Volume 10, April, 2019

A SAMENA Telecommunications Council Publication

www.samenacouncil.org

SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Featured

Eng. Salman Bin Abdulaziz Al Badran
Chief Executive Officer
Mobily

THIS MONTH

5G ROLL-OUTS: WHAT SERVICES TO EXPECT

VOLUME 10, APRIL, 2019

SAMENA
TRENDS

Editor-in-Chief
Bocar A. BA

Contributing Editors
Izhar Ahmad
Javaid Akhtar Malik

Knowledge Contributions
Alfa
Huawei
Tech Mahindra
Syniverse

Publisher
SAMENA Telecommunications Council

Subscriptions
subscriptions@samenacouncil.org

Advertising
ads@samenacouncil.org

SAMENA TRENDS
trends@samenacouncil.org
Tel: +971.4.364.2700

CONTENTS

CONTENTS

Mobily
Business

Data Centers experts

TIER IV
OPERATIONS
Etihad Etisalat – Mobily
Melgha 2 Data Center, KSA
Expires 23 March 2020
UPTIME INSTITUTE CERTIFIED
GOLD

Benefit from the latest advanced Data Center solutions

Through hosting at the best data centers in MENA, for the lowest costs and highest security levels.

For more information, kindly visit:
mobily.com.sa/Business or contact: 0560100901

5G Roll-outs: What Services to Expect

As Industry, we fully support 5G and advocate that it has the potential to exponentially transform our digital economies and unlock a myriad of opportunities across all economic sectors and industries, including Healthcare, Transportation, Agriculture, Food & Safety, Banking, Livestock, among others. Essentially, we can expect a revolution in the way we do things, and this is fundamentally how the impact of 5G would actually be determined and measured.

The discussion on the 5G use-cases is central to how speedily 5G could be made available, and to what scale. However, from the insights and views exchanged as well as demonstrations made (congratulations to Etisalat for showcasing 4G vs 5G speeds!) during SAMENA Council's recently held Leader' Summit 2019 in Dubai, we can be certain that 5G is upon us. Several of SAMENA Council's Operator members are already geared up for adopting the fifth-generation of cellular technologies.

As was discussed during the Leaders' Summit 2019, early 5G commercial offerings will focus on Fixed Wireless Access and enhanced mobile broadband (eMBB), taking advantage of existing LTE infrastructure. eMBB will facilitate many new digital experiences, including AR and VR, and make access to the Internet and digital communication services seamless and faster. Ultra Reliable Low Latency Communications, especially for autonomous cars and robotic surgery, and Massive Machine Type Communications (mMTC), which will support the IoT network of "things", are some of the ways we can visualize the start of 5G momentum. These three use-cases will thus be the most likely approaches for initially deploying and using 5G, until advanced 5G Core features are developed to support other new use-cases.

It has to be recognized that 5G can't be used to its fullest potential without wide deployment of 5G hardware and related equipment. This requires an unprecedented scale of collaboration and understanding among local and national regulators and private-sector stakeholders, and there is also a need to become ambitious enough to implement multi-stakeholder engagement models. In this regard, it is crucial that 5G devices, supporting spectrum bands specified for Operators' use, make their entry into the market soon. Based on the spectrum that is already allocated to 5G in MENA, a list of priority band combinations (5G and LTE) has emerged. These priority bands combinations apply to markets, including Bahrain, Kuwait, Saudi Arabia, and the UAE. SAMENA Council's Technology Provider members, as well as other telecoms technology players, are encouraged to make upcoming devices compatible with the regional Operators' priority band combinations. Technology and device manufacturers will greatly benefit by having access to markets that are primed for 5G adoption.

Ultimately, usability of 5G starts with the availability of relevant devices, and thus any delay in device availability in the market may compromise the 5G contribution to the digital economy.

It is time for smarter working; building better services, providing enhanced experiences, increasing productivity, and adding to quality of life. 5G will spur new use cases across sectors and industries, and while 5G will offer a spectrum of new possibilities to the telecom Industry, to adjacent sectors, to end-users, and to both governments and the private-sector, and thus has the potential to transform industries within both the public and private sector, it is important also that, as we plan ahead for 5G deployment this year, the security aspects are kept at the forefront at every stage of the 5G deployment process. Doing so will add value to the use-cases and in building trust in the new technologies.

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

Eng. Salman Bin Abdulaziz Al Badran
Chief Executive Officer
Mobily

Q. How does Mobily view Saudi Arabia's readiness for and progress toward embracing 5G?

A. A range of factors can impact 5G readiness. These include operational, social, and economic considerations, all of which need to be taken into consideration from an infrastructure perspective. For example, providers should deliberate the way in which the existing mobile and fixed-line infrastructure will be employed in 5G networks and the preparatory steps required to install and use the new technology; for example, 5G trials and spectrum auctions. For many years, the Saudi Arabian government has acknowledged the important role that broadband services play, and has sought to exploit the potential benefits of 5G technologies within Vision 2030. Saudi Arabia's plans to evolve into a leading economic player on the world stage. For instance, over the past two years Mobily was awarded 240 MHz of additional international mobile telecommunications (IMT) spectrum on the 800 MHz, 1800 MHz, 2600 MHz, and 3500 MHz bands. This has allowed Saudi Arabia to become a leading player with regards to the amount of IMT spectrum in sub-GHz IMT bands that has been allocated. Furthermore, this allocation will help to facilitate the natural evolution of domestic mobile network capacities from 3G and 4G networks to 5G systems.

For many years, the Saudi Arabian government has acknowledged the important role that broadband services play, and has sought to exploit the potential benefits of 5G technologies within Vision 2030. Saudi Arabia's plans to evolve into a leading economic player on the world stage.

Policy and regulatory frameworks will play a fundamental role in expediting the smooth and efficient deployment of 5G networks. At the start of 2019, all the required national 5G policies and the supporting administrative arrangements had been finalized. In addition, initial batches of spectrum had been awarded to support the full commercial distribution of 5G technologies. Some of the measures that were put in place included clearer regulatory provisions related to operators' technological and commercial flexibility requirements under the terms of a unified license, a scheme that has been in place in Saudi Arabia (KSA) since 2017.

The Communications and Information Technology Commission (CITC) awarded temporary licenses for the 3.6-3.8 GHz band to telecom operators in May 2018. These operators are now authorized to perform 5G mobile trials. Since then, hundreds of 5G tests have been performed in Saudi Arabia to boost maturity across the various domains of interest. All major operators have subsequently started to implement 5G systems in commercial sites, and in the region of 1,000 5G sites have been set up so far. This figure is expected to triple in the next year. This roll-out has only been possible through the implementation of 30 structural reforms within the Telco sector, which were put in place by the Ministry of Communications and Information Technology (MCIT), in partnership with the CITC, over the past year and a half. According to independent figures, these reforms have also resulted in a market capitalization growth in excess of US$18 billion over the past 13 months (up to January 2019). In addition, a significant number of high-end devices are in use in the Saudi market and investment in the latest technologies is relatively high in comparison to that elsewhere in the world. It is anticipated that 5G devices will be available at the outset of Q3 2019.

At Mobily, we believe that 5G is all about innovation, be it in terms of the business models or services on offer or the way the network is created to offer faultless connectivity to a vast number of devices. The introduction of 5G technology will facilitate the delivery of much more complex use cases including industrial automation, the Internet-of-Things (IoT), augmented reality (AR) etc. The presence of all prominent global players stands as a testament to KSA's commitment and enthusiasm to set itself apart as an early adopter of 5G.

Furthermore, 5G will facilitate the development and implementation of many more innovative ideas. Ensuring adequate training initiatives are in place will help to stimulate the adoption of new technologies. To this end, government, academic, and commercial representatives have engaged in various initiatives that aim to develop stakeholder capability and, through doing so, optimize the potential of 5G. According to the MCIT, the delivery of the existing plans will contribute in excess of US$19 billion to Saudi Arabia's GDP and lead to the creation of in the region of 20,000 new jobs in information and communications technology by 2030.

The deployment of 5G represents a very expensive undertaking. It is hoped that some of the cost involved can be counterbalanced through regulatory, financial, procedural, or legislative government support. Saudi Arabia currently benefits from a relatively high GDP per capita. This means that it is ideally placed to deploy 5G, which is somewhat motivated by the higher purchasing power of its residents. In light of this, Saudi Arabia has a significant potential to acquire a position on the global 5G map, as reflected in the KSA leadership's vision and capably supported by MCIT under the direction of CITC.

Q. What major milestones has Mobily achieved over the last year?

A. Over the last year, the RISE strategy has generated robust and consistent results, helping to ensure that Mobily remains on the correct trajectory. Some of the achievements that Mobily made in 2018 are as follows:

- A positive net profit for the first time since Q2 2016 (Q4 2018 Net Profit = SAR 80 MN) as achieved by an 82% reduction in net losses.
- First year of growth in annual revenues (4.5%) since 2015.
- Highest yearly EBITDA since 2013 (EBITDA margin 38%).
- Highest cash flow since 2011 (SAR 2.1 BN).
- Lowest net debt since 2012 (reduction by SAR 1.4 BN in 2018).
- A net debt/EBITDA ratio below 2.5, representing the lowest level since 2016.
- Robust performance in the areas of data, FTTH, and business segment (especially in the government sector).
- Major progression of the network modernization program to manage data traffic growth and enhance customer experience.
- Spectrum acquisition of 240 MHz in the 800 MHz, 1800 MHz, 2600 MHz, and 3500 MHz bands.
- An ongoing commitment to quality of services and customers as reflected through the achievement of a CAPEX intensity (i.e., CAPEX to revenues) of 20%, excluding spectrum.
- Conducted the first 5G trial, thereby placing the Saudi market at the forefront of the global adaptation of 5G technologies in line with the objectives set out in Saudi Vision 2030.

According to the MCIT, the delivery of the existing plans will contribute in excess of US$19 billion to Saudi Arabia's GDP and lead to the creation of in the region of 20,000 new jobs in information and communications technology by 2030.

Q. How soon do you predict that major network operators will adopt 5G in the GCC region, and which services will primarily be offered first?

A. It is very likely that GCC will be at the forefront of the global adoption of 5G. To date, the leading providers in the GCC region have already instigated their 5G implementation and testing and have set out a clear plan for the ultimate launch of 5G services. It is expected that the services that will be offered will vary from region to region due to a variety of technological, social, and economic influences and that the coverage size will differ from one operator to another.

At present, the ecosystem is mature enough to support eMBB services. In fact, a range of smartphone producers have already broadcasted that 5G smartphones will be ready in Q2 2019; for example, Oppo, Huawei, and Samsung. As such, it will be in this region that ultra-high data speed for smartphones is first launched. Furthermore, HBB (or FWA) represents a potential early market for 5G, especially in the vicinities that do not benefit from FTTH connectivity.

A fundamental benefit of 5G is that it will facilitate streaming that is of a higher

quality and make it possible to livestream to larger audiences, thereby enhancing the experiences of cloud gamers and those who like to watch live sports events. In the future, 5G will progress to deliver further AR capabilities, such as more effective mapping apps and online retail experiences. Although we have yet to identify the killer use case will be, there can be no doubt that all IoT applications will be enriched and augmented following the adoption of 5G.

