusted information related to all aspects of life in the UAE. It gives users access to government policies, projects, services, and tourist and legal information. We develop and improve the content of the portal continuously to keep up with users' needs, UAE's orientations, and leadership's directives, and reach all categories of customers and increase their happiness. To achieve this goal, we apply the latest systems and AI technologies that provide the user with complete information easily." (November 2, 2021) tdra.gov.ae

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Albania

Telecoms and broadcasting regulators, the Electronic and Postal Communications Authority (Autoritetit Te Komunikimeve Elektronike Dhe Postare, AKEP) and Audiovisual Media Authority (Autoriteti i Mediave Audiovizive, AMA) have signed a memorandum of cooperation, agreeing to work together to address areas of common interest to the two bodies. In a joint statement the pair said they would cooperate on the release of the 700MHz band by the AMA and the administration of the band by AKEP with the goal of moving towards compliance with deadlines set by the EU and ITU; in an October 2020 paper, the ITU had recommended a target of end-2022 for the migration of media broadcast operators from the 700MHz and the reissue of the spectrum to mobile network operators (MNOs). Other areas of cooperation will include the establishment of a joint group to monitor interference and the creation of a unified inventory of frequencies. (November 9, 2021) commsupdate.com

Angola

The telecoms regulator INACOM could announce the allocation of the country's first commercial 5G spectrum before the end of the year. The distribution of the 3.3GHz-3.7GHz frequency band for the development of 5G technology was recently approved under a presidential order, whilst mobile market leader Unitel has indicated its readiness to roll out the new technology once it gains regulatory permission. Newcomer to the Angolan cellular market Africell intends to introduce its commercial services soon with '5G-ready' infrastructure, upgradeable from 4G via software updates. (December 15, 2021) Expansao

Australia

Australia's Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) has announced that the government is investing a further AUD20 million (USD14 million) in funding for a second round of the 'Australian 5G Innovation Initiative'. In a press release regarding the development, the government body suggested that the initiative 'will enable organizations to trial the use of 5G technologies that could transform the Australian economy and encourage more businesses to adopt 5G technology'. With the DITRDC having said that the second round of the initiative will make an additional AUD20 million available for projects, it noted that up to AUD2 million of this will be allocated for projects in the Western Parkland City which will build on the Australian Government's investments under the Western Sydney City Deal. Consultation on the draft guidelines for the second round of funding will commence in the coming weeks, the DITRDC noted, with applications to open early in 2022. (December 10, 2021) commsupdate.com

Australian operators Optus and Telstra boosted their nationwide spectrum holdings, spending AUD2.1 billion ($1.5 billion) for 850MHz and 900MHz airwaves in the country's latest auction. Optus acquired 2x25MHz of 900MHz spectrum for AUD1.5 billion, while Telstra secured 2x10MHz in the 850MHz band for AUD616 million. In a statement, Optus CEO Kelly Bayer Rosmarin praised the "competitive auction process that has also delivered more equitable holdings of the critical low-band spectrum". Telstra stated its allotment was the maximum amount of low-band spectrum it was allowed to bid for under limits set by the government. It how holds 2x40MHz of low-band spectrum in major cities and 2x45MHz in regional and remote areas. The Australian Communications and Media Authority (ACMA) stated Optus won 12 of 16 lots, with two allocated at a pre determined price and a pair of 1MHz blocks automatically assigned for winning the 900MHz allocation. Acting ACMA chair Creina Chapman said the spectrum was designed to support 4G and 5G network deployments. Minister for Communications, Urban Infrastructure, Cities and the Arts Paul Fletcher stated "the outcome of this auction is an important milestone in making sure the benefits of 5G will be shared by all Australians." The spectrum licenses commence on 1 July 2024 with a 20-year term compared with the 15 years of previous allocations. ACMA auctioned 26GHz mmWave spectrum in April. (December 8, 2021) mobileworldlive.com

The government has announced the passing of the 'Telstra Corporation and Other Legislation Amendment Bill 2021', a piece of legislation designed to guarantee 'that important consumer outcomes continue to be delivered regardless of how fixed line incumbent Telstra structures itself, both now and in the future through a flexible regulatory framework'. Announcing the development, Minister for Communications, Urban

Infrastructure, Cities and the Arts, Paul Fletcher, noted that while there have been significant changes in the telecoms industry over the past decade, Telstra continued to play a key role in metropolitan, regional, rural and remote Australia. As such, in terms of the legislation itself, it amends the Telecommunications Act 1997 to: define Telstra successor companies and designated Telstra successor entities and replace references to Telstra with references to the successor entities; allow the communications minister and the Australian Communications and Media Authority (ACMA) to make determinations relating to the designated successor entities; and make technical and consequential amendments. In addition the new Bill amends: the Telstra Corporation Act 2001 to extend existing regulations relating to the operation and ownership of Telstra to its successor entities; the Competition and Consumer Act 2010 to extend existing regulations relating to the operation and ownership of Telstra to its successor entities; and the Telecommunications (Consumer Protection and Service Standards) Act 1999 to extend the communication minister's powers to impose service provider obligations to Telstra's successor entities and retail price controls on each successor entity. Finally, the new legislation also amends 'three regulations, four determinations and a code of access' in relation to ownership of Telstra shares, access to telecommunications infrastructure, carrier license conditions, emergency call persons and services, real estate development exemptions, arbitration and sunsetting. According to Minister Fletcher, the provisions are focused on ensuring current consumer safeguard laws are adapted to Telstra's new structure, improving transparency, and closing a loophole that may have carried a cost for consumers. 'First, the Bill has a set of provisions to ensure that existing legislative and regulatory safeguards, such as the Universal Service Obligation, are appropriately repointed to the proposed new Telstra structure,' Fletcher noted, adding: 'This is backed up by new transparency and direction powers, so the community can have confidence that Telstra is keeping in place contractual arrangements that deliver the outcomes required of it. Second, the Bill closes a loophole that may have reduced the effectiveness of the facilities access regime, which is a vital mechanism to ensure competition and improved consumer outcomes.' (December 2, 2021) commsupdate.com

Belgium

Telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) has opened a public consultation on proposed rules for participants in the upcoming multi-band spectrum auction. The rules will apply to three separate auctions. The first will allocate existing 2G and 3G spectrum in the 900MHz and 2100MHz bands (a total of 2×75MHz and 2×60MHz respectively), with user rights valid for 20 years from the expiry of existing 2G and 3G permits, as well as 30MHz of duplex spectrum in the 700MHz band for a period of 20 years. The second auction will tender 390MHz of frequencies in the 3600MHz band with user rights until 6 May 2040, while the third concerns the allocation of 90MHz of spectrum in the 1400MHz band for a period of 20 years.

(December 6, 2021) commsupdate.com

The government gave final approval to the terms of the 5G spectrum auction and opened the door to a potential fourth mobile operator. 'The deployment of 5G will take place in our country next year,' Telecoms Minister Petra De Sutter confirmed after the Consultative Committee, which brings together the federal and regional governments, approved the legal framework for the tender. The auction is now expected to take place in the second quarter of 2022, as telecoms regulator the Belgian Institute for Postal Services and Telecommunications (BIPT) requires a maximum of six months following publication of the Royal Decrees in the Official Journal to be able to proceed to an auction. The operators will then need a few more months for the actual rollout of the networks. 'This is great news for our country. After years of inaction on this issue, we are finally achieving what many bodies expect of us, starting with consumer organization, but also the European Union and companies wishing to develop 5G applications,' declared the Minister. Following months of discussions, De Sutter confirmed that spectrum had been reserved for a fourth B2C operator to provide greater competition to Proximus, Telenet and Orange. Alternatively, a B2B operator could acquire some or all of the frequencies for industrial 5G applications. Noting that it is up to the market to determine future developments, the minister claimed the entry of a new operator 'could have positive consequences for all Belgians who currently pay high prices for their mobile subscriptions'. Belgium's plans for a 5G auction had been blocked for years due to disagreements between federal and regional governments over the increase in antennas, the extent of coverage in rural areas and how to divide proceeds of the auction, which is expected to raise at least EUR800 million (USD897 million). The authorities have agreed to place the funds in a blocked account until the latter issue has been resolved, while radiation from the 5G masts will also remain within the current standards – something which the Brussels-Capital Region, in particular, had asked for guarantees about. De Sutter also stated that she will present her draft law introducing additional security measures for the provision of mobile 5G services to the House of Representatives next week.