Q. How are your unique cloud service offerings contributing to your revenue profile and efficiency?

A. Mobily is widely regarded among the first operators to invest in data centers in Saudi Arabia. It has focused on the development of high-quality services that employ the latest technologies and systems that are fully secure. Cloud computing is among the pioneering services that are provided by Mobily Business. This area of its business model is currently generating double-digit growth YoY and has played a fundamental role in helping organizations in KSA to refine their core business and take new products live without concerns over the need to continually update and maintain IT technologies. Cloud computing initiatives are having a significant positive financial influence on Mobily's customers' budgets since they remove the need for the businesses to invest in CAPEX prior to launching products and serving the customer base.

Q. How is Mobily adopting IoT and what business growth do you foresee in this segment?

A. Mobily has set its sights on leading IoT developments and continuing to deliver innovative services and offerings. The IoT holds significant promise and represents a key area in which innovation can pave the way to the development of new services that are aligned with customer needs. B2B growth, in particular, will be directly driven by the implementation of new technologies that are based on the IoT. Mobily has invested heavily in this domain and is augmenting its internal competencies while also entering into meaningful partnerships with external parties through which it is possible to rise to the needs of different sectors including transportation, health, education, and agriculture.

Q. What are Mobily's future leadership goals in the market, including those relating to digital services?

A. One of Mobily's future leadership goals is to be considered an industry leader from the perspective of both efficiency and innovation. In terms of digital service provisions, Mobily is spearheading a digital transformation in the GCC through a number of services that impact the daily lives of consumers; for example, e-commerce, AI, the IoT, OTT and within stores.

Mobily is widely regarded among the first operators to invest in data centers in Saudi Arabia. It has focused on the development of high-quality services that employ the latest technologies and systems that are fully secure. Cloud computing is among the pioneering services that are provided by Mobily Business.

A further strategic leadership focus has been placed on the customer experience, and digitalization has been acknowledged as representing one of the key priorities within our business plans. We fully acknowledge that we have a major role to play in the future development of Saudi community. Digitalization will play a major role in this process by enhancing customer experiences, facilitating world-class digital services, and making people's lives easier. Mobily has developed a full priority roadmap of initiatives and deliverables than span the full lifespan, from a digital channel revamp, including omni-channel management, through to market space piece modularization, and beyond. Mobily's heavy focus on digitization has enabled us to progress to become one of the few MENA companies to have accomplished our existing levels.

Q. As the new CEO, how do you view the new opportunities and challenges for operators, and how prepared is Mobily in this regard?

A. In the future, the conventional operating models and methods of doing things will not be sophisticated enough to enable operators to fully embrace the opportunities that are available. The Saudi market represents one of the strongest markets in the region, and it is replete with both opportunities and challenges. For example:

- There will be a general advancement from communication to digital service providers as a result of digital transformation.
- Businesses will start to differentiate themselves more extensively according to customer experience.
- There will be a broad shift toward the adoption of a platform-play (software-based digital environments that operate according to open infrastructures) and linked ecosystems (e.g., Uber, Airbnb models).
- Major players will enter into partnerships to allow the operator ecosystem to access and serve an extensive array of verticals.
- The core business will grow and develop as a result of the emergence of innovative offerings that are brought to market through fruitful partnerships with strategic cohorts.

New business areas will emerge in the areas of gaming, content, fintech, and media. These will enable business models to remain relevant in the future. Mobily is also collaborating with a variety of government representatives, including CITC, MOMRA, MoF, and MCIT to rise to certain challenges. They will continue to seek government subsidies, such as WBB (USF), an exemption from royalty fees that will facilitate 5G deployment, reduce the high costs associated with renting mobile sites and base stations, and encourage infrastructure-sharing models that serve to minimize CAPEX. These actions will enable current investments to be protected against the repercussions of unregulated services and monetization of the existing infrastructure, etc.

Mobily's focus on preparedness is best

embodied in its RISE strategy, a comprehensive, three-phase plan that outlines how it will return to a leadership position in the KSA ICT market. The first phase of this plan, which involved strengthening the groundwork and getting plans back on track, has already been successfully achieved. During 2019, by way of the RISE strategy, Mobily will continue to focus on becoming a reliable and thoughtful brand that promotes the best customer experience and transitions into a position as a market leader in digital customer interactions. In this regard, Mobily has set its strategic sights on becoming a "digital first" business, both externally and internally. This goal is wholly aligned with KSA's transformation agenda (Vision 2030). The efforts that are being invested in this direction are continuing in a bid to ensure Mobily maintains market relevance in the digital era. In the future, there will be a requirement for Mobily to refresh its strategy and progress from "going digital" to "being digital." In addition to achieving growth in its core business, Mobily needs to collaborate with strategic partners on a continuing basis to evaluate opportunities to access new business areas. Developing the capabilities and leadership skills of Mobily employees will play a fundamental role in ensuring its workforce can rise to the business challenges. Customer interactions will increasingly take place via digital channels, and this will help to maintain a more responsive customers experience that is aligned with consumers' needs. Finally, Mobily will continue to collaborate with CITC and MCIT to extend the contribution that the ICT sector makes to GDP.

Q. What is your message to the private sector leaders in the Kingdom?

A. As a means of diversifying its economy, the Saudi Arabian government is investing heavily in initiatives to develop the private sector. The economic agenda that underpins Saudi Vision 2030 is focused on fostering promising sectors that act independently of government investment. A fundamental pillar of the vision centers around enhancing private sector participation, both internationally and locally. As a result of technology advancements, our lives have fundamentally evolved over the past few decades, and the launch of 5G is set to continue this trend. It is widely acknowledged that 5G will generate a wealth of opportunities for innovation within the private sector. As such, 5G will be a source of major economic prospects and will serve to enhance a wealth of social services including transportation, healthcare, energy, and public safety. There is an inherent need for private sector participants to exploit these economic opportunities by investing in partnerships between private and public representatives across a variety of sectors including transportation, energy, healthcare, transportation, and education. While the majority of the opportunities that lay out there can be feasibly achieved via 4G LTE networks, it is anticipated that the scalability, affordability, and accessibility of 5G will make the existing applications and tools more efficient and defined.

Vision 2030 represents KSA's focus on encouraging collaboration between public and private sector participants. 5G is set to make this collaboration a resounding success. Mobily is looking forward to cooperating with both international and local private sector players to harness the potential of 5G to accelerate KSA's transition towards diversification. In the words of His Royal Highness Crown Prince Mohammed bin Salman Al Saud, "the sky is the limit."

SAMENA COUNCIL ACTIVITY

On the Way to Becoming First in 5G Proliferation Worldwide and Building an Inclusive Regional Digital Economy

SAMENA Council's Leaders' Summit 2019 Showcases Regional 5G Readiness

SAMENA Telecommunications Council's annual Leaders' Summit was successfully held at Atlantis, The Palm, with patronage of the Telecom Regulatory Authority (TRA) of the United Arab Emirates, provided under the leadership of Director General H.E. Mr. Hamad Obaid Al Mansoori; with special guest-of-honor address by UAE Cabinet Minister & Minister of Tolerance H.H. Sheikh Nahyan bin Mubarak al Nahyan; and a leadership message by International Telecom Union (ITU) Secretary-General H.E. Mr. Houlin Zhao, acknowledging telecom operators' challenges and the need to close digital divides.

Hosted for the sixth consecutive year by Huawei Technologies Middle East, co-sponsored by Sudatel Group and Ericsson Middle East, with Zain Group promoting the need for child protection online as an important imperative for the Industry, Etisalat showcasing its superior 5G readiness in the UAE, and with promotion of the upcoming WRC-19 by NTRA of Egypt, the one-day leaders-only congregation, the Leaders' Summit 2019, delved into discussions pertaining to the future of 5G and foreseeable impact that 5G will have on ICT business growth, and on the development of the digital ecosystem and innovation, as the region prepares for the digital revolution and anticipates fulfillment of national ICT visions.

The TRA-UAE's DG H.E. Hamad Al Mansoori reiterated to the leaders' congregation the UAE Government's resolve in ensuring that government-provided digital services must be at par with those provided by the private sector in terms of agility, quickness, interactivity and customer happiness. This added to SAMENA Council's expectations in working more closely with the TRA, especially with regard to so many questions that still require answers on digital transformation and 5G development. The UAE regulator also publicly acknowledged that SAMENA Council's Leaders' Summit is an important platform for demonstrating collaborative thought-leadership through identifying, discussing and showcasing strategies that can contribute to the achievement of our common digital agendas.

SAMENA Council's Chairman of the Board, Eng. Nasser Al Nasser, GCEO of Saudi Telecom, presented an objective viewpoint on the current state of network advancements and investments. The Chairman also emphasized that it is essential to understand how the new technologies, which will be truly enabled by 5G, will impact and change our societies and how they can be meaningfully and constructively introduced to benefit all stakeholders in an inclusive manner.

The GSMA's DG Mr. Mats Granryd provided his expert insights into the imminent onslaught of "intelligent connectivity", and the need for fostering it through the creation of an enabling environment and regulatory frameworks.

The United Arab Emirates' Minister of Tolerance, Sheikh Nahyan bin Mubarak al Nahyan, as Guest-of-Honor, provided his unique observations on the Industry's progress and how the Industry's future-building endeavors now require, more than ever before, active collaboration. The Guest-of-Honor publicly acknowledged that SAMENA Council's Leaders' Summit is not just about technology but about leadership; leadership which can help assure that, wisdom, efficacy, and humane utilization of technology an digital applications prevail throughout our technological progress. Only sound leadership, supported by collaboration, can assure the fulfillment of this objective. The Leaders' Summit indeed exists to celebrate regional and international dialog and co-operation to promote growth and create a better future for our regional economies, and to better understand the interdependence of economies on one another.

Representation of the region's largest economy, the Kingdom of Saudi Arabia, and its readiness for 5G deployment was made possible during the Leaders' Summit 2019 by CITC Governor H.E. Dr. Abdul Aziz Al-Ruwais.

Among the Leaders' Summit's highlights, leaders from across the private and public sectors took part in Huawei's "5G is ON" forum, discussing plans for 5G readiness in the region, while examining best practices ahead of large-scale 5G network deployments in the Middle East and internationally. Huawei provided insights on how 5G can benefit the acceleration of digital transformation; and help achieve the targets of the national visions and agendas, in addition to creating new revenue streams for telecom operators in line with the development of different industries and sectors in the region. Driven by the goal of creating an intelligent 5G ecosystem, Huawei, as host sponsor of the Leaders' Summit 2019, assured the industry leaders that it has invested considerable resources into 5G development, deployment, and infrastructure, and has been a partner of choice for global operators to deploy next-generation networks.