(November 25, 2021) commsupdate.com

Brazil

The National Telecommunications Agency (Anatel) has announced that authorization contracts for the use of radio frequencies in the 700MHz, 2.3GHz, 3.5GHz and 26GHz bands were signed, at a ceremony at Planalto Palace. Speaking at the event, President Jair Bolsonaro stated: 'By the middle of next year, all capitals will have 5G. It is a leap for communications in Brazil and in IoT. For commerce, this is priceless.' He added that all paved federal highways will also receive 5G coverage; this will include 2,349 separate stretches of highway for a total of 35,784km. As previously reported by CommsUpdate, the multi-band frequency sale drew to a close on Friday 5 November, generating total bids of BRL47.2 billion (USD8.5 billion), although around BRL7.44 billion of the total commitments will be converted into 'goodwill' bonds, which will see the winning bidders extend coverage to predetermined underserved areas. As per the terms of the auction, winning bidders must offer 5G services in all state capitals and the Federal District (Distrito Federal) by 31 July 2022. The winning bidders include mobile giants Claro Brasil, Telefonica Brasil (Vivo) and TIM Brasil, alongside regional telcos such as Brisanet, Sercomtel and Algar Telecom. Private equity-backed Winity Telecom was a notable bidder for 700MHz frequencies, while Consorcio 5G Sul (Copel Telecom and Unifique), Cloud2u and Neko Servicos also acquired selected spectrum blocks around the country. (December 8, 2021) commsupdate.com

The winners of Brazil's recent 5G spectrum auction can expect to receive their final authorizations from the government on 14 December. The multi-band frequency sale drew to a close on Friday 5 November, generating total bids of BRL47.2 billion (USD8.5 billion), although around BRL7.44 billion of the total commitments will be converted into 'goodwill' bonds, which will see the winning bidders extend coverage to predetermined underserved areas. As per the terms of the auction, winning bidders must offer 5G services in all state capitals and the Federal District (Distrito Federal) by 31 July 2022. (November 10, 2021) TeleTime

The authorities talked-up the success of its 5G spectrum auction, where big name operators and a handful of other parties pledged to spend a total of BRL47.2 billion ($8.5 billion) on allocations. National licenses and several regional allocations went to its three biggest existing players America Movil's Claro, Telecom Italia's TIM Brasil and Telefonica's Vivo. New player Winity II also won a nationwide block in the 700MHz band, though the business is yet to confirm its intentions. Regional or limited licenses were won by Sercomtel, Brisanet, Consorcio 5G Sul, Cloud2u, Algar Telecom, Neko and Fly Link. In a statement, regulator Anatel revealed "virtually all" lots covering the 700MHz, 2.3GHz and 3.5GHz bands were sold with most rejected allocations in the 26GHz band. It estimates the value of the unsold licenses at between BRL7 billion and BRL8 billion, with those set to be offered at a later sale. Anatel hailed the sale as the largest ever spectrum offering in Latin America, adding it was "a success from every possible perspective". The regulator's competition superintendent, Abraao Balbino e Silva, said the sold frequencies were largely "ones that, in fact, have the most urgent need for the commercialization of services". "We never had an auction with such economic volume involved: privatization did not yield that, 3G did not yield that, 4G did not yield that," he added. By the end of the first day (4 November) of the two day sale operators had pledged to buy lots with the value of over BRL7.1 billion.
(November 8, 2021) mobileworldlive.com

Canada

Canada's Minister of Innovation, Science and Industry, Francois-Philippe Champagne, announced the launch of the consultation on a policy and licensing framework for spectrum in the 3800MHz band to support 5G and promote competition in mobile services. The consultation specifically seeks input on issues such as the network build-out requirements that should be imposed on license holders, measures within the auction framework to support competition, and additional provisions to support Canada's Connectivity Strategy. This consultation follows the decision to repurpose the 3800MHz band to support 5G services, which was announced in May 2021, with a 3800MHz spectrum auction planned for early 2023. Comments will be accepted for a 60-day period, followed by a 30-day reply period. (December 21, 2021) commsupdate.com

Colombia

Colombia's Ministry of Information Technologies and Communications (Ministerio de Tecnologias de la Informacion y las Comunicaciones, MinTIC) has revealed plans to issue a public consultation relating to spectrum caps, as it seeks to further the country's 5G ambitions. The Telecoms Minister Carmen Ligia Valderrama told delegates attending the Andicom 2021 event that the watchdog is considering increasing spectrum caps below 3GHz and introducing a new spectrum cap for frequencies between 3GHz and 6GHz. MinTIC is expected to raise the cap for low bands (698MHz-960MHz) to 50MHz, establish a 95MHz cap in medium bands (1710MHz-2690MHz) and apply an 80MHz cap for upper-medium bands (3300MHz-3700MHz). All 400MHz in the 3.5GHz band could be made available for 5G services. On 29 December 2017

MinTIC raised the cap covering the sub-1GHz low bands (689MHz to 960MHz) from 30MHz to 45MHz per operator, while simultaneously increasing the spectrum cap for 1710MHz to 2690MHz spectrum from 85MHz to 90MHz.
(November 23, 2021) BN Americas

Costa Rica

The Superintendency of Telecommunications (Sutel) has informed the Ministry of Science, Technology and Telecommunications (MICITT) that it is unwilling to reimburse state-backed Grupo ICE for its unused 5G frequencies. The regulator is keen to press ahead with a 5G auction, but first it needs to seize a number of spectrum blocks currently assigned to ICE, which offers telecoms services under the Kolbi brand. A press release issued by the watchdog states: 'Sutel has documented in 16 technical-legal reports since 2012 the under-use and non-use of the spectrum assigned to Grupo ICE in the frequency bands of 1400MHz, 2600MHz, 3500MHz and 26GHz, which today are essential for the development of 5G technology. As these frequencies are not used or with inefficient use, no compensation would be possible, as established in article 22 of the General Telecommunications Law No. 8642.' Sutel says that the country's economy stands to lose up to US1.134 billion by 2024 if the frequencies are not made available for 5G use. (November 12, 2021) commsupdate.com

Croatia

The Regulatory Agency for Network Operations (Hrvatska regulatorna agencija za mrezne djelatnosti, HAKOM) has launched a public consultation to discuss the future use of radio spectrum across multiple bands ahead of its planned allocation in late 2022/early 2023. The spectrum in question is in the 800MHz, 900MHz, 1500MHz, 1800MHz, 2100MHz, 2.6GHz, 3.6GHz and 26GHz frequency bands. The regulator is seeking to determine the best method for allocating the spectrum, with the award process due to kick off in December next year and be completed by March 2023. Existing licenses in the 800MHz, 900MHz, 1800MHz, 2100MHz and 2.6GHz ranges expire in 2024. Comments on the consultation are being welcomed until 6 December. (November 9, 2021) commsupdate.com

Czech Republic

The Czech Telecommunication Office (Cesky telekomunikacni urad, CTU) has extended the allocation of frequencies to operators in the 2100 MHz band for another 20 years. It also has imposed a new obligation to support older phones. In a press release explaining the new concept, CTU noted that O2 is obliged to maintain its 2G GSM network until at least 2028 unless the share of all users using this older technology falls below 5%. The regulator is mindful that some Czechs (usually senior citizens) do not cope so well with more modern smartphones and it wants to ensure their ability to make voice calls is maintained. CTU Council Chair, Mrs. Hana Továrková, has reached a consensus with operator O2 which will be a benefit for the general public. "The negotiations have been difficult, and I am not afraid to call our approach innovative. We hereby thank O2 for reaching a consensus that will particularly benefit the elderly and the socially weaker persons," said Hana Továrková. "It is in our interest to maintain the most attractive possible spectrum which enables us to continue deploying fast and high-quality 5G network. However, we also understand the need for an older 2G network suitable for basic phones, which we are prepared to continue to operate as well as ever, "said Václav Zakouřil, a member of the board of directors of O2. In the following period, new block allocations will most likely be issued to other holders of allocations in the 2100 MHz band. All block allocations have been, and continue to be, technology-neutral per European legislation, allowing their holders to innovate the technologies used to provide electronic communications services. Under the current legislation, new block allocations shall be offered to their current holders at a price determined by an expert report which respects both the period of validity and the costs necessary to meet any new conditions imposed. (December 22, 2021) developingtelecoms.com

The Czech Telecommunication Office (Cesky telekomunikacni urad, CTU) has extended O2 Czech Republic's license to use the 2100MHz band – the current one was due to expire on 1 January 2022 – and imposed a new obligation to support older phones. In a press release explaining the new concept, CTU noted that O2 is obliged to maintain its 2G GSM network until at least 2028, unless the share of all users using this older technology falls below 5%. The regulator is mindful that some Czechs (usually senior citizens) do not cope so well with more modern smartphones and it wants to ensure their ability to make voice calls is maintained. CTU went on to note that new block allocations will most likely be issued to other holders of allocations in the 2100MHz band in future, adding that all block allocations are, and continue to be, technology neutral in accordance with European legislation. (December 17, 2021) commsupdate.com

Ecuador

The government has confirmed that the Special Consumption Tax (Impuesto a los Consumos Especiales, ICE) will no longer be applied to fixed voice and mobile phone services with effect from 1 December, following the entry into force of the new Economic Development Law. International trade groups such as the GSMA and the Inter-American Association of Telecommunications Companies (Asociacion Interamericana de Empresas de Telecomunicaciones [ASIET]) had been lobbying the country's new president Guillermo Lasso, who took office in May this year, to scrap the monthly levy – previously 10% for individual plans and 15% for corporate subscriptions – as a means to reduce the tax burden on telecoms companies and encourage service expansion, especially in rural areas. Originally intended to promote competition in the market, the 15% excise duty was first levied on corporate fixed and mobile telephony services (except internet/data-only mobile services) on 1 May 2016 and maintained under a new taxation regime (the Ley Organica de Simplificacion y Progresividad Tributaria) effective from 1 January 2020, which introduced a monthly levy of 10% on consumer post-paid mobile services and 15% on subscription television services. (December 6, 2021) commsupdate.com

Ethiopia

Ethiopia is suspending the tender process for its second telecommunications license and will relaunch it in the "near future", the government's communications service said. The country said in September that it had invited proposal requests for the license, which was due to be issued in January 2022. The African country of roughly 110 million people sold only one of two full-service licenses on offer in May. The government's telecoms regulator, the Ethiopian Communication Authority (ECA), also said it was suspended. It did not immediately respond to a request for comment. The licenses are considered a big prize in the country's push to liberalize the economy, which had been one of the world's last major closed telecoms markets. A consortium led by Kenya's top operator Safaricom won the first license. Safaricom's winning bid of US$850-million could serve as a guide for the price of the remaining license. (December 26, 2021) newsghana.com.gh

The Finance Ministry expects the launch of services from new entrant Safaricom in the first quarter of 2022, a timeline revealed days after the operator cited ongoing unrest in the country among potential risk factors to the venture's success. At the Africa Tech Festival 2021 online event, Brook Taye, senior advisor at Ethiopia's finance ministry, said the country expected Safaricom's operation in the country to launch in March 2022. He also confirmed the government is in the process of finalizing legislative changes to allow its central bank to issue the new entrant with a mobile financial services license. Safaricom is leading The Global Partnership for Ethiopia consortium, which was issued with Ethiopia's first private telecoms license earlier this year, having outbid MTN in the final stage of the lengthy sales process. Ethiopia already has state-owned Ethio Telecom in place with a tender currently open for a third player to enter the market. Taye's comments came days after Safaricom CEO Peter Ndegwa provided an update on the project as part of its financial results statement. During an investor call, Ndegwa outlined the potential problems for its new venture, though added: "opportunities outweigh the risks and the uncertainties. Largely because, the telecoms market liberalization has been unquestionably positive and of value for countries across the world." He explained risks and uncertainties include the "ongoing political conflict" in the country, tax and regulatory framework issues, currency volatility, foreign exchange availability and potential infrastructure rollout problems such as securing access to buildings and concluding sharing agreements. Ethiopia is currently in the midst of an armed conflict between authorities and anti-government groups in part of the country. "We look forward to launching commercial operations as projected while cognizant of the current evolving situation in Ethiopia as we proceed with our plans adapting to and assessing the situation as it evolves," Ndegwa added. Safaricom estimates the venture will break even by its fourth year of operation with coverage obligations requiring $1.5 billion to $2 billion of capex to meet over a five-year period.
(November 12, 2021) mobileworldlive.com

Estonia

The Minister of Entrepreneurship and Information Technology, Andres Sutt, is proposing to offer three licenses in the country's much-delayed auction of 5G-capable 3.5GHz spectrum. The concessions will each include 130MHz of spectrum between 3410MHz and 3800MHz, he said. A sale of 3.5GHz licenses is now expected in the first quarter of next year, with the process having been held up by disagreements on the number of concessions that should be offered, as well as by changes to the Electronic Communications Act. In a statement the minister said: 'Today's decision marks the end of very long negotiations that held back the development of high speed internet and 5G in Estonia. This issue has been discussed for the last 2-3 years, under the leadership of several different IT ministers, and now we have come to a conclusion.' Estonia is home to three mobile network operators (MNOs): Telia, Elisa and Tele2. (December 17, 2021) commsupdate.com

Finland

The Ministry of Transport and Communications (Liikenne-ja viestintaministerio, MoTC) has announced that it has begun accepting applications for spectrum in the 700MHz band for use in the Aland region. With the ministry saying that its aim in offering up the frequencies is to promote the construction of 5G infrastructure in Aland, and to improve the availability of high speed mobile broadband connectivity on the archipelago, it has confirmed the licenses being offered are tech-neutral. Applications are requested by a deadline of 20 January 2022 and the MoTC has also confirmed that the permits to be issued will be valid from 15 March 2022 to 31 December 2033.

(December 10, 2021) commsupdate.com

Germany

The Federal Network Agency (FNA, or BNetzA) has announced that it has completed the review to determine whether mobile network operators met the coverage requirements of the 2015 multi-band spectrum auction. According to the regulator, Vodafone, Telefonica and Telekom Deutschland all achieved the target to supply all main traffic routes with LTE services, including federal motorway and ICE rail routes. Last year the trio belatedly fulfilled an obligation to provide mobile data speeds of at least 50Mbps to 98% of households nationwide and 97% of households in each federal state by 1 January 2020. Having fulfilled the requirements from the 2015 allocation, the FNA states that the coverage obligations from the 2019 spectrum auction must now be implemented. As such, successful bidders must supply 98% of the households in each federal state and all federal motorways, the most important federal highways and railways with mobile data speeds of at least 100Mbps by the end of 2022. By the end of 2024, all other federal motorways are to be supplied with rates of at least 100Mbps, while all state highways, seaports, the most important waterways and all other railway lines must be supplied with at least 50Mbps speeds.

(December 1, 2021) commsupdate.com

The Federal Ministry of Transport and Digital Infrastructure has revealed that more than 95% of the country's 41.6 million households were able to access broadband speeds of at least 50Mbps as of mid-2021. In addition, almost 90% of homes could access rates of 100Mbps or more, an increase of 3.9 percentage points year-on-year, with this proportion standing at 69% in rural areas, representing a rise of over 460,000 homes since mid-2020. When it comes to even higher speeds, the Ministry reports that around 62% of German households have access to gigabit connections, an increase of 2.6 million connections compared to mid-2020 and 14.5 million connections since the end of 2018. In rural regions in particular, the federal government supports the expansion of faster fiber-optic networks through the federal broadband expansion program, for which around EUR12 billion (EUR13.7 billion) has been earmarked. Roughly EUR9.4 billion has already been committed, with the aim of enabling around 2.7 million high speed broadband connections for households, companies, schools and hospitals nationwide. So far, over 800,000 connections have already been completed.

(November 16, 2021) commsupdate.com

Ghana

The government has completed its takeover of mobile network operator (MNO) AirtelTigo, according to Bharti Airtel's regulatory filing to the Bombay Stock Exchange. The Indian group confirmed that 100% of the shares in AirtelTigo, a joint venture between Bharti Airtel and Millicom International Cellular, had been transferred to the Government of Ghana following completion of the transaction. The Ghanaian government executed a definitive deal with AirtelTigo's parent companies – Bharti Airtel and Millicom International Cellular Africa – in April this year to acquire 100% of the telco's shares as well as its customers, assets and agreed liabilities. Although financial details of the transaction have not been revealed, the Minister for Communications and Digitalization, Ursula Owusu-Ekuful, claimed in a Facebook post earlier this year that the government had acquired the company for just USD1. Bharti Airtel and Millicom International Cellular (MIC) merged their Ghana operations in October 2017 to create the country's second largest cellco at the time, although it has since slipped to third place behind rival Vodafone Ghana. According to the latest figures released by the National Communications Authority (NCA), the operator had 7.98 million mobile subscribers at 30 June 2021, equivalent to 19.1% market share.

(November 8, 2021) commsupdate.com

Greece

The Ministry of Digital Governance has expanded the latest phase of its Ultra-Fast Broadband (UFBB) project. Having previously estimated a budget of around EUR700 million (USD808 million), the Ministry is now preparing a tender worth EUR868 million as it seeks contractors to deploy fiber infrastructure across the country. The tender forms part of a wider EUR1.2 billion public-private scheme to develop broadband infrastructure and digital services in Greece, with an estimated EUR400 million to come from public sources.

(November 11, 2021) Kathimerini

Hong Kong

The Communications Authority (CA) has pushed back deployment deadlines for operators holding millimeter wave (mmWave) 5G spectrum. HKT, China Mobile Hong Kong (CMHK) and SmarTone were each awarded 400MHz of spectrum in the 26GHz and 28GHz bands in March 2019, with the stipulation that they should install a minimum of 2,500 radio units in each band by end-2024. The regulator has now relaxed the rollout requirements, giving licensees until April 2024 to deploy at least 20% of the minimum requirement and April 2025 to install a further 30% of the total, with the remaining 50% to be deployed during 2026. Operators requested an extension of the deadline due to the later-than-expected availability of compatible handsets and network equipment.

(November 23, 2021) commsupdate.com

Iceland

The Electronic Communications Office of Iceland (ECOI) has revealed plans to extend most frequency authorizations set to expire in 2022-2023 until 31 March 2023 in order to harmonies the validity of all operating concessions. The regulator held a public consultation on the matter in the summer of 2021, laying out plans to extend all frequency rights for another 20 years, while also imposing updated coverage and quality of service (QoS) obligations on the licensees. The ECOI said that the obligations in question have not yet been formulated; it will hold a special consultation with frequency rights holders on the above-mentioned development plans next summer. Regarding the phasing out of 2G and 3G services, the ECOI stated that 'it has now come to the point to stop operating older mobile technology', as it is 'inefficient and inconsistent with environmental considerations to maintain and operate many mobile network systems, including systems that do not meet modern needs. However, the watchdog conceded that it needs to take appropriate mitigation measures, setting 2025 as the deadline for the switch-off of GSM/UMTS networks. Further, the ECOI plans to hold another consultation on the planned allocation of a 2×10MHz block in the 700MHz band to Oryggisfjarskipti for emergency telecoms services, on the condition that the company shares the frequencies with operators that provide general communications services. (December 13, 2021) commsupdate.com

India

Sector watchdog the Telecom Regulatory Authority of India (TRAI) has published a consultation paper regarding plans to auction spectrum for 5G services. Under consideration for sale are frequencies in the 700MHz, 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz, 2500MH, 3300MHz-3670MHz and 24.25GHz-28.5GHz bands, as well as additional sub-1GHz frequencies. The publication seeks input from stakeholders on a wide range of matters relating to the auction, such as: band plans for frequency ranges identified for 5G, including the 526MHz-617MHz, 3300MHz-3670MHz and 24.25GHz-28.5GHz ranges; block sizes and minimum quantities for bids; rollout obligations; and spectrum caps and the return of spectrum. Most notably, though, the TRAI has sought opinions on the pricing of the spectrum to be auctioned as well as the methodology for determining those prices. TeleGeography notes that the spectrum costs have been a contentious issue in India over the last decade, with the fallout from the 2G spectrum scandal leading to inflated prices which were then maintained through subsequent tenders. The financial burden of the excessive spectrum costs was a contributing factor in the sector's recent financial crisis and the consolidation of the market from over a dozen providers to six: Reliance Jio Infocomm (Jio), Bharti Airtel, Vodafone Idea (Vi), state-owned providers Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL), and Reliance Communications (RCOM) – although the last-named provider had only a token presence and was in the midst of bankruptcy proceedings. (December 1, 2021) commsupdate.com