"Today the era of 5G is upon us, with new networks across the region either rolling out or on the verge of being launched," said Charles Yang, President of Huawei Middle East. "As evident in our 5G is ON forum during SAMENA Council's Leaders' Summit 2019, the entire ICT ecosystem is now coming together faster than expected to ensure this great opportunity will be an enabler for realizing national development on a regional and even global scale. 5G large scale rollout in the Middle East has started since 2018, GCC countries are in the first wave of 5G rollout globally. Huawei is well prepared to provide organizations across the Middle East with the best possible solutions to take full advantage of this next generation of communications. Huawei has the great willingness, capability and confidence of building the most secure 5G networks."

SAMENA Council's 4th SALT Meeting (SAMENA Leaders' Roundtable) among operators, technology providers, and regulators was also held. A by-invitation-only closed-door meeting, following the Chatham House rules of communication, the SALT Meeting was organized to discuss critical issues, including those relating to 5G spectrum availability in the region, preparations for the global WRC-19 conference later this year, cross-border spectrum interference, and digital services matters, with special mention of the need to protect children online.

The SALT meeting discussion brought into focus WRC-23 (four years after the upcoming WRC-19) where some prevalent spectrum issues may meet effective rectification. Operators' general perspective was that prevailing spectrum issues, including spectrum harmonization and cross-border interference, will not be a show-stopper for 5G investment, even though hindrance may actually come from regulation or from not being well-prepared ahead of time. Discussion of the SALT meeting was held with an underlying perspective that the future path of 5G development, in some significant ways, would be determined by WRC-19, and thus SAMENA Council feels due collaborative efforts should be exerted toward preparing for WRC-19, while defining more precise advocacy strategies and Operators' goals for WRC-23.

During the SALT Meeting, SAMENA Council emphasized that Operators are key to the success of a healthy digital services ecosystem – not just as infrastructure

providers, but also as key service providers operating individually as well as collaborators with governments. To this effect, SAMENA Council's Working Group on Digital Services is in the process of finalizing a high-level policy, legal and regulatory (PLR) reference framework, which may provide high-level guidance to governments and regulatory authorities across the SAMENA region (and beyond) in creating a thriving and supportive digital services ecosystem.

Key insights from the Leaders' Summit's discussions and leaders' viewpoints included as follows:

- As much as 5G is expected to unleash tremendous digital potential and opportunities, it poses uncertainty and risks of paving roads in the new frontier. While the private sector will end up leading the innovation that makes 5G's potential into a reality, governments will have to play a crucial role in lessening the uncertainty for markets and market participants. Governments should therefore take a proactive approach to maximize the potential of 5G, from mitigating risks of investing in 5G infrastructure to helping to explore new business models through the public private partnership.
- The regulators need to start to offer the 5G spectrum as the main building block for kicking off the 5G deployment. It is important to provide the spectrum that satisfies the need to deliver whatever expected from 5G from the operators or other key verticals such as transport and health. For example, mobile operators will require around 100 MHz of contiguous spectrum each from the C-band, to deliver 5G Connectivity, Services and Data Speeds better than current 4G networks.
- Governments can help in giving more spectrum at reasonable prices, by taking into account the 5G deployment costs and by realizing that the society will benefit more from the 5G digital services offered at low tariffs. Regulators may also support exempted service trials for a mutually defined period of time.
- The design of 5G networks requires hundreds of telecom towers and using the infrastructure of lighting poles, advertisement boards and any suitable existing and future structures to provide full coverage and high capacities to connect various devices, services and applications with the main telecommunications networks. So it is very important to allow the use of the available infrastructure owned by the government entities.
- As 5G network requires thousands of base stations, the Industry needs to send a re-assurance message to the public regarding human health and environment by carrying out studies and researches.
- Fixed-Wireless is one option for 5G to make money, but only where there is no fiber in place or other fixed infrastructure.
- The potential of 5G can only be realized with investments in the agile network architecture. There will be challenges in this journey, but the possibilities are endless. All this

will boil down to one question: Can we deliver delight to the customers without them asking for it? And that will add truly to the profitability and growth in revenue.

- As the industry transforms, so will the ways in which we view content. How can the industry effectively combat piracy while also satisfying the consumers' growing appetite for content?
- It is up to the Industry (and SAMENA Council can play its role) to harmonize spectrum requirements, enhance spectrum sharing to reduce coverage costs, develop innovative products customized for smart city, utilities, municipalities, e-Government services, and automation and so on. Have more channels to understand needs, offer platforms for co-development, enhance product offerings as one stop shop for all customer needs, and use data analytics to predict consumer needs and happiness.
- Even in the 5G context, satellite remains the only viable technology to bridge the digital divide. It complements terrestrial networks to ensure seamless deployment of digital connectivity.

Leading regional regulatory authorities, global and regional telecom technology providers and operators, as well as global bodies and institutions contributed to the discussions during Leaders' Summit 2019, including among others CITC - Saudi Arabia, TRC - Jordan, TRA - Bahrain, TRAI - India, Saudi Telecom Company, Batelco Group, Etisalat International, du, Omantel, Orange MEA, Sudatel Group, Zain Group, Eutelsat, AT&T, BT Global Services, Huawei Technologies, Ericsson MEA, TechMahindra, Ankabut, GSMA, the World Economic Forum, and the World Bank Group.

"I am very pleased to have witnessed a prolific presence of leaders from all across the Industry, who took an active part in SAMENA Council's Leaders' Summit 2019. It was an honor to welcome each one of them. We have always had a highly distinguished congregation in the Summit, but this year's congregation of leaders was both globally and regionally most relevant, as the region is about to adopt 5G, and the exchange of insights and perspectives would assist in 5G technology deployment planning as well as revamping ICT policies and action plans. We, as Industry, have made tremendous progress, and this is especially seen in the UAE. I wish to immensely thank the UAE Government, SAMENA Council's leadership, the SAMENA Council membership, Leaders' Summit sponsors, speakers and moderators, and our team, for making Leaders' Summit a much-anticipated and a bespoke industry event", stated Bocar BA, CEO and Board Member of SAMENA Council.

The SAMENA Council's Leaders' Summit is an annual leadership event, encompassing private and government sector leaders' gathering, bi-lateral stakeholder meetings, and panel discussions, held among stakeholders in a world-class setting. Leaders' Summit 2019 has built on past discussions, centered around enabling a true digital economy, which can only materialize itself via the timely availability of 5G; thus requiring prompt attention to address the region's spectrum needs, making 5G devices available, and attending to cross-border spectrum interference as well as cybersecurity challenges.

Based on the observations and notes of Mr. Izhar Ahmad, Ms. Imme Philbeck, and Mr. Roberto Ercole.

SAMENA Council Emphasizes on the Importance of Private Sector Engagement in the Work of ITU-D During ITU-D's Telecommunication Development Advisory Group (TDAG) Meeting 2019 in Geneva, Switzerland

SAMENA Telecommunications Council, represented by Bocar A. BA, emphasized on the importance of private sector engagement in the work of ITU-D during ITU-D's Telecommunication Development Advisory Group. TDAG reviews priorities, strategies, operations and financial matters of the ITU and advises the Director of the Telecommunication Development Bureau (BDT) on the implementation of the WTDC Action Plan, including issues relating to the budget and the operational plan of the Sector. In his statement, Bocar BA in the capacity of Chair of the Private Sector Chief Regulatory Officers' ("CRO") meeting highlighted, that while we have passed the 50/50 moment in bringing people online, we now have to take more focused efforts to bring the remaining 49% online, that are mainly rural, poor, with low levels of education, female and elderly. Mr. BA stressed that this requires different, bolder approaches that are based on intensified collaboration between the private and the public sectors to create the right support ecosystem for technology deployment but also for the creation and provision of affordable, relevant and locally meaningful services. Bocar BA highlighted that one key opportunity for private sector engagement is during the upcoming GSR 2019 in Vanuatu, where the CRO will convene for the 10th time. During the CRO, private sector has the opportunity to highlight key priorities and issues that pertain to regulation and wider industry issues that stand in the way of advancing connectivity and service delivery. Mr. BA outlined that this year, the CRO will discuss critical questions and propose ways forward from the industry's perspective, on the main business challenges in creating connectivity partnerships and new investment- and business models to drive meaningful and inclusive connectivity to 100%, also in the context of ubiquitous coverage solutions for remote areas and emergency relief. The CRO will also examine the key types of commercial and regulatory enablers needed to achieve this goal of 100% connectivity together, in particular with a view to spectrum in the context of the upcoming WRC 19, which has a dedicated session at GSR. Given this very important and relevant agenda, Bocar BA encouraged attendance and active participation by the private sector in GSR 2019, so that progress could be achieved with regards to establishing the right enabling environment for connectivity and services provision and to move forward together and contribute to ITU-D's mandate toward achieving the UN's Sustainable Development Goals (SDGs).

SAMENA Council Highlights Key Policy, Legal and Regulatory Enablers for Digital Services

SAMENA Telecommunications Council, represented by Chief Economist and Director of Sector Development, Ms. Imme Philbeck, was invited to speak at the UN Broadband Commission's Thematic Workshop on "Trusted universal connectivity and innovative partnerships to drive inclusive digital transformation" during UNCTAD eCommerce Week, which was held on 2 April 2019 in Geneva, Switzerland. The thematic workshop discussed the theme of Trusted Universal Connectivity and innovative partnership to drive inclusive digital transformation with experts representing some of the Broadband Commissioners' organizations: Mr. Lars Erik Forsberg DG CONNECT, European Commission, Mr. James Howe, International Trade Centre, Mr. Ashley Lumsden, Huawei Technologies UK & Ireland Office and Ms. Imme Philbeck, SAMENA Telecommunications Council with Ms. Nancy Sundberg and Ms. Anna M. Polomska from the ITU Broadband Commission Secretariat who moderated the discussion. The session opened with a presentation of the Broadband Commission partnership and some reflections on its Global Advocacy Targets 2025 and the post 50/50 moment: with more than 51% of the global population online, how can the remaining part of the population be connected in a meaningful and sustainable way; wow can people not only be brought online, but also ensure affordable access to all, meaningful internet use and relevant content in a safe and innovative environment. Since its inception in 2010, the Broadband Commission has been dedicated to putting broadband technologies at the service of sustainable development worldwide in partnership with international organizations, governments and the private sector. Ms. Philbeck, as SAMENA Council's representative, presented the importance of digital services to address demand-side barriers to the adoption of internet. She highlighted initiatives aiming at broadening consumers demand by ensuring relevant content for the remaining 49% who mostly come from rural and poor areas (e.g. e-government services). In the context of work that SAMENA Council's Working Group on Digital Services is currently undertaking, she further stressed the importance of the right policy-, legal-, and regulatory framework that reflects a broader than national scope, including key elements such as (1) an overall digital strategy; (2) an enabling approach to the use and protection of data; and (3) an enabling mechanism for cross-border data and content flow. The audience was left with key messages from each of the speakers. The importance of intelligent technologies accessible to all was highlighted by Mr. Lumsden while Ms. Philbeck stressed the need to have the right enabling environment for digital services to thrive. Mr. Howe put forward the necessity to develop trust among consumers, taking into account its cultural and sociological basis and the importance of cross-sector partnerships to drive universal connectivity. Echoing this observation, Mr. Forsberg stressed the importance of regional and global collaboration to face the challenges of the digital economy. Connecting the other half will not be business as usual, we need to be innovative and put people and consumers at the center for them to benefit fully from the digital transformation.