India will have 500 million 5G users by 2027, accounting for 39% of all mobile subscribers, according to the 2021 edition of the Ericsson Mobility Report. Consequently, the number of 4G subscribers in India is expected to fall from 790 million in 2021 to 710 million in 2027, declining 2% annually. Global 5G subscriptions are expected to reach 4.4 billion over the next six years, up from 660 million at the end of 2021, the report added. The migration to 5G will also drive data consumption. According to Ericsson, average monthly data usage per user is expected to grow from 18.4 gigabyte (GB) per month—the second-highest globally—to 50 GB per month in 2027. The global average is expected to be at 41 GB in 2027 up from 11.4 GB in 2021. Mobile traffic in India is expected to grow by over four times from 12 exabytes (EB) per month in 2021 to 49 EB per month over the next six years. One exabyte is equal to a billion gigabytes. Ericsson analysts attributed the high growth to an increase in average usage per smartphone, as well as the number of smartphone users in both urban and rural India. The report said the number of Indian smartphone users will grow from 810 million at the end of 2021 to 1.2 billion by 2027 at a compound annual growth rate (CAGR) of 7%. "A lot of this growth will depend on the market and how fast 5G is being rolled

out. Markets with more 5G penetration by the end of the period will probably see more data use," said Patrik Cerwall, head, strategic marketing, and editor, Ericsson Mobility Report. According to the report, the rollout of 5G devices is outpacing 4G market share globally. Over 500 5G models have so far been launched, accounting for 23% of global smartphone volumes after 10 quarters into the technology cycle. Ericsson did not comment on the share of 5G smartphones in India.

(November 30, 2021) livemint.com

Ireland

The Commission for Communications Regulation (ComReg) has published a consultation on its proposed approach to promote Over-the-Air (OTA) provisioning to facilitate faster and easier switching between mobile network operators (MNOs). With ComReg highlighting the fact that a growing number of mobile devices have eSIMs, it suggests that OTA will allow for easier, faster switching, effectively reducing the time required to move to a new provider to minutes. Meanwhile, the Irish watchdog noted that the new European Directive for regulation of the sector – the European Electronic Communications Code – requires each Member State to promote OTA provisioning to facilitate switching and also gives discretion to regulators to define switching processes that utilize OTA provisioning. Further, the Code also requires that MNOs maintain traditional switching processes for consumers who prefer the current method of switching. ComReg's consultation matter is said to incorporate the findings of a study it commissioned on the options for regulators to promote OTA. In this, a number of challenges were identified regarding the adoption of OTA in Ireland, with actions to address these recommended for both ComReg and local cellcos. One key challenge highlighted is the limited level of support for eSIM for consumer devices among Irish MNOs, a factor which is claimed to have resulted in Ireland lagging international peers in eSIM support. To address the matter, ComReg has said it is 'minded to adopt a number of actions, including mandating that Irish mobile operators … provide fully digital OTA provisioning journeys for smartphones users within twelve months of publication of its final strategy'. Meanwhile, ComReg has proposed minimum criteria for what a 'best-in-class, fully digital OTA customer journey for smartphone users' would entail, while also examining other matters related to switching such as the locking of handsets. ComReg has invited feedback on the proposals in its consultation by a 17 December 2021 deadline, while it says its response to the consultation, which will include a final strategy and action plan, is expected to be completed by Q2 2022.

(November 9, 2021) commsupdate.com

Isle of Man

The Communications and Utilities Regulatory Authority (CURA) has published a final information memorandum on its plans to award spectrum licenses in the 700MHz and 3.6GHz bands. The announcement follows a consultation on the matter, launched in July 2021, that set out the regulator's preliminary views on the processes for offering up new concessions. Included in the plans were: details of the spectrum to be awarded; the timescale of the sale process; and the proposed auction rules. In short, CURA has now confirmed that would-be bidders will be required to apply to take part in the sale between 17 January and 21 January 2022. Meanwhile, with the format of the award process having been set as a single sealed bid auction, the regulator has confirmed that applicants will have the option of submitting up to five supplementary bids, though these will only be considered in the event that a qualified bidder's primary bid is not successful. A total of 49 spectrum lots are being offered in the auction, comprising: six lots of 2×5MHz in the 700MHz band (703MHz-733MHz/759MHz-788MHz), with a per-bidder cap of 15MHz paired spectrum applying; a further four unpaired 5MHz lots in the 700MHz band (738MHz-758MHz), with a 10MHz cap applying; and 39 10MHz blocks in the 3.6GHz band (3410MHz-3800MHz), with a 100MHz cap applying. Further, CURA has noted it is holding meetings with interested parties to 'discuss and provide detailed guidance on the license award application documentation'; these meetings are being held between 6 December and 17 December.

(December 7, 2021) commsupdate.com

Italy

The Italian government has unveiled plans to invest EUR2 billion (USD2.3 billion) to guarantee mobile data speeds of at least 150Mbps across the entire country by 2026. The government-backed body Infratel aims to invest in the rollout of 5G networks in areas which will not be covered under the commercial investment plans of Italian cellcos TIM, WINDTRE, Vodafone and Iliad. The funds will be allocated via a series of tenders. In response to an Infratel survey, the operators said they had 66,698 base stations deployed between them at present, and this number would rise to 73,931 by 2026, covering 47,103 unique sites. Infratel says that equipment at 11,352 sites will not be connected to fiber backhaul by 2026, with contracts to be awarded

to upgrade all sites to ensure nationwide 5G coverage. (November 17, 2021) commsupdate.com

The government says it plans to kick off a series of tenders early next year to expand fiber and 5G coverage under a EUR4 billion (USD4.65 billion) investment scheme. Minister for Technological Innovation and Digital Transition Vittorio Colao told Corriere della Sera that tenders to connect 6.2 million premises to fiber-optic networks will begin in January, and this will be followed by projects to expand 5G coverage. The fiber schemes will target rural and semi-rural areas, particularly in the south of the country, while the 5G plan envisages improved connectivity for locations such as major rail lines and sparsely populated areas to support agriculture. (November 3, 2021) commsupdate.com

Jersey

The Jersey Competition Regulatory Authority (JCRA) is launching a study of retail pricing is to be launched this month, noting that it aims to assess how prices in the Bailiwick's telecoms markets compare internationally with other similar jurisdictions, including Guernsey and the Isle of Man. According to the JCRA, the new study will benchmark retail prices in the domestic telecoms market against comparator jurisdictions and will follow an established methodology – set by the Organization for Economic Co-operation and Development (OECD) – to compare retail prices for key consumer services (as of the fourth quarter of 2021). It is understood that the JCRA's study will consider 'different defined services', specifically: fixed voice; mobile voice and data; mobile broadband (dongle-based mobile broadband); and bundled services, including 'phone and broadband' and 'triple-play, phone, broadband and mobile'. Commenting, Peter Hetherington, Senior Economic Case Officer at the JCRA, said: 'Market studies are an important area of our work and can be used to promote a competitive environment. This study will help provide a better understanding of how prices in Jersey compare internationally, which is an indicator of how well the telecoms market is working for consumers … The study also has broader benefits. For example, telecommunication services are an element that can drive inflation. Therefore, understanding pricing better can help support the Government's anti-inflation strategy.' With market study scheduled to start this month, the JCRA has said its findings are expected to be published in the first quarter of 2022.

(November 17, 2021) commsupdate.com

Latvia

The telecoms watchdog Public Utilities Commission (Sabiedrisko Pakalpojumu Regulesanas Komisija, SPRK) completed its auction of spectrum in the 700MHz band on Friday, but the results have yet to be confirmed by the SPRK Council. In a statement issued by the regulator, the SPRK noted that before the results of the auction are published, the council must first ensure that all of the winning bidders complied with regulations. Once this process is completed, the SPRK will issue a decision approving the auction results. The regulator expects to reach a decision on the matter by 27 December. The tender comprised the three licenses for 2×10MHz in the 700MHz range with a starting price of EUR2.2 million (USD2.5 million) and a duration of 20 years (February 2022 to January 2042) and two 1×10MHz blocks with a slightly shorter duration (February 2025 to January 2042) and a base cost of EUR150,000. Despite the lack of confirmation regarding the results of the tender, Latvian cellcos Tele2 and Bite have each published statements claiming that they have purchased spectrum in the 700MHz band. For its part, Tele2 announced that it had purchased the rights to spectrum at 703MHz-713MHz/758MHz-768MHz. Petras Masiulis, CEO for Tele2 Baltic, was quoted as saying of the purchase: 'By acquiring these important rights to use the spectrum, we will start to expand our 5G network in Latvia much more actively. This will increase the speed of mobile internet and improve coverage, while reducing latency in the future for equipment used by both private and business customers.' Bite, meanwhile, revealed that it had purchased the license for the 723MHz-733MHz/778MHz-788MHz airwaves. Bite plans to invest EUR70 million over the next three years to build out 'several hundred' new 5G base stations throughout Riga and other major cities. (December 20, 2021) commsupdate.com

Telecoms watchdog the Public Utilities Commission (Sabiedrisko Pakalpojumu Regulesanas Komisija, SPRK) will auction spectrum in the 700MHz band for 5G services next month. The tender comprises three licences for the use of 2×10MHz in the 700MHz range with a starting price of EUR2.2 million (USD2.5 million) and a duration of 20 years (February 2022 to January 2042). In addition, the SPRK will sell two 1×10MHz blocks with a slightly shorter duration (February 2025 to January 2042) and a base cost of EUR150,000. The auction is set to take place on 16 December 2021. SPRK Chair Alda Ozola was quoted as saying of the tender: 'This frequency band is important for the development of 5G network, as well as electronic communications network services and competition in Latvia. The benefits will be felt by users as well as other electronic communications merchants, receiving faster internet download speeds and better coverage in the country.'