MEMBERS NEWS

STC Group CEO, Eng. Nasser Bin Sulaiman Al Nasser Wins 2019 Top CEO Award

STC Group CEO, Eng. Nasser Bin Sulaiman Al Nasser, won first place as the best chief executive officer for the year 2019 in the ICT sector in the 2019 "Top CEO" awards and conference, which was held in Manama. Al Nasser was selected among more than 700 CEO's of listed companies in the GCC Stock Markets. He was honored alongside the top 10 CEOs in each of the 10 different business sectors in the region who have contributed to the profitability and tremendous growth of their companies, and have also demonstrated outstanding corporate governance over the past year.

Organized by Mediaquest and TRENDS in collaboration with INSEAD business school for global entrepreneurship, The awards were based on guidelines developed by the Dubai-based Institute for Corporate Governance and supervised by the accounting giant KPMG. Nasser Al Nasser received this award for his pivotal role in maintaining STC's growth in profits in 2018, and the launching of the company's new "DARE" strategy for ongoing growth and digital transformation, as well as the launching of STC Pay, which specializes in digital payments. Not to mention his major role in supporting digital transformation plans that help achieve the Saudi Vision 2030, as well as his role in empowering women in STC to assume supervision and leadership positions. STC Group CEO participated in the conference's main plenary session entitled the "Future of Growth Amid Volatility" with a number of CEOs who highlighted the need for creating strategies that strengthen capacities in order to be able to address future challenges and maintain growth.

STC Reports An 8.4% Increase in Revenues to SAR13.4Bn in 1Q19

Saudi Telecom Company (STC) has published its financial results for the three months ended 31 March 2019, reporting a 6.3% increase in net profit to SAR2.750 billion (USD733.1 million) from SAR2.588 billion in the corresponding period a year earlier. The company attributed the positive result to a SAR324 million increase in revenues, which resulted in a SAR969 million increase in gross profit. In the period under review, STC reported an 8.4% improvement in revenues to SAR13.386 billion, while EBITDA reached SAR5.386 billion, up 19% from SAR4.527 billion. Eng. Nasser Bin Sulaiman Al Nasser, STC Group CEO, stated: 'What has been achieved in this quarter compared to the comparable quarter last year was a result of our commitment to implement and achieve STC's strategic plans. The commitment to provide the best technical services, the cost optimizations initiatives, and the outstanding performance of our subsidiaries, as well as the investments in traditional and non-traditional sectors both had a positive impact on the financial results of the first quarter of this year.' The executive added that in order to establish the company's role in enabling digital transformation within the guidelines of Vision 2030, STC has signed three strategic agreements with international companies as part of the '5G Aspiration Project' to deploy 5G networks and develop innovative services and solutions related to latest generation of networks and communication technologies.

STC Has Contributed SAR 168 Billion to the Kingdom's GDP Over 19 Years

STC contributed a total of 168 billion Saudi Riyals to the Saudi Arabian GDP from 2000 to the end of 2018. According to STC's 2018 annual report, this amount is made-up of the value of government fees paid to the state in addition to the state's share of annual profits. The annual report, published today in conjunction with STC for the Financial Sector Conference, revealed that the company has maintained its pivotal role in achieving the objectives of Saudi Vision 2030 and National Transformation Program 2020 by enabling digital transformation in the public and private sectors and investing in digitizing the economy in line with its ambitious strategy DARE, which completed its first year, 2018, with remarkable success. Conference speakers singled out STC, now in its 20th year, as an inspiring success story of privatization government institutions in Saudi Arabia. The Saudi Telecom Company was the Ministry of Post, Phone, and Telegraph until 1998, before the company rebranded to STC in 2008. Their Excellences Minister of Finance Mohammed Al-Jadaan, Minister of Housing Majid Al-Hogail, and SAMA Chairman Dr. Ahmed Abdulkarim Alkholifey visited the STC section of the conference and were briefed on the digital solutions and, briefed on the services offered by the company, in particular through digital services like STC Pay. H.E Khalid bin Abdulaziz Al Falih, who headed the supervisory committee, awarded STC with a shield; Mohammad bin Rashid Aba Al-Khail, director general of corporate communication, was the recipient.

STC Announces a Successful Call on a 5G Smartphone for the First Time in MENA

STC announced that a successful call has been accomplished using a 5G smartphone for the first time in MENA region and among the first globally, in cooperation with its strategic partners. This launching is the initial phase for operating the service once 5G handsets are available in the global markets. STC Group CEO Eng. Nasser S. Alnasser confirmed that STC is committed to provide the latest innovative technologies in alignment with its key role as the digital enabler to achieve the objectives of Saudi 2030 vision, which should reflect positively on the quality of services and solutions provided by STC in health, educations, mining and energy sectors. In May 2018, STC launched its first 5G live network for the first time in the MENA Region. STC has also been leading 5G testing activities since 2017. Early this year, STC endorsed a "Daring" strategy of universal 5G deployment by pursuing a Kingdom-wide 5G coverage, incorporating all large cities in the Kingdom, assuring that it has successfully rolled out an initial 5G network comprising 450 new sites kingdom-wide. The successful call on a new 5G handset paves the way for our customers to enjoy many new services and capabilities provided by the new 5G network. STC will continue to provide innovation and quality to its valued customers once 5G devices becomes available in the global markets.

STC Reveals Multi-Vendor Integrated 5G Network

Saudi Telecom Company (STC) has unveiled what it claims is 'the world's first Multi-Vendor Integration Verification' for its 5G network, blending Huawei and Cisco cores with Ericsson and Nokia supplied RAN. STC started rolling out its 5G network in 2018 and has worked with a range of network equipment providers to facilitate the launch of NGNs in the Kingdom. Khaled Al Dharrab, Infrastructure Sector VP at STC, said that working with multiple vendors has significantly expedited the rollout of its 5G network. The operator is aiming to launch commercial 5G services to consumers in the second quarter of 2019.

STC: Revenue from IoT to Reach SAR28 Billion by 2030

VP of Cyber Security at STC Solutions, Fahad Aljutaily, declared that increase in attacks against internet of things around the world reached 600% in 2017. China topped the list as an attack location by 21%, followed by the USA by 11% and Brazil by 6%. In presentence of 25 journalists who attended a course in STC Academy titled "Cybersecurity - Risks and Challenges," Aljutaily explained that 54% of the world's companies have been targeted by attacks that affected data or IT infrastructure. Additionally, global spending on cybersecurity reached $96 billion in 2018. He also said, "By 2021, cybercrime damage is expected to reach $6 trillion per year, and jobs in cybersecurity jobs are expected to reach 3.5 million jobs." Aljutaily noted that the Middle East is facing a huge challenge in filling jobs in the field of cybersecurity, which is due to the lack of professionals available in this field. The GCC cybersecurity market is expected to exceed $8 billion in value in the coming years. STC Media Club, in cooperation with STC Business Unit, held a training course for journalists, in which 25 journalists participated from various newspapers and satellite channels in the STC Academy headquarters. The course focused on the technical solutions adopted by the Kingdom of Saudi Arabia in its digital transformation such as cybersecurity, big data, cloud computing, and Internet of things.

Batelco Inks Ericsson Deal for 5G Commercial Launch

Bahrain's Batelco has signed a deal with its long-term vendor partner Ericsson to commercially deploy 5G network technology, the operator announced on its website. The deal, signed on 30 March 2019, envisages nationwide 5G deployment over three years, commencing in phases 'in key locations across the Kingdom'. Ericsson agreed to deploy commercial 5G New Radio (NR), mobile transport and core equipment, and Batelco stated that the high speed, low-latency 5G technology will support growing data traffic demands and deliver high quality enhanced mobile broadband and fixed-wireless access for applications such as streaming, downloading, gaming, infotainment and interactivity. The 5G launch will also be aimed at new opportunities in IoT and Industry 4.0 fields to enterprises and industries in Bahrain

Batelco Signs Share Purchase Agreement for Transfer of Qualitynet to Viva Kuwait

Batelco has signed the Share Purchase Agreement (SPA) to sell its 90% stake in Kuwaiti ISP Qualitynet to mobile operator Viva Kuwait, confirming a deal which was initially struck in November 2018. CommsMEA reports that the final price will be determined upon completion of the share transfer and fulfilment of the terms, conditions and covenants agreed in the SPA, dependent on obtaining the necessary regulatory approvals. Viva Kuwait (controlled by Saudi Telecom Company) signed an initial agreement in November to purchase the entire share capital of Qualitynet from Batelco (90%) and National Bank of Kuwait (10%).

Batelco, AMS-IX to Launch New Internet Exchange

Batelco has signed a strategic partnership with AMS-IX to launch an internet Exchange Platform (IEP) in Bahrain. This will serve as a neutral internet traffic exchange platform, interconnecting global networks in the GCC region, a statement said. The agreement was signed by Batelco chief global business officer Adel Al-Daylami and AMS-IX CEO Peter Van Burgel in the presence of senior executives from both companies, in Batelco's Paddock Club lounge, at the Bahrain International Circuit, during the F1 event on March 30. Al Daylami said Batelco is very pleased to sign with AMS-IX to support Batelco's efforts to contribute toward the development and enhancement of internet services across the region, interconnecting regional internet providers and operators, localizing and retaining regional traffic and ultimately enhancing user experience. "AMS-IX, the world's leading Internet Exchange, has been operating successfully at the core of the Internet for over 25 years and building, operating and maintaining Internet Exchanges is their expertise," he said. "AMS-IX is delighted to enter into the partnership to work with Batelco, as a leading telecom provider in the region," said Van Burgel following the signing. "We believe that Batelco is a good fit for AMS-IX as Batelco's current digital ecosystem makes the company the most viable partner of choice for us and we are confident that Batelco is capable of making the new internet exchange into a leading IX platform," he added. This partnership serves Batelco's efforts that are focused on supporting the Kingdom's Economic Vision 2030.

du Presents Idea Hub Innovations to RAK e-Government Authority

du, from Emirates Integrated Telecommunications Company, EITC, has displayed its innovative solutions to Ras Al Khaimah's e-Government Authority. Hosting government representatives during a recent visit to the Idea Hub, Farid Faraidooni, Deputy CEO –Enterprise Solutions, EITC, along with other senior executives presented the company's latest technological advancements through IoT use cases, Smart Metering, Blockchain Platform as a Service use cases, Smart Energy Management, and Artificial Intelligence developments. Faraidooni said, "By hosting the Ras Al Khaimah e-Government Authority at the Idea Hub, we are honored to present how our inspiring ideas and innovations can bring about significant development for the progress of the UAE's Emirates and how we can build the country's digital future." Ahmad Al Neaimi, General Manager, e-Government Authority, RAK, said, "The digital transformation process is now a lot clearer for the RAK e-Government Authority, and we are inspired by how the hub's comprehensive ideas can shape the digital roadmap for our government department systems and processes." EITC's Idea Hub was launched in 2018 to provide ICT solutions that empower the UAE's government entities and organizations by leveraging the latest platforms and technologies.

du Increases 2019 CAPEX Forecast

United Arab Emirates (UAE) telco du has increased its CAPEX forecast for 2019, saying it plans a hike in spending of up to 70% this year as it prepares for the launch of 5G mobile services. Chief executive Osman Sultan said in a first-quarter earnings call: 'Our CAPEX guidance for 2019 will be in the range of AED1.6 billion to AED1.7 billion [USD436 million to USD463 million] … from AED1 billion last year.' Earlier this year Du said that it expected 2019 CAPEX to be in the range of AED1.3 billion to AED1.4 billion. du is hoping to launch commercial 5G services before the end of this year using a network of 700 base stations. In the first three months of 2019, Du's revenues fell 5.7% from a year earlier to AED3.1 billion, while net profit after royalties declined 12.3% year-on-year to AED450 million.

Smart Dubai Office Endorses du's Blockchain Platform as a Service (BPaaS)

du, from Emirates Integrated Telecommunications Company (EITC), has announced that the Smart Dubai has endorsed the telco's Blockchain Platform as a Service (BPaaS). Adding to a growing list of use cases, du is providing the platform, to facilitate The Dubai Blockchain Strategy by giving all government entities the freedom to build on a framework of their choice (Ethereum or Hyperledger) based on their business needs on a fully managed, scalable and secure platform with low cost access through a pay as you go model. Farid Faraidooni, Deputy CEO – Enterprise Solutions, EITC, said: "The Dubai blockchain agenda is an integral strategy for the city's future and we are proud to be a key enabler for the digitisation of the government. By building on top of our BPaaS to support the country's digital transformation, our blockchain endorsement by the Smart Dubai Office is an important step towards providing smart solutions that create efficiencies for government transactions leading up to 2021. We believe this will augment not only the services that government entities provide, but it will also improve all citizens and residents' smart city experiences as well as their everyday lives." Wesam Lootah, Chief Executive Officer, Smart Dubai, , said: "The city of Dubai has pioneered blockchain from the onset and continues to be a global leader in providing new and improved ways to implement and set the future roadmap for the evolution of this ground-breaking technology. As the Smart Dubai endorsing this new platform, the implementation of a blockchain-powered service will drive our ambitions towards becoming a paperless government by 2021 and improve happiness levels for staff and citizens, as well as save valuable time and resources." du will be providing the Smart Dubai with the Blockchain Platform as a Service (BPaaS), which is a cloud native blockchain infrastructure that can provision a private blockchain networks on Ethereum and Hyperledger fabric frameworks. Providing a shared environment for POCs, pilots, and production systems, including shared infrastructure and platform monitoring, which will give users the ability to create blockchain networks, deploy and run their use cases, without much knowledge of blockchain networks configuration and DevOps. This will enable all government entities to transform their current and future activities with the goal of making them digital by the year 2021, in support of HH Sheikh Hamdan Bin Mohammed Al Maktoum's, Crown Prince of Dubai, paperless vision. The blockchain initiative by Smart Dubai also supports the objective of making the Dubai the smartest and happiest city on Earth. Earlier this year, du announced the debut of the UAE's first health sector-related BPaaS solution in conjunction with Dhoner Healthtech. This healthcare solution will ensure patient safety and builds on du's commitment to developing technology and innovation to enhance society for all. du announced its partnership with ConsenSys at GITEX Technology Week 2018 building this platform, the UAE's first Blockchain Platform as a Service. Through this, du showcased an exciting use case built on the top of BPaaS to provide government entities with smart contract capabilities to facilitate document attestation.

du, Flagship Projects Extend App Partnership

du, from Emirates Integrated Telecommunications Company (EITC), and Flagship Projects said they have extended their BabNoor app partnership for three more years, during a recent visit to Emirates Autism Centre in Abu Dhabi. As part of the renewal of their commitment to the UAE's disabled communities, the companies have also enabled the app for iPhone use and it can now be downloaded via Apple's global App Store. Providing a voice for the voiceless, BabNoor is the first cloud-based tablet application of its kind in the region. The revolutionary app enables easy and effective communication for children with a range of disabilities, such as autism, hearing and speech impairments, Down syndrome, cerebral palsy, and trauma injuries. Abdulwahed Juma, executive vice president of Brand and Communication, du, said: "The success of the BabNoor app reiterates our commitment towards ensuring the UAE's special needs communities are catered for. As a telecommunications provider, we feel it is imperative that we continue to empower all citizens and residents of the UAE with the ability to actively and effectively communicate. BabNoor has proven to be a revolutionary resource for communities and we are thrilled to enable access for even more people now thanks to our renewed partnership with Flagship Projects." The BabNoor app was previously only available to individuals and organizations in the UAE that had partnered with du, but the revised partnership will mean children worldwide will have access to BabNoor's well-renowned features. With BabNoor now available on the App Store, more parents and schools can help their children by using the app. Noora Al Mansoori, director Corporate Communications, du, said: "Technology is a powerful enabler for society, which is why we are proud to be supporting the next chapter for BabNoor and its evolvement into a real and effective resource for changing thousands of lives across the UAE. This ground-breaking app opens new doors for children of determination and delivers them the opportunity to thrive through the gift of education and unabridged learning." When BabNoor first began, 390 iPads preconfigured with BabNoor application licenses were distributed to major centers across UAE, such as the Zayed Higher Organization (ZHO), Sharjah City for Humanitarian Services (SCHS), Dubai Autism Centre and the Emirates Autism Centre. Shadi Al Hasan, CEO of Flagship Projects, said: "At Flagship Projects, we have worked tirelessly to deliver a revolutionary app to enrich the lives of disabled communities across the UAE. In partnership with du, we are thrilled to continue delivering the highest levels of technology and customization for the very best in connectivity and communication. With BabNoor, we hope that children of the UAE will feel more valued and an integral part of society." The positive impacts made in this initial phase inspired du to extend BabNoor's reach to more schools and centers across all Emirates of the UAE. This involved the distribution of 2000 licenses from du and 200 licenses from Flagship Projects distributed to children and teachers in 28 special needs centers across the UAE. Dr. Amal Galal Sabry, director, Emirates Autism Center, said: "With the introduction of BabNoor to our students, this revolutionary Arabic assistive communication app has helped revolutionize how they interact with the world around them. This has unlocked a new medium for alternative and assistive channels of communication while remaining in line with Arabic culture, traditions and standards." Developed by Flagship Projects, BabNoor's features include an Arabic interface and vocabulary, cloud-based libraries of content and picture cards, localized cards and local dialects, ability to create and personalize additional cards by the user, and constant updates based on monitored case studies. BabNoor enables easy and effective communication using international communication standards for people with special communication needs through pre-defined cards that form sentences, while also providing children the ability to create additional personalized content and cards.

Etisalat to Invest USD1.1Bn towards 'Future of Connectivity'

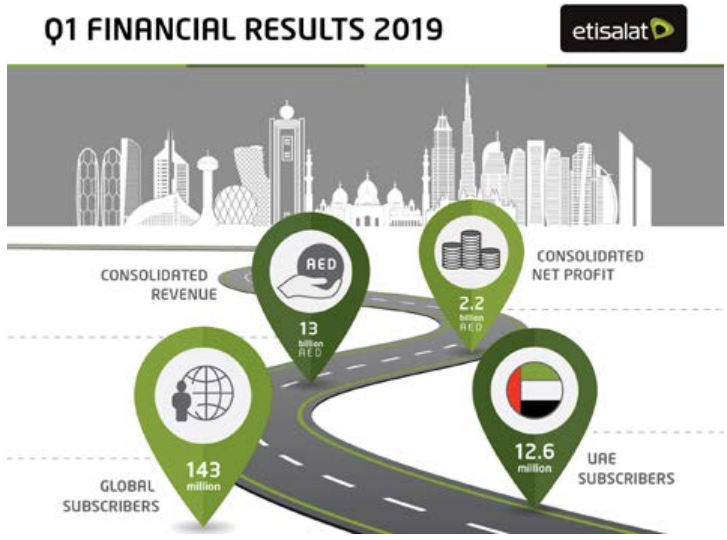
United Arab Emirates (UAE)-based telco Etisalat says it expects to invest AED4 billion (USD1.1 billion) during 2019 on 'digital transformation', including the upgrades of its mobile and fixed fiber networks. The firm, which switched on a pre-commercial 5G mobile network using 3.5GHz spectrum in May last year, is looking to roll out hundreds of 5G-enabled base stations by the end of this year. Etisalat expects the first 5G-capable handsets to be available in the UAE by June. Besides its domestic operations, the telco has direct and indirect interests in 14 markets across the Middle East, Africa and Asia. Hatem Bamatraf, chief technology officer at Etisalat International, is cited by Zawya as saying: 'We are stepping into an era which marks the revolution of 'Intelligent Connectivity' underpinned by ubiquitous and hyper connectivity. This term is used to describe the powerful combination of flexible, high speed 5G networks, the Internet of Things (IoT) and Artificial Intelligence (AI). This will have a significant and profound change on individuals, industries, society and the economy, transforming how we live and work.' He added: 'Etisalat foresees the future of connectivity and is already exploring use cases with new technologies and services that will blend our physical and digital world.'

5G Infrastructure to Become the Nervous System of the Digital Society and Digital Economy, Says Etisalat Chief Corporate Strategy and Governance Officer

5G infrastructure is set to become the nervous system of the 'Digital Society' and 'Digital Economy' with clear goals being set to deliver on the 5G promise by enabling boundless connectivity, deliver sustainable innovation, accelerate digital transformation and drive growth with new use cases said Khalifa Al Shamsi, Chief Corporate Strategy and Governance Officer, Etisalat Group. Al Shamsi shared his insights 'Leaders Summit 2019' held by SAMENA Telecommunications Council which brought together leaders and change makers from more than 29 countries, with the aim of materializing private and government partnerships; for fostering collaboration within the ICT industry of the region; and for discussing challenges that have emerged since 5G deployment became a priority in the region, in alignment with national ICT visions. He brought to light the upcoming opportunities for operators with 5G, the chance for telcos and other stakeholders in the ecosystem to move beyond connectivity and collaborate across sectors such as logistics, smart cities, oil & gas, manufacturing, finance, transport, retail and health to explore new growth opportunities that deliver rich services that empowers societies. "5G will bring the wealth of opportunities in social economic transformation, and this requires more than just 'the right regulations in place'. Governments do play a key role in demand stimulation and transformation with viable policies but in addition to regulations and spectrum, there is a need to eliminate asymmetrical regulations and put policies that are still in play for some markets in the region. He added: " The telecom industry is taking the front seat in fuelling the 4th industrial revolution , by spearheading the launch of future networks and technologies, it is imperative that we rise to every challenge by working together as an industry to become an accelerator to drive innovation and development and most of all bridge the digital divide." Al Shamsi also highlighted the changing role of the telco, "We are moving away from traditional business models and competencies, the need to collaborate and develop new skills are now required and more important than ever to unlock 5G era opportunities. The SAMENA Council's Leaders' Summit 2019, was held under the patronage of the UAE Telecommunication Regulatory Authority, focused on understanding the impact of 5G in boosting ICTs and enabling flexibility and enhancing capabilities of new digital services.