(November 24, 2021) commsupdate.com

Lithuania

The government has confirmed that its new Law on Electronic Communications entered force on 1 December 2021. The regulatory overhaul has seen the previous document, Law No. IX-2135, amended to transpose the European Electronic Communications Code into Lithuanian national law. The Communications Regulatory Authority (Rysiu Reguliavimo Tarnyba, RRT) summarizes the key changes as follows:

- The broader definition of an 'electronic communications service' has been tweaked and is now broken down as follows: internet access services; interpersonal communication services; and services consisting mainly of signal transmission.
- There have been changes to radio spectrum management, by way of an EU-wide harmonization of the allocation and use of spectrum. There is also a longer period of validity (20 years) for authorizations to use EU-wide harmonized spectrum.
- In terms of access to ultra-high bandwidth networks, operators will be encouraged to co-invest in high-bandwidth public communications networks (both fixed and mobile), thus sharing business risk. An operator with significant market power (SMP) will be able to co-invest in the construction of new networks under clear and transparent conditions.
- In order to ensure the consistency of the regulatory environment and reduce the administrative burden, the RRT will be required to conduct market research every five years, instead of three as before.
- The scope of universal electronic communications services has been revised and the obligation to provide telephone services via payphones will be abolished, but the obligation to provide affordable universal e-communications services to certain groups of consumers will be introduced.
- Finally, the law will bring favorable changes to ensure the protection of consumer interests. The adoption of legislation implementing this law will make it simpler and easier to change service provider for consumers using both interpersonal communications and internet access services.

(December 1, 2021) commsupdate.com

Malaysia

The Malaysian Communications and Multimedia Commission (MCMC) has published determinations regarding reallocating spectrum in the 850MHz and 2300MHz bands. With regards to the lower band, the regulator has confirmed that a 2×10MHz block (824MHz-834MHz/869MHz-879MHz) is being reallocated to Telekom Malaysia for a five-year period. Meanwhile, a total of four companies have been reallocated unpaired 30MHz blocks of spectrum in the 2300MHz band, again for a five-year period, namely: Asiaspace Broadband (2300MHz-2330MHz, for Peninsular Malaysia only); SEA Telco Engineering Services (2300MHz-2330MHz, for Sabah and Sarawak only); YTL Communications (2330MHz-2360MHz); and Webe Digital (2360MHz-2390MHz).

(December 21, 2021) commsupdate.com

An updated determination relating to the list of telecoms services available to licensees that are subject to price regulation – known as the Access List – has been published by the Malaysian Communications and Multimedia Commission (MCMC). Having previously launched a public inquiry on the review of the Access List in August 2021, the regulator at that date set out its preliminary views on the facilities and services to be included, removed or amended in list. As part of its review the MCMC said it had formulated focus areas for the inquiry, noting that 'the common theme underlying all areas is the need to continuously refine the Access List and its implementation, in order to reflect the state of competition in the supply of regulated facilities and services'. In terms of the specific focus areas, those included: ensuring access to Digital Nasional Berhad's (DNB's) monopoly 5G single wholesale network; enhancement of 'High Speed Broadband' ('HSBB') network regulation; ensuring and improving access to passive infrastructure; continuing development of regulation of transmission services; and fostering investment in access network infrastructure. The MCMC's newly published Commission Determination on Access List (Determination No. 6 of 2021) will come into operation on 15 December 2021. A total of 20 services are now included in the list, those being: fixed network origination; fixed network termination; mobile network origination; mobile network termination; interconnect link; wholesale local leased circuit; infrastructure sharing; domestic connectivity to international services; network co-location; digital terrestrial broadcasting multiplexing; Layer 2 High Speed Broadband (HSBB) network; trunk transmission; duct and manhole access; Layer 3 HSBB network; end-to-end transmission; MVNO access; domestic inter-operator roaming service; 5G Standalone (SA) access; 4G Evolved Packet Core with 5G RAN access; and IP transit service. Among the notable removals from the previous Access List Determination (ALD), which was made in 2015, are: full access; line sharing; bitstream with network; bitstream without network; sub-loop; digital subscriber line resale; and wholesale line rental.

(December 3, 2021) commsupdate.com

Mauritania

The government has completed the final stage of its national backbone infrastructure rollout, which is being carried out under the West African Regional Communication Infrastructure Project (WARCIP). Ecofin reports that the final phase of the network, connecting the cities Aioun and Nema, was inaugurated last week. 1,700km of backbone infrastructure has been deployed by Chinese vendor ZTE since the project began in February 2019, taking the total network length to 4,000km. (December 13, 2021) commsupdate.com

New Zealand

The Commerce Commission has released its draft determination on the allocation of payments for the government's Telecommunications Development Levy (TDL) for the period covering 1 July 2020 to 30 June 2021. The regulator proposes that Spark, Vodafone, Chorus and 2degrees collectively pay 88% of the NZD10.145 million (USD7.252 million) levy, with the remainder divided among other liable providers. Stakeholders have until 23 November to submit their feedback. The TDL is paid by providers earning more than NZD10 million per year from telecommunications services, including internet, mobile, and data services. The government uses the funds collected by this levy to pay for telecommunications infrastructure and services that are not commercially viable, including the relay service for the deaf and hearing-impaired, broadband for rural areas, and improvements to the 111-emergency service. The draft determination comes after the Commission sought clarification from the High Court on whether businesses involved in the transmission of broadcasting signals are liable to contribute to the levy following amendments to the Telecommunications Act in 2018, which removed an exemption for 'broadcasting' from the definition of 'telecommunication'. In a judgement issued last month, the High Court confirmed that, apart from free-to-air broadcasters and satellite providers operating outside New Zealand, businesses involved in broadcasting transmission can be liable to pay the TDL. The result is that Sky TV is now liable to contribute to the TDL for the first time and Kordia will pay a higher share than previous years. (November 9, 2021) commsupdate.com

Nigeria

After eleven rounds of bidding that lasted eight hours, the Nigerian Communications Commission (NCC) has announced that Mafab Communications and MTN Nigeria have emerged as the two successful winners of the 3.5GHz spectrum auction. A third company, Airtel Nigeria, also qualified to participate in the 5G auction process, but walked away empty handed at the conclusion of the final round of bidding. MTN and Mafab will each pay USD273.6 million for one lot of 100MHz TDD spectrum by 24 February 2022. Following the conclusion of the assignment stage, MTN selected spectrum in the 3500MHz-3600MHz band and the second lot (3700MHz-3800MHz) was assigned to Mafab.

(December 14, 2021) commsupdate.com

MTN Group and Airtel Africa's local units were approved by Nigerian authorities to take part in a forthcoming 5G spectrum auction, with wholesale player Mafab (MFB) Communications the only other qualified bidder. In a statement, the Nigerian Communications Commission (NCC) explained the three had met its criteria for participation and paid the required deposit. The auction is scheduled to take place on 13 December, with lots available in the 3.5GHz band. According to terms published by the NCC last month, winners will have to adhere to various coverage targets set across the ten-year duration of licenses. Authorities also required a down payment of 10 per cent of the reserve bid price by each participant. The reserve was set in November at $197.4 million. (December 2, 2021) mobileworldlive.com

North Macedonia

The Agency for Electronic Communications (AEK) has launched a tender for the allocation of 5G-suitable spectrum in the 700MHz and 3.6GHz (3400MHz-3800MHz) bands, with the public examination of the bids to be held on 1 December 2021. The starting prices for the mobile frequencies range from EUR1.25 million (USD1.4 million) to EUR2.75 million. The agency plans to grant the following approvals for mobile use, valid for 15 years (extendable for another five years afterwards):

- 700MHz band: A1 (703MHz-713MHz/758MHz-768MHz), A2 (713MHz-723MHz/768MHz-778MHz) and A3 (723MHz-733MHz/778MHz-788MHz),
- 3.6GHz band: B1 (3.5GHz-3.6GHz), B2 (3.6GHz-3.7GHz) and B3 (3.7GHz-3.8GHz)

In addition, the AEK will award four blocks: B41, B44, B45 and B46 (3.4315GHz-3.460GHz), suitable for fixed services in regions 1 (Skopije, Ilinden, Petrovets, Zelenikovo, Studenichani, Sopishte, Chucher Sandevo and Arachinovo), 4 (Bitola, Prilep, Demir Hisar, Krushevo, Dolneni, Krivogashtani, Mogila, Novaci and Resen), 5 (Ohrid, Struga, Debarca, Vevchani, Kichevo, M. Brod, Drugovo, Zajac, Oslomej, Vraneshtica, Plasnica, Debar and Centar Jupa) and 6 (Tetovo, Gostivar, Tearce,