Net Profit Climbs 5% at Etisalat

Etisalat of the United Arab Emirates (UAE) has reported revenues of AED13.0 billion (USD3.5 billion) for the first three months of 2019, down 1% year-on-year. Consolidated EBITDA was up 2% at AED6.6 billion, while net profit rose 5% to AED2.2 billion. The group served an aggregate subscriber base of 143 million at the end of March across its operations in the Middle East, Africa and Asia.



Omantel Launches eSIM

Omantel has launched a digital-embedded SIM card (eSIM) for the first time in the sultanate. The technological advancement will allow customers with eSIM-supported smartphones to enjoy unprecedented digital experience and use more than one SIM card at the same time, without having to physically swap SIMs in the phone. Samy Ahmed al Ghassany, chief operating officer at Omantel said, "We seek to keep pace with new technological advancements, introduce innovative products and services and offer our customers unmatched and leading digital experience in the sultanate. The launch of eSIM comes in line with Omantel's strategy to lead digital transformation and partake in bridging the digital divide in the sultanate." Ghassany expressed his happiness as Omantel customers will be the first to enjoy eSIM in the sultanate allowing them to use up to nine numbers at the same time without the need to physically swapping SIM cards whenever they want to use different mobile number. Ghassany added that more smart devices will be compatible with eSIM in the future giving further impetus for the adoption of Internet of Things in the country. Haitham Abdullah al Kharusi, vice president of Consumer Business Unit at Omantel said, "We are proud of being the first operator to launch eSIM in Oman and make it available for our customers. The devices that are currently compatible with eSIM are iPhone XS, iPhone XS Max and iPhone XR. In future, it is expected that all devices will have the eSIM feature enabled including smart home devices." He added, "The eSIM will be very useful for customers using different numbers for business and personal use. There is no need to carry more than one device, not anymore. "Customers can use multiple phone numbers in one device. Adding, deleting and configuring the SIMs can be done right from the phone's settings, in addition to selecting favorite roaming network." The newly launched eSIM will be available across all Omantel outlets. All customers need to do is visit nearest Omantel outlet to opt for the new eSIM.

Orange Jordan offers the eSIM For the First Time in Jordan

Chief Consumer Market Officer at Orange Jordan, Naila Al Dawoud announced that the company will soon launch the eSIM for all existing and new subscribers of mobile lines and for the first time in Jordan, during a press conference held by the company. Al Dawoud said that Orange Jordan is continuously developing its services and providing all that is new in the world of information technology to achieve its vision in connecting its subscriber with all that is essential to them in the best way possible, pointing out that the eSIM will make the use of mobiles and its services easier. Al Dawoud also affirmed during the press conference that Orange Jordan has an advanced position in the field of innovation and provision of telecommunications and digital services in Jordan, including the eSIM which will soon be used, so that the company remains at the top list of the operators to offer these services in the region. Al Dawoud also said that in the future, it is expected that the eSIM will not only be integrated into mobile phones and tablets, but also into computers, laptops, cars, household and medical appliances, especially since everything will be connected to the internet in the future. Anwar Hamdan, eShop & Digital Payments Development Manager at Orange Jordan, offered a detailed explanation of the eSIM and its benefits, saying that: "This technology allows you to replace the traditional SIM to add the number. As a result, you will not need the slide access to change or remove it, as you can do all this through the integrated electronic slide embedded in the phone". He added that: "The eSIM is a built-in a SIM card that is integrated into the mobile phone or smarts devices in general, and has the same functionalities as the traditional SIM, but overtakes it in several ways, the most important of which is that there is no need to change it, as the information stored on it is adjustable. In addition, there is no risk of use, such as being exposed to damage or the loss of information stored in it". The eSIM can be activated through using the camera to scan the attached QR code into the operational package and following the activation instructions, making sure that the device is connected to the internet though Wi-Fi, and that the device has the latest version of the operating system that supports the eSIM.

Sudatel Works with Arabsat in 6A Satellite Launch to Ensure Service Delivery in Sudan

Arabsat 6A will provide digital broadcasting, telecommunications and internet services to customers in Sudan. This satellite ground station service is hosted by Sudatel Telecom Group via the Abu Haraz satellite station. Sudatel Telecom Group, through one of its companies Sudasat and Hajar Group, in partnership with Canar Telecom, witnessed the launch of Arabsat 6A satellite at orbital position 30.5, which includes a load of four Ka-band transponders, through which Sudasat will provide broadband communications and broadband services across the Sudanese territory to internet providers, VSAT subscribers and mobile network operators. It also provides multi-purpose solutions for commercial and government sectors. Arabsat 6A will provide digital broadcasting, telecommunications and internet services to customers in Sudan. This satellite ground station service is hosted by Sudatel Telecom Group via Abu Haraz satellite station. The satellite was launched successfully from Cape Canaveral, Florida, USA after all necessary measures had been completed. Eng. Tarig Hamza Zain Elabdein, President & CEO of Sudatel Group and Chairman of Sudasat's Board of Directors, attended the launch with the Arabsat team. Eng. Khalid Balkheyour, President & CEO of Arabsat and a member of Sudatel Board of Directors was at the launch with Eng. Hashim Hasab El-Rasoul, CEO of Canar Telecom. Balkheyour expressed his pleasure at the strategic partnership with Sudatel Group through Sudasat. He pointed out that the increasing demand for satellite telecommunication services in the region requires cooperation and agreement with leading companies, providing reliable services. Eng. Tarig Hamza Zain Elabdein, President & CEO of Sudatel Group, Chairman of Sudasat, commented: "This move marks a milestone

in the company's history and confirms its strategic plan to move the company to an integrated telecommunications operator to deliver unprecedented services through partnerships, upgrading it from the local and regional level to a much higher level. This move will be the first step in the process of launching a satellite for Sudan in which Sudatel will play a pivotal role through its foreign strategic partnerships."

Sudatel Telecom Group Posts Net Profit of US$32 Million for 2018

The Board of Directors of Sudatel Telecom Group has approved the Group's financial results for the year ended Dec 31, 2018 at its board meeting held on Wednesday, March 27, 2019 at The Group's head office in Khartoum. Sudatel's financial performance for 2018, like all other businesses in Sudan, was impacted by a major currency devaluation in Sudan.

Key figures:

Net profit of US$32 million compared to US$45 million in 2017.

Overall operating revenue of US$326 million down by 36% from US$513 million 2017.

Revenue of operations in Sudan up 49%.

West African subsidiaries contribution to Group's operating revenue increased from 34% in 2017 to 51% in 2018. This is a result of recent investments made by the Group in West Africa including network upgrades and expansion. Additional investments are also underway in 4G technology, network coverage and customer experience that will increase revenues. Commenting on the results, the chairman of the Group, Dr. Fadul Abdalla Fadul noted, "We adopted a very clear strategy of partnering with successful international firms to expand our operations both in Sudan and in West Africa. This strategy is serving us well and will be continued." Sudatel's CEO, Eng. Tarig Hamza Zain Elabdein, said "Sudatel has moved from being a telecom operator providing voice and data to an ICT solution provider. The Sudatel Data Center is one example of this with customers that include large institutions in Sudan such as banks, Public incorporations and insurance companies. We are also hosting Google's servers and this vote of confidence in our data center has boosted our reputation globally." The national auditor for the Republic of Sudan and the representatives of foreign audit firms have expressed their gratitude to Sudatel's management for its collaboration and congratulated the company's progress in settling its debts from its own resources. The Group's negative working capital has decreased from USD 380 million in 2012 to USD 134 million in 2018. Sudatel Group and its subsidiaries in Mauritania, Senegal, Nigeria and Ghana (submarine cables), in addition to its office in Dubai, are audited by a network of foreign professional auditors: EY, HLB and AFACOR in Mauritania. Sudatel is the only Sudanese company quoted on the Abu Dhabi Stock Exchange and the largest company listed in Khartoum Stock Exchanges. Its financial results are published systematically on the websites of the above mentioned markets.

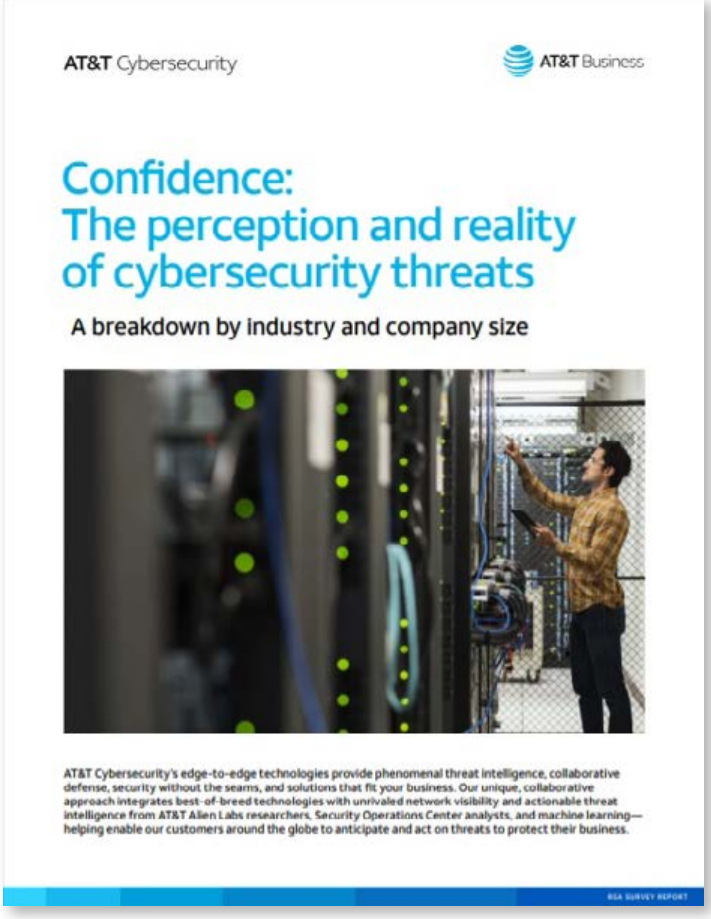
Telecom Egypt Signs LoI Offering PEACE Redundancy in Exchange for Competitive Pricing on Fiber Optic Cables

Telecom Egypt signed a binding letter of intent (LoI) with Pakistan & East Africa Connecting Europe (PEACE) Cable International Network Co. and its affiliate HENGTONG OPTIC-ELECTRIC, the Chinese technology and industrial giant, enriching the partnership between PEACE and Telecom Egypt further and extending it to other service lines. Under the LoI, PEACE will be granted an additional fiber pair to its redundant cross Egypt routes to accommodate PEACE extensive demand to Europe with a total value of USD 20mn, and in return HENGTONG shall provide TE with fiber optic cables of different cores based on competitive pricing that will be utilized in TE's strategic plans for fiber deployment inside Egypt. The agreement enacting the LoI is expected to be completed within the coming two months. Adel Hamed, Telecom Egypt's Managing Director and Chief Executive Officer said: "I am very pleased with the signing of this letter of intent, which attests our network evolution over time to offer a secure passage for international traffic as well as demonstrates the significance of our services for the growing demand from the East to Europe. Strategically, this agreement is a manifestation of our future plans to extract synergies and integrate our strength across our business units by leveraging our positioning in the international market to secure a business opportunity for our local business within the strategy of extending our fiber network to every corner in Egypt."