Jegunovce, Jelino, Brvenica, Bogovinje, Mavrovo and Rostushe). The fixed authorizations will be valid for six years. As previously reported by TeleGeography's CommsUpdate, in July 2021 the AEK received four expressions of interest (EoI) from telecoms operators for participation in the planned auction for 5G spectrum. The EoI are as follows: Neotel (blocks B41, B44, B45 and B46), Bitstream Mobile (A1 and B1), A1 Macedonia (A2, A3 and B3) and Makedonski Telekom: (B2, A2 and/or A3). (November 30, 2021) commsupdate.com

Norway

Norwegian communications regulator the National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has published an updated list of buildings where broadband services should be offered as part of voluntary coverage obligation linked to its recent auction of 5G-suitable spectrum. As previously reported by CommsUpdate, winning bidders in Nkom's sale of 2.6GHz and 3.6GHz frequencies – which closed last month – were given the option of accepting a voluntary commitment to provide broadband services with down/uplink speeds of 100Mbps/10Mbps in underserved/unserved rural areas. Doing so discounted the final price of the spectrum won by any company that accepted this voluntary obligation. Now, Nkom has published an updated list of the residential and commercial premises where such services should be offered as part of the voluntary coverage obligation. With the regulator stating that its updated overview is based on a coverage survey for 2021, it noted that it has removed from the list properties that are expected to be covered by commercial network rollout plans. Having also reportedly considered information from county municipalities about which buildings have received broadband support in recent years, Nkom has confirmed that around 48,000 premises are included in its updated overview. Nkom did, however, note that as of October 2021 the updated development overview lacks information on where broadband support has been provided in Trondelag, and said it aims to update the overview as soon as this information is received. Looking further ahead, the regulator has confirmed that it plans to update the overview again in December 2022, while further reviews are scheduled for December 2023 and December 2024.

(November 2, 2021) commsupdate.com

Panama

The National Public Services Authority (Autoridad Nacional de los Servicios Publicos, ASEP) has granted mobile market leader Tigo Panama 100,000 additional numbers in the 619-XXXXX range. The numbers, which have been designated for Cellular Mobile Telephone Service use, have been issued to Grupo de Comunicaciones Digitales, which is the Panamanian holding company established by Millicom after its EUR573.0 million (USD650.1 million) takeover of Movistar. As of 30 September 2021, Tigo accounted for a total of 2.208 million mobile subscriptions, up from 1.838 million one year earlier.

(December 1, 2021) commsupdate.com

Poland

The Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) in Poland has announced plans to reallocate spectrum in the 2100MHz band in the second quarter of next year. The new licenses will be valid for 15 years and allocations will increase from 2×14.8MHz to 2×15MHz following the removal of guard bands. The current 2100MHz concessions held by Poland's four mobile network operators (MNOs) expire at the end of 2022. A report from Telko.in says that UKE is expecting to raise almost PLN1.9 billion (USD454 million) from the renewals, with T-Mobile paying PLN459.9 million and the other three MNOs paying PLN475.6 million. The 2100MHz band was originally awarded in Poland to support 3G services, but is now being migrated for use in 5G networks. (December 10, 2021) commsupdate.com

The government now expects to run its auction of 5G-suitable 3.5GHz spectrum in 2022. Authorities had hoped to allocate licenses back in the first half of 2020 but the process stalled, initially due to the COVID-19 outbreak. More delays came when the government decided to postpone the auction until after it had made amendments to the country's Electronic Communication Law and the Act on the National Cybersecurity System (KSC). Telecoms regulator the Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) notes that 320MHz of frequencies will eventually be made available in the 3480MHz-3800MHz range. Spectrum in the 700MHz band is also due to be sold off once it is freed by digital terrestrial television (DTT) providers.

(December 3, 2021) commsupdate.com

Portugal

The National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has launched a consultation regarding the use of the 26GHz band (24.25GHz-27.5GHz) for 5G. The watchdog notes: 'Thus, with this public consultation … ANACOM intends to collect the position of the various market players (manufacturers, operators, private and public entities, users and others) on the availability of spectrum in the 26GHz band. Contributions obtained will be duly considered in future decision-making on the subject, namely: the procedure, the calendar and the conditions for the allocation and use of this spectrum, if there is an interest in the market for this.'

(December 16, 2021) commsupdate.com

The National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has confirmed that its board of directors has approved the final auction report relating to the recently concluded multi-band 5G spectrum sale. The auction results were rubber-stamped on 23 November and the winning bidders now have ten working days to pay for the frequencies that they successfully bid on. As previously reported by CommsUpdate, the auction – which commenced on 14 January – concluded on 27 October, after 1,727 rounds of bidding. The process generated a total of EUR566.8 million (USD657.6 million). Alongside incumbent mobile operators PT Portugal (MEO), Nos and Vodafone Portugal, the auction also saw bidding activity from Grupo MASMOVIL-backed cableco Nowo, Dixarobil Telecom, which is owned by Romania's Digi Communications and mobile network densification specialist Dense Air. All six companies acquired 5G-suitable frequencies. Nos spearheaded the bidding, agreeing to pay EUR165.1 million for a combination of 700MHz, 900MHz, 2100MHz and 3.6GHz spectrum. Next in line was Vodafone (EUR133.2 million; 700MHz/3.6GHz), followed by MEO (EUR125.2 million; 700MHz/900MHz/3.6GHz). In terms of the 'new' bidders, Nowo bid EUR70.2 million for 1800MHz, 2.6GHz and 3.6GHz spectrum, while Dixarobil offered EUR67.3 million for spectrum in the 900MHz, 1800MHz, 2.6GHz and 3.6GHz bands. Finally, Dense Air committed to pay EUR5.8 million for 3.6GHz frequencies.

(November 25, 2021) commsupdate.com

Romania

Romania's telecom regulator ANCOM has issued its draft 2022 action plan for public debate, which schedules the tender for the frequency spectrum dedicated to the implementation of 5G services for the third quarter of 2022 in an auction that authorities say could bring as much as EUR 600 million into Romania's state budget. Originally planned for 2021, the launch of the 5G tender for frequencies in the spectrum of 700 MHz, 1500 MHz and 3,400-to-3,800 MHz has been repeatedly delayed (see our Law-Now articles for December 2020 (Romania to launch 5G auction in Q2 of 2021 (cms-lawnow.com) and February 2021 (Romania postpones 5G auction for Q3 of 2021 (cms-lawnow.com)). One obstacle to the tender was the need for adoption of the '5G law' implementing in Romania the 5G Memorandum with the US. On 7 June 2021, Romania's parliament adopted Law 163/2021 on the conditions for the deployment of 5G networks (see the June 2021 Law-Now article (Romania adopts 5G Law amid public discussions on postponement of auctions (cms-lawnow.com)). The other significant obstacle has been the need to implement the European Electronic Communications Code in order to conduct 5G auction proceedings. This code has yet to be implemented in Romania. In response, in September 2021, the Commission took legal action against Romania and 18 other member States for failing to deliver the benefits of EU digital legislation in the area of telecommunications, which requires that member states transpose these rules into national law without delay. To comply, on 7 December 2021, Romania released a draft law transposing the European Electronic Communications Code, which was adopted by the Chamber of Deputies and is now awaiting review and approval by the Romanian Senate. In addition, ANCOM's 2022 draft action plan also includes a revision of the Decision of the President of ANCOM no. 551/2012 on the establishment of the tariff for the use of the spectrum, scheduled for the second quarter of 2022. According to ANCOM, this decision, along with others in the field of radio spectrum management planned for 2022, will allow the actual selection procedure for the granting of rights to use 5G frequencies in the spectrum of 700 MHz, 1500 MHz and 3,400-to-3,800 MHz to take place in the third quarter of 2022. (December 29, 2021) cms-lawnow.com

The National Authority for Management and Regulation in Communications (ANCOM) has announced it received only two qualifying applications within the competitive selection procedure organized for the auction of short-term user rights for spectrum in the 800MHz, 2600MHz and 3.5GHz bands. Following examination, RCS&RDS (DIGI) and Invite Systems were declared to have submitted qualified and winning offers and will proceed to the next stage. The final results of the auction, which is expected to raise at least EUR72.5 million (USD82.2 million), are expected to be announced in December and permits granted by the end of the year. Under the tendering procedure, applicants were able to purchase 195MHz of frequencies, with user rights valid from 1 January 2022 and expiry aligned with existing permits in the bands, comprising:

- one block of 2×5MHz in the 800MHz band (791MHz-796MHz/832MHz-837MHz), valid between 1 January 2022 and 5 April 2029 and with a starting price of EUR22 million
- eight lots of 2×5MHz in the 2600MHz band (2530MHz-2570MHz/2650MHz-2690MHz), valid until 5 April 2029, EUR4.3 million per paired block
- one block of 15MHz TDD in the 2600MHz band (2600MHz-2615MHz), expiry 5 April 2029, EUR3.5 million per block
- 18 lots of 5MHz TDD blocks in the 3.5GHz (3400MHz-3490MHz) band, expiry 31 December 2025, EUR700,000 per block.

RCS&RDS, owned by Romania-based Digi Communications, is the country's fourth largest mobile network operator by subscriptions, whereas Invite Systems' website indicates the company owns and operates two Tier 3 data centers in Bucharest and Ploesti, and provides voice, VPN, VPBX, fibre-optic, wireless and LoRa WAN services.