AT&T Claims Title As First U.S Carrier to Hit 2Gbps on 5G Network

AT&T became the first U.S carrier to surpass speeds of 2Gbps on its live, commercial 5G network in Atlanta, further pushing the envelope in the race to roll out 5G technology to customers. The milestone, which AT&T revealed in a blog post, was achieved using the Netgear Nighthawk 5G Mobile Hotspot, and happened about a month after the carrier hit 1Gbps in multiple cities. Speeds of 2Gbps on a 5G network, if sustained, will allow people to download a 2-hour HD movie at a breakneck speed of 10 seconds. Though actually doing that is easier said than done. Reaching and sustaining 2Gbps is currently unlikely with any provider, according to Engadget. It will require a millimeter wave connection, which is rare, especially indoors. In addition, the speed was achieved with a hotspot device, and it remains unclear if smartphones with built-in 5G will be able to perform just as well, Engadget added. "We're all about finding ways to unleash the full potential of 5G, including celebrating the exciting milestones along the journey," AT&T wrote to end its blog post, showing the carrier's focus on the development of the technology. 5G is the fifth generation of wireless networks that promises drastically faster download and upload speeds, instantaneous communication, and the ability to connect everything. AT&T said that it will roll out a standards-based nationwide mobile 5G network by early 2020, after deploying 5G in 21 states by the end of 2019. While AT&T is leading the charge in the development of 5G technology, it also came under fire for 5G Evolution. The marketing scheme proposed to rebrand millions of 4G LTE smartphone with 5G E labels, potentially confusing customers that 5G is now available when it is still in the works. Rival carriers called out AT&T for the move, and Sprint even filed a lawsuit over the misleading branding, after taking out a full-page ad in The New York Times to call 5G E out as fake 5G. Sprint and AT&T have "amicably resolved" the legal action. The terms of the agreement were not disclosed, but it appears that AT&T will be able to continue using the 5G Evolution branding.

AT&T Cybersecurity Study Reveals Perception Vs Reality of Cyberthreats

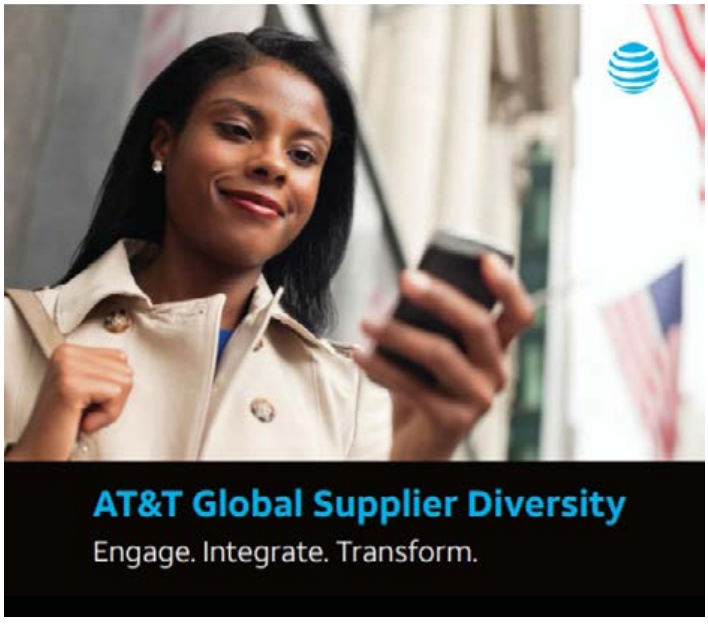


At the RSA conference last month, AT&T Cybersecurity took the opportunity to speak to over 700 attendees about their perception of cyberthreats and how security is viewed within the organization. The full study, entitled "Confidence: the perception and reality of cybersecurity threats" and authored by security advocate Javvad Malik, has shown key findings that:

- Large enterprises are more aligned with stakeholders. Of the industries, retail was the most negative in terms of Seeing Eye to eye with stakeholders, with 17 percent of participants stating 'not at all' and a huge 43 percent stating that they only saw eye to eye with stakeholders "sometimes".
- The biggest threats that worry companies of all sizes are phishing (29%) and cloud security threats (27%).
- Only 17% of smaller enterprises are very confident in defending against DDoS attacks compared to 29% of large enterprises. Additionally, only, 15% of smaller enterprises are very confident in defending against IoT attacks compared to 21% of large enterprises.
- The majority of companies view supply chain security as an essential component of any security function (37%), although 18% of smaller companies feel these activities take away resources from important work, while 19% believe it merely serves as a 'tick box' activity.

AT&T Expands Its Supplier Diversity Program

AT&T announced that it has extended the reach of its Supplier Diversity program through a "preferred supplier designation." The preferred supplier designation prioritizes companies within AT&T's supplier chain that embody diversity as a core value. AT&T also announced it was aligning its Supplier Diversity program with philanthropic and innovation efforts across the company via its AT&T Believes program. AT&T Believes is a larger, company-wide program that aims to create positive changes in local communities. Earlier this month, AT&T launched Believe Los Angeles by committing $1.6 million to nonprofit organizations focused on education, workforce development, career readiness programs, and entertainment and digital media employment opportunities. AT&T said it expanded how it defines success with its Supplier Diversity program. By the end of 2020, the company will announce not only its spending with diverse suppliers, but also the number of jobs held by diverse individuals, which includes disabled veterans, minorities, woman and LGBTQ employees, within its supplier base. "Earlier this year we made a commitment to drive $3 billion in spend with black suppliers in the U.S. by the end of 2020. We've established an Executive Advisory Council made up of prominent black business leaders to assist us in reaching this goal," said Susan A. Johnson, executive vice president – Global Connections & Supply Chain, AT&T. "With our renewed supplier diversity 2020 commitment, we will continue to develop creative solutions and work closely with all suppliers to foster economic growth and innovation within the communities we serve." The program's focus on the economic growth of diverse companies and communities is comprised of three pillars:



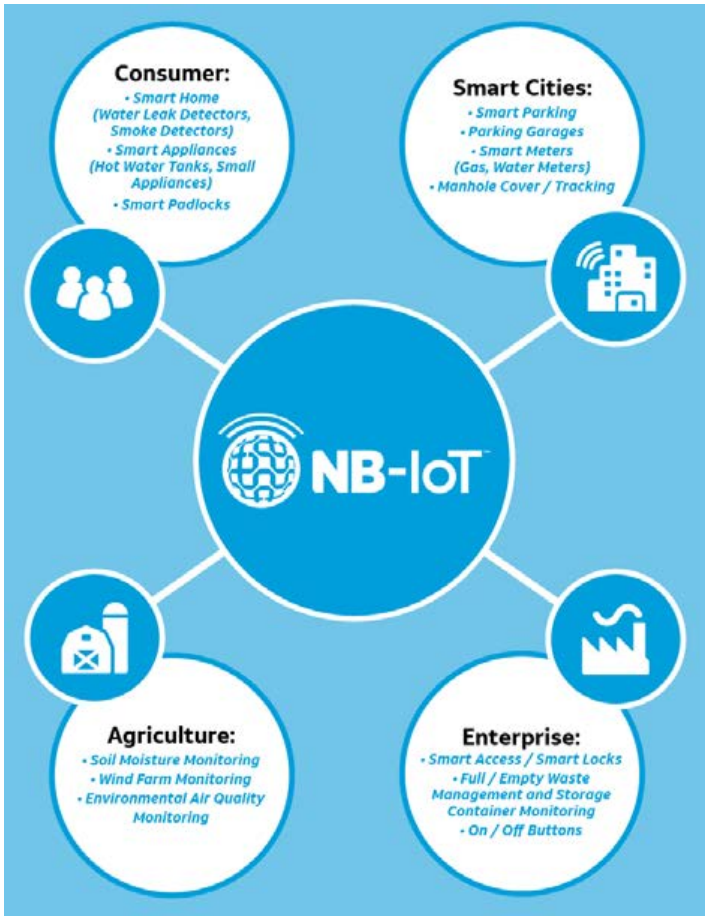
- Diverse supplier spend and utilization
- Diversity job creation and force impact
- Diverse business fostering, advocacy and 'tier 2' supplier growth.

AT&T said last year's 2018 diversity spending was $700 million higher than the previous year. In 2018, the program grew to almost 700 diverse suppliers, and accounted for over $15 billion, or 27%, of the total spend—excluding content and programming spend—with diverse suppliers for the year. The results exceeded AT&T's 21.5% target. Overall spending with women business enterprises (WBE) and minority business enterprises (MBE) increased with Tier 2 diverse supplier performance a leading driver.

AT&T Expands 5G+ Network to California, Austin, Nashville, and Orlando

Less than four months after launching a mobile 5G network in parts of 12 U.S. cities, AT&T today expanded the network's footprint with seven additional locations. The expansion includes the carrier's first four 5G offerings in the state of California, as well as single-city additions in Florida, Tennessee, and Texas. AT&T's 5G+ coverage list now includes some of California's most populous cities: Los Angeles, San Diego, San Francisco, and San Jose. The carrier has also added Florida's most popular tourist destination, Orlando, plus the capitals of Texas and Tennessee, Austin and Nashville, respectively. As was the case before, AT&T says its service is available in "select areas" of the cities, rather than completely covering them. Unlike other carriers, AT&T is specifically marketing three different types of "5G" service. The company differentiates between 5G+ based on millimeter wave technology, a slower but nationwide blanket of 5G, and its controversial, lawsuit-provoking "5G Evolution," which is actually just late-stage 4G technology using speed-enhancing features. Today's expansions are all 5G+ specific. One notable omission from today's list is Las Vegas, Nevada, which was on AT&T's list of expected "early 2019" 5G+ cities last September. Its place appears to have been taken by Austin for the time being. AT&T currently offers 5G+ service using a single device: Netgear's Nighthawk 5G Mobile Hotspot. Unlike rival Verizon, which is now offering an early 5G smartphone option online and in select stores, AT&T's Nighthawk sales page still doesn't have a "buy now" link, instead asking customers "interested in trying out the Nighthawk" to provide contact information for an email or phone pitch. Samsung's Galaxy S10 5G is expected to become available for AT&T's 5G+ network this spring, while a subsequent Samsung phone will connect to AT&T's 5G+ and 5G towers. LG's less expensive V50 ThinQ 5G phone is not yet expected to become available for AT&T 5G customers.