(November 19, 2021) commsupdate.com

Russia

The State Commission for Radio Frequencies (SCRF) has decided to expand the range of frequencies earmarked for deployment of 5G networks in large cities, by allocating spectrum within the 4.4GHz-4.8GHz band for testing. The New Digital Solutions joint venture formed by MegaFon, Beeline and Rostelecom/Tele2 (and expected to include MTS) will conduct research in this range under two-year test spectrum allocations, with the first results of testing scheduled to be presented in 2022. Earlier, the SCRF allocated the 4.8GHz-4.99GHz and 24.25GHz-29.5GHz bands for 5G testing. (December 3, 2021) ComNews

Rwanda

The government has secured funding of USD100 million from the World Bank to improve access to broadband and digital services. A co-financing agreement has been set up by the World Bank's International Development Association (IDA) and the Asian Infrastructure Investment Bank (AIIB). The funds will be managed by the government-run Rwanda Digital Acceleration Project. Rolande Pryce, the World Bank's Country Director for Rwanda, said: 'Expanding digital access and adoption, improving digital public service delivery and promoting digital innovation are essential for Rwanda's digital transformation, which in turn can contribute to a strong post-COVID-19 recovery.'

(December 3, 2021) Ecofin

Singapore

Singtel and an M1-StarHub consortium boosted their 5G spectrum holdings in a 2.1GHz auction in which TPG Telecom won 10MHz, positioning it to start deploying a nationwide standalone (SA) network. TPG Telecom has two years to reach 50 per cent coverage with an SA 5G network and five years for nationwide. It holds spectrum in the 900MHz and 2.3GHz bands won as part of its market entry in 2016. Singtel and the M1-StarHub consortium were each allocated 25MHz in the 2.1GHz band, which they will use to increase coverage and capacity of their existing SA 5G networks deployed on 3.5GHz spectrum. Both are required to achieve 50 per cent coverage by end-2022 and fully by end-2025. The 2.1GHz spectrum will be allocated at the beginning of 2022. Singapore's Infocomm Media Authority stated the latest auction is a "milestone in Singapore's 5G journey to have a world-class, secure and resilient infrastructure". Anna Yip, Singtel Consumer CEO, cited benefits to the operator's ability to "support the nation's smart city ambitions" in a brief statement. StarHub-M1 paid SGD52.5 million ($38.3 million) to secure five 5MHZ lots. (November 29, 2021) mobileworldlive.com

South Africa

The Independent Communications Authority of South Africa (Icasa) has issued the final Invitation to Apply (ITA) for the licensing process for the International Mobile Telecommunications (IMT) spectrum. Interested stakeholders are required to submit their applications by January 31, 2022, with the announcements of qualifying bidders and start of the actual auction phase scheduled for February 21 and March 8 respectively. This followed a more than three-month consultation process and the publication of the first and second Information Memorandum (IM) on October 1 and November 15, respectively. Icasa has considered the issues raised by stakeholders in their challenge to the previous licensing processes, particularly the 2020 ITA, as well as the representations received to the first and second IMs. "The publication of the first and second IM was done to ensure that stakeholders can have a clearer preview of the intended licensing process and associated licensing conditions and be afforded the opportunity to make representations to the authority on what the final licensing process and conditions should entail. The authority is grateful for

the representations received and has fully considered those views in their entirety," said Icasa chairperson Dr Keabetswe Modimoeng. Icasa has provided for the auction design in the ITA to include spectrum floors and spectrum caps, the opt-in round and spectrum-sharing provisions, besides others, which are designed to facilitate the entry of new players into the market and to promote consumer welfare through access to high-quality communication services at affordable and competitive prices. "Taking into account the ongoing broadcasting digital migration process, the authority will make available the status of the coverage maps on the IMT 700 and IMT 800 spectrum bands in collaboration with the Department of Communications and Digital Technologies before the commencement of the auction," he explained. Should the digital migration process not be completed by the time the auction is concluded, Icasa will apply proportional payment formulae for IMT 700 and IMT 800 bands. "In licensing of high-demand spectrum through this ITA, the authority aims to ensure the realization of many of the key policy objectives originally identified in the South Africa Connect Broadband Policy, particularly as regards the provision of universal and affordable broadband services for all South Africans," Modimoeng continued. "We urge all industry stakeholders to embrace this licensing process and the auction, as this is the most open and transparent way in which spectrum will be permanently awarded. All the other provisional spectrum arrangements remain interim and will end at the stipulated and communicated dates," he concluded. The combined auction reserve prices will yield a minimum of R8-billion for the national fiscus, including enhanced obligations for the benefit of consumers and society-at-large.

(December 12, 2021) engineeringnews.co.za

The Independent Communications Authority of South Africa (ICASA) has published an updated Information Memorandum (IM) for the licensing of the International Mobile Telecommunications (IMT) spectrum for a second round of public consultation. Stakeholders have until 16h00 on November 30 to make their formal submissions to the authority, said ICASA chairperson Dr. Keabetswe Modimoeng. This followed the tabling of a new roadmap that set out ICASA's intention to publish an invitation to apply (ITA) for the IMT spectrum by December 10 and start the auction of the high demand spectrum from March 1, 2022. The updated timeline of the auction of the long-awaited spectrum follows the consent order granted by the North Gauteng High Court on September 15, which ended the litigation instituted against the authority by Telkom and e.tv, besides others. "This publication of the IM is another critical consultative process ICASA is undertaking in the continued implementation of the truncated timetable and roadmap issued by the authority on October 1 for the expedited licensing of the high-demand spectrum," he explained. "The issuance of the initial roadmap was followed by the successful hosting of the IM workshop on October 15 to clarify all matters and to receive stakeholder comments on the initial IM." By November 2, ICASA had received 10 written representations, including from Telkom; Vodacom; MTN; Rain; Community Investment Ventures Holdings; South African Communication Forum; South African Radio Astronomy Observatory; Paul Hjul; the Competition Commission South Africa; and the Association of Progressive Communications. "The consultative process in the form of publication of the second IM is aimed at ensuring transparency in the licensing process; and is in compliance with the requirements for procedural fairness and administrative justice," Modimoeng continued. "It is therefore important that all stakeholders participate fully in this process, which will culminate in the issuance of the invitation to apply for licensing of the high demand spectrum. We remain committed to license spectrum through an auction by March 2022."

(November 17, 2021) engineeringnews.co.za

South Korea

The Ministry of Science and ICT has agreed to open bidding for an additional 5G network spectrum following a request from LG U+. The Ministry of Science and ICT authorized the auction of the 3.4 to 3.42 gigahertz (GHz) 5G network spectrum on Friday following a July 8 request from the carrier. The details of the auction, such as the date or participants, have not been set yet. Local reports say that since the auction is open to all network servicers in Korea, SK Telecom and KT are also likely to participate. Since July, SK Telecom and KT have been complaining that requesting an additional spectrum after the initial auction is unfair. "SK Telecom and KT don't really need the spectrum range, but they could participate in the auction just to make it difficult for LG U+," said a telecom insider who wished to remain anonymous. "It's obvious that they're not happy about a lesser competitor becoming their equals." Spokespersons from both companies told the Korea JoongAng Daily that they have no specific plans, but are "looking into the matter from all angles." In a government spectrum auction in June 2018, SK Telecom and KT each bought 100 MHz spectrum bands, while LG U+ only bought 80 MHz. SKT bought the 3.6 to 3.7 GHz band for 1.2 trillion won ($1 billion), KT bought the 3.5 to 3.6 GHz band for 968 billion won and LG U+ bought the 3.42 to 3.5 GHz band for 809.5 billion won. The 20 MHz spectrum range band was not put up for sale at the time because the Science Ministry did not

deem it usable, citing interference with neighboring frequencies and a lack of necessary tools to remedy it. After technical improvements, however, the Science Ministry cleared the 3.4 to 3.42 GHz spectrum for use on Dec. 5, 2019. "We will decide on the details of allocating the spectrum band after a careful study of the variables," the science ministry said.

(December 7, 2021) koreajoongangdaily.joins.com

Sweden

Telecoms regulator, the Post and Telecom Agency (Post & Telestyrelsen, PTS), has completed its allocation of almost SEK1.6 billion (USD177 million) of funding earmarked to support rural broadband rollout projects in 2021. The funds are going towards 428 separate deployments across the country, covering some 67,000 premises. The watchdog said it received applications for projects worth around SEK7.5 billion and is encouraging those applicants who were unsuccessful to bid again next year. (December 7, 2021) commsupdate.com

The Swedish Post and Telecom Agency (Post & Telestyrelsen, PTS) has opened applications for local 5G licenses in parts of the 3.7GHz (3760MHz-3800MHz) and 26GHz (24.25GHz-25.1GHz) bands. The regulator says the permits will be suitable for use cases such as industry, mining, ports, warehouses and hospitals. Nationwide 5G permits in the 2.3GHz and 3.5GHz bands were auctioned in January 2021.

(November 23, 2021) commsupdate.com

Switzerland

The Federal Council has proposed increasing the minimum internet access speed that must be offered by the universal service provider to 80Mbps/8Mbps (downlink/uplink) from 2024 and has initiated a consultation process to consider the matter. State-owned full-service provider Swisscom is the current universal service provider, although the license is due to expire at the end of 2022. To ensure continuity of service until the new provisions come into force, the regulator will extend the concession until the end of 2023. The current data transfer requirement for universal service provision is 10Mbps/1Mbps and came into force on 1 January 2020, having previously been set at 3Mbps/300kbps (January 2018) and 2Mbps/200kbps before that. As noted by TeleGeography's GlobalComms Database, the universal service license is technology neutral, enabling Swisscom to utilize fixed and mobile solutions to satisfy the terms of the license. In a statement from the Federal Office of Communications (Ofcom, or Bundesamt fur Kommunikation, Bakom), the regulator noted that the proposed changes would require an amendment to the Federal Ordinance on Telecommunications Services (OST, or Verordnung uber Fernmeldedienste [FDV]), adding that the changes included an explicit provision for subsidiarity: if an alternative is already available on the market, no universal offer is required. The consultation, meanwhile, is due to until 25 March 2022.

(December 13, 2021) commsupdate.com

United Kingdom

Ofcom has published its latest Connected Nations report, which details the availability of broadband and mobile services across the UK, in which it claims that more than eight million homes now have access to a full fiber service. According to the regulator's data, 8.2 million British homes were within reach of full fiber broadband as of September 2021, a net increase of around three million premises since September 2020, boosting coverage from 18% to 28% over the same period. Meanwhile, gigabit-capable broadband was reported to be available to an even greater number of premises – 13.7 million (47% of homes) at September 2021, up from 7.9 million (27%) a year earlier. Strong growth was attributed in part to Virgin Media's rollout of DOCSIS 3.1 technology across its existing cable network; notably, Ofcom also said that, given that operator's announcement that this rollout had been completed in December 2021, it estimated gigabit speed broadband availability had increased to more than 60% of homes by that date. At the other end of the scale, Ofcom suggested that the broadband universal service obligation (USO) has continued to help people in areas where 'decent' broadband – defined as one capable of delivering download speeds of at least 10Mbps and upload of 1Mbps – is still not available. According to Ofcom's data, and factoring in coverage from both fixed and fixed wireless networks, the regulator said it estimated that just 123,000 homes and businesses (0.4% of the country total) were still without access to a decent broadband connection at 30 September 2021, down from 134,000 at May 2021 and 189,000 at end-2020. Away from fixed broadband services, Ofcom's Connected Nations report also offered up information regarding the UK's mobile sector. Most notably, Ofcom said that, with 5G rollouts by the country's cellcos having 'continued at pace', the number of base stations providing connectivity had more than doubled over the last year, to around 6,500 sites, the bulk of which (87%) were in England. As a result of these rollouts, Ofcom said it estimated that 5G was available from at least

one mobile network operator (MNO) 'outside 42%-57% of premises' at September 2021. Beyond that, Ofcom said that mobile coverage remained 'generally stable', with all four of the UK's MNOs – EE, O2 UK, Three UK and Vodafone UK – estimating they could provide 4G outdoor coverage to around 99% of premises. Networks' coverage of the UK landmass ranged from around 79% to around 86%, meanwhile.

(December 17, 2021) commsupdate.com

British telecoms regulator Ofcom has published the annual license fees (ALFs) for paired spectrum in the 2100MHz band. With frequencies in that band having originally been auctioned off in 2000 for a fixed period of 20 years, in 2011 the regulator varied the concessions to make them indefinite and included a new provision in the licenses requiring the payment of ALFs from 1 January 2022. Having published a consultation on its proposed fees in July 2021, Ofcom has now set out its decision on the level for the charges based on what it termed 'a conservative estimate of the market value having regard to UK mobile spectrum auctions' evidence alongside international evidence (where available)'. As per Ofcom's decision it has set an ALF of GBP561,000 (USD743,000) per MHz for paired 2100MHz spectrum, meaning that based on their current paired 2100MHz spectrum holdings (and based on April 2021 prices), the country's mobile network operators will be required to pay the following annual fees: EE, GBP22.44 million; O2, GBP11.22 million; Three UK, GBP16.55 million; and Vodafone UK, GBP16.61 million. Further, it was noted that these fees will increase by CPI each year. Meanwhile, having considered consultation responses Ofcom has said it plans consult further in the first half of 2022 on the future use of the unpaired 2100MHz spectrum band, including on a proposal to revoke unpaired spectrum licenses. As such, it said it was not setting a fee for unpaired 2100MHz frequencies it in its decision statement. (December 14, 2021) commsupdate.com

A number of the UK's fixed broadband infrastructure providers, including CityFibre and Gigaclear, are said to be planning to launch a legal challenge against Ofcom's recent decision on a new fiber-to-the-premises (FTTP) pricing offer from Openreach. As previously reported by CommsUpdate, in September 2021 Ofcom revealed it had decided not to take any action regarding Openreach's planned 'Equinox Offer' pricing plan, which introduced a notable reduction in the cost of its wholesale FTTP products. According to ISPreview, while ISPs reliant on Openreach's wholesale offerings were – unsurprisingly perhaps – generally supportive of the new pricing, it prompted far less favorable responses from rival infrastructure providers. A number of ISPs argue that Openreach's new discounts could ultimately result in a reduction of competitive fiber infrastructure investment, which in turn could lead to higher prices for consumers in the future. With a deadline to challenge Ofcom's decision through the Competition Appeals Tribunal expiring at the end of this month, the report suggests several altnets are planning to launch a legal challenge regarding the matter. Although not explicitly confirming such plans, CityFibre CEO Greg Mesch did say his company was 'considering appropriate next steps', while Gigaclear's chief executive Gareth Williams was cited as saying it intended to join proposed legal action launched by a rival provider. (November 22, 2021) commsupdate.com

United States

The US Federal Communications Commission (FCC) has announced that it is ready to authorize more than USD1 billion over ten years in its fifth round of funding for new broadband deployments through the 'Rural Digital Opportunity Fund'. In a press release regarding the matter, the FCC said that in what it claimed was 'the largest funding wave to date', a total of 69 broadband providers will bring high speed services to 518,088 locations in 32 states. Commenting, FCC Chairwoman Jessica Rosenworcel said: 'This latest round of funding will open up even more opportunities to connect hundreds of thousands of Americans to high-speed, reliable broadband service … Today's actions reflect the hard work we've put in over the past year to ensure that applicants meet their obligations and follow our rules. With thoughtful oversight, this program can direct funding to areas that need broadband and to providers who are qualified to do the job.'

(December 20, 2021) commsupdate.com

US Senators confirmed Jessica Rosenworcel as permanent Chair of the Federal Communications Commission (FCC) by a majority vote, leaving the regulator with two Democrat and two Republican members. Rosenworcel took on the role of Acting Chair following the departure of predecessor Ajit Pai in January and is the first woman to lead the FCC. In a tweet, she described the post as "the honor of my lifetime" and noted there is "work to do to make sure modern communications reach everyone, everywhere". During her nine years as an FCC commissioner, Rosenworcel emerged as a strong advocate for government subsidies for access to broadband, including mobile broadband. Democratic Senator Edward Markey, who sits on a committee exploring broadband and communications, released a statement praising Rosenworcel's stance on net neutrality. While President Joe Biden issued an order urging the FCC to reinstate net neutrality, the regulator is unlikely to

tackle the subject until a fifth member is appointed. The president nominated attorney Gigi Sohn to the seat, though there are reports of dissent among politicians regarding her appointment. (December 8, 2021) mobileworldlive.com

Acting Federal Communications Commission (FCC) chair Jessica Rosenworcel (pictured) told politicians the regulator was seeking the publics' help to update broadband coverage maps, continuing a strategy employed in overhauling mobile coverage data. Rosenworcel told US Senators the FCC is working to update a speed test app to enable consumers to measure performance from their mobile phone, while noting there is a role to be played in the process by local government. "The best maps are not just going to be built by us in Washington, they're going to be built by all of us", Rosenworcel said. "We're coming up with a methodology so that states, municipalities and tribes can challenge any data that they see that carriers have filed with us". The US government aims to employ data on areas with inadequate broadband to steer allocation of funding for infrastructure including fixed wireless access networks. Rosenworcel was pressed on net neutrality during the meeting, asserting the FCC "inherently has authority" to act without Congress on the issue and reiterating her backing for open access. In July, US President Joe Biden called for a return to net neutrality, though some politicians have argued for a more measured approach. Rosenworcel is the president's pick to become permanent chair of the FCC: politicians are expected to vote on the matter on 1 December. (November 18, 2021) mobileworldlive.com

Uruguay

The Regulatory Unit of Communications Services (URSEC) has announced that the country's mobile operators have signed contracts with the recently-selected mobile number portability (MNP) database administrator. According to the regulator, the move will facilitate the planned launch of MNP by the end of this year. Back in August, the Number Portability Committee chose the Cleartech – Cietel consortium as its first choice for the role of database administrator for the period 2021-2026. The consortium will be responsible for the implementation, development and management of MNP for the first five years. According to TeleGeography's GlobalComms Database, Law 19,889/2020, which was approved in July 2020, declares that number portability is a right of users of mobile telephony services, and two months later a committee comprising representatives from industry regulators and mobile operators was established to prepare for the introduction of MNP. Following on from this, the government approved the regulatory conditions, general rules and timetable for the long-delayed introduction of MNP in January, under which tests of the system were expected to begin in July ahead of a commercial launch of MNP on 1 October 2021. However, the timetable was subsequently delayed in May in order to ensure the security and transparency of the process. Mobile operators will bear the cost of the number transfer process, which should take no more than three days to complete.

(November 29, 2021) commsupdate.com

Zambia

Beeline Telecom, which was awarded Zambia's fourth mobile license in February this year, will launch a commercial service by 30 June 2022, it has been revealed. An unnamed spokesperson from the Zambia Information and Communications Technology Authority (ZICTA) told that the start-up has struggled with 'the procurement of equipment and installations', which has delayed its launch plans. At the time of the license award, ZICTA warned the newcomer that it was obliged to launch within six months of receiving its license (i.e. by August 2021), or risk forfeiting the concession. However, it now appears that the watchdog is prepared to take a more lenient stance towards Beeline's rollout schedule. (November 12, 2021) The Zambia Daily Mail

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