AT&T Says Its Nationwide NB-IoT Network Is Up and Running



AT&T says NB-IoT is optimized for stationary use cases with basic data requirements like simple sensors, on-off buttons, smart agriculture, smoke detectors, door locks and industrial monitors. AT&T said it has officially turned on its narrowband internet of things (NB-IoT) network after completing upgrades to its 4G LTE cell sites across the country. With the arrival of the NB-IoT network, AT&T now offers business customers two low-power wide area networks (LPWANs) designed for IoT. "Both networks are designed for the IoT within licensed spectrum and provide carrier-grade security," Chris Penrose, president of IoT Solutions at AT&T Business, in a blog post announcing the launch. "Having both networks offers our business customers more options to implement IoT solutions with security, interoperability, and lower costs." AT&T launched its nationwide LTE-M network in May 2017 for IoT while it mulled over launching an NB-IoT network. The company at the time believed that LTE-M was the preferred IoT network technology because it offers two-way communication, greater capacity for throughput, and could handle voice. Analysts expect NB-IoT to eventually be the dominant cellular standard for IoT devices, but say there is room for many forms of low power connectivity because a wide variety of devices will ultimately be connected. In June 2018, AT&T announced it would join the fray and committed to launch its own NB-IoT network to operate alongside its LTE-M network. At the time, AT&T's David Allen said the company views the two technologies as complementary to one another. "NB-IoT is optimized for stationary use cases with basic data requirements like simple sensors, on-off buttons, smart agriculture, smoke detectors, door locks and industrial monitors," Penrose said in the blog post. "LTE-M, with its greater bandwidth, can support firmware and software updates, mobility and voice-over services." He added that AT&T has deployed pet trackers, asset management, medical wearables, and utility meters so far over LTE-M. Penrose said AT&T is working with suppliers to certify $5 modules that can connect devices to the NB-IoT network. He also said that multi-mode modules that support both NB-IoT and LTE-M "are not far behind." Rivals T-Mobile, Verizon and Sprint all announced plans to launch NB-IoT networks within the 2018 time frame. T-Mobile was the first to market with its network, which went live in July 2018.

AT&T Declares Quarterly Dividend

The board of directors of AT&T Inc. (NYSE: T) declared a quarterly dividend of $0.51 a share on the company's common shares. The dividend is payable on May 1, 2019, to stockholders of record at the close of business on April 10, 2019. AT&T Inc. is a diversified, global leader in telecommunications, media and entertainment, and technology. It executes in the market under four operating units. WarnerMedia's HBO, Turner and Warner Bros. divisions are world leaders in creating premium content, operate one of the world's largest TV and film studios, and own a world-class library of entertainment. AT&T Communications provides more than 100 million U.S. consumers with entertainment and communications experiences across TV, mobile and broadband services. Plus, it serves nearly 3 million business customers with high-speed, highly secure connectivity and smart solutions. AT&T Latin America provides pay-TV services across 11 countries and territories in Latin America and the Caribbean, and is the fastest growing wireless provider in Mexico, serving consumers and businesses. Xandr provides marketers with innovative and relevant advertising solutions for consumers around premium video content and digital advertising through its AppNexus platform. AT&T products and services are provided or offered by subsidiaries and affiliates of AT&T Inc. under the AT&T brand and not by AT&T Inc. Additional information is available at about.att.com.

BT Confident 5G Will Go Beyond Mobile

BT argued IoT and 5G are part of the same dynamic, a factor the company plans to employ to drive a connectivity revolution across sectors in its domestic market. In a presentation, here, BT Enterprise director of strategy Guillaume Sampic (pictured) highlighted the potential for 5G to change the landscape altogether in the UK and Ireland, with the capability to "go after billions of connected devices". Sampic said the company was particularly excited about 5G because it was the first standard designed "not just for mobile", with the specification "a revolution for both mobile and fixed products" along with IoT. He further highlighted the "transformative" potential of 5G as a whole in terms of ongoing development of new use cases and benefits. "There will initially be increased speed and capability, and that is great news from smartphones and smartphone users. But, the later features are equally exciting, such as lower latency, more scale, more sensors. There will be transformation now, and transformation up to five years from now." Sampic said BT Enterprise currently serves and partners 1.2 million businesses in the UK and Ireland, supporting 5 million connections. Digital transformation continued to emerge as a major requirement across small, medium and large enterprises, he noted, with companies looking at BT to provide relevant insights to drive smarter operations, as well as tap into a huge wealth of data being generated to "unlock its value and drive a step change in the business". BT Enterprise's customers "want to use IoT and data solutions to improve customer experience and use it to create new business models". However, he added that across its customer base, it was security that remained the biggest concern. "To drive digital transformation at scale, enterprises need and want the right risk control around security…this is important to drive cloud and IoT adoption."

BT Strengthens and Extends Relationship with NATO

BT announced that it is expanding the range of services it provides to NATO to support the military alliance's global operations. It follows the signing of a new, three-year agreement with NATO's Communications and Information Agency (NCI) for support services valued at €5.9 million. Secure and reliable connectivity complemented by new support services lie at the heart of NATO's digital transformation. BT connects more than 70 NATO locations internationally, including sites spread across the Alliance's 29 member countries and beyond. Adding BT's network support services to the agency enables NATO to roll out new solutions within the dynamic environment it operates in. Bas Burger, CEO of Global Services, BT, said: "Digital transformation is a strategic driver for multinational organizations. Like many of our global customers, NATO faces a dynamic operational landscape and looks to harness the latest digital tools and technologies to enhance its performance. With our global secure network and expertise as a trusted supplier to governments, international agencies and multinationals, BT is well placed to support NATO in an increasingly digital world."

BT and InLinkUK Launch New Technology to Block Anti-Social Calls

InLinkUk and BT have introduced a new automatic call blocking feature on all InLink digital street units, in a drive to prevent misuse of the free calls service provided to the public. It is the first development of its kind to be introduced on a UK public street phone. In direct response, and as part of the InLink management strategy, both InLinkUK and BT have worked closely with the police and a number of local councils to design and implement the new call blocking technology which prevents the misuse of the units' free calls service, while allowing communities to continue to benefit from the wide ranging benefits of the InLinks. The new service - which has been activated across all InLinks deployed across the UK - uses an algorithm to identify suspicious call patterns and phone numbers. Any identified numbers are then blocked so that outgoing calls from any InLink in the UK cannot be made to those numbers. Using anonymised data, the algorithm examines a range of factors including the frequency of attempted and connected calls, the length and distribution of such calls, as well as insights provided by the authorities. Initial results have shown that less than half a percent of total numbers called across the InLink network are associated with anti-social behavior. These numbers have now been successfully blocked. InLinkUK and BT have been able to rapidly roll out the new technology across the entire InLink network thanks to the units' modular design and advanced digital capabilities. The existing technical solution to prevent outgoing calls from selected InLinks to all mobile numbers will also remain in place where agreed with councils or the police. InLinkUK and BT are both committed to making a positive contribution to the communities in which the InLinks operate. Both parties have collaborated with the police and local councils, in delivering this new investment in InLink technology aimed at helping the authorities to address anti-social behavior issues. Manchester is one example of a city council with whom BT and InLinkUK have been working closely to address such issues. Councillor Pat Karney, Manchester City Council, said: "It's great to see the InLinks continue to adapt based on feedback from the council, police and wider community. Reducing opportunities for misuse while still providing useful services is just one aspect of tackling crime and anti-social behavior in Manchester, but it is important we address it at the earliest opportunity. Together with local police and other partners, we will continue to work hard to tackle the underlying issues of substance abuse, drug dealing and related crime and anti-social behavior here in Manchester." Matt Bird, General Manager at InLinkUK, said: "We are pleased that our ongoing collaboration with local authorities has resulted in the development of this brand new technology. We are committed to ensuring the InLinks are a welcomed and valued part of the communities they serve, and our investment into the development of this call restriction feature means we are able to readily identify misuse and quickly put a stop to it, whilst still providing a positive free service to local communities across the UK." Neil Scoresby, General Manager, Payphones, BT, said: "The speed at which we've introduced this new technology demonstrates our commitment to working with the authorities and local communities to address any concerns around anti-social issues and the InLinks. Developed and implemented by BT, the new call blocking feature will ensure that InLinks continue to be enjoyed by users in genuine need of the free, digital services provided by the units." The roll out and operation of InLinks in urban centers across the UK is based on an exclusive partnership between BT and London-based tech startup InLinkUK.

Cisco and Dimension Data Announce Co-Innovation Partnership

Cisco and Dimension Data have announced a new co-innovation agreement, to develop a deeper collaboration environment and framework to jointly solve clients' business needs. Drawing on their respective core strengths, competencies, and technologies, Cisco and Dimension Data are coming together to provide the scale and market-reach to transform ideas into viable, deployable solutions. As part of the multi-year agreement, both companies plan to utilize Cisco's global network of Co-Innovation Centers to drive collaboration in key areas such as 5G, Internet of Things, and Blockchain. Additionally, the two companies will continue to enrich and expand their Connected Conservation program that is leveraging sophisticated solutions to protect and better the planet, endangered animals, and their communities. Working closely to innovate beyond traditional products to solve business and operational challenges will allow both companies to drive more ambitious projects and outcomes. They share a vision of tapping into their deep pools of existing technology and co-innovating with customers and the broader ecosystem to meet client needs as they arise and deliver enhanced capabilities in an agile fashion. "This partnership means we're in a stronger position to research, test and develop new offerings at a speed beyond the traditional market cycle," said Ettienne Reinecke, Chief Technology Officer, Dimension Data. "By creating a deeper collaboration environment, we will share and leverage our intellectual property, including products and code, allowing us to move faster with a focus on applied innovation to challenge the art of the possible, which will result in some exciting innovations for our clients." Cisco's Chief Technology Officer, Dave Ward added, "Innovation doesn't happen in a vacuum; it requires diverse skill sets and multiple points of view. Co-innovation as a formal, structured process with our ecosystem.

Cisco and Vodafone Idea Team Up on Multicloud Network in India

Cisco Systems and Vodafone Idea is working with to build an automated multicloud network for its retail and enterprise customers. Vodafone Idea and Cisco are deploying a distributed multicloud architecture based on Cisco's network functions virtualization infrastructure (NFVi.) The integrated cloud, which Vodafone Idea said is the largest in the country, is being used for its IT and network applications that are hosted in one cloud. The automated solution has enabled a nationwide deployment in record time, according to Vodafone. While the cloud offers many benefits to Vodafone Idea's end customers, it also fast-tracked Vodafone Idea's data core network rollout, increased its capacities, and helped reduce capex, with cloud implementations being done in just 72 hours. Vodafone Idea said its automated cloud scale architecture is synchronized across applications, operating systems, infrastructure, and an underlying IP-MPLS core. It taps into a range of Cisco solutions including Cisco virtualized infrastructure manager (VIM) for NFVi management, Cisco Ultra Packet Core and policy, third party VNFs (virtual network functions), Cisco Application Centric Infrastructure (Cisco ACI), leaf-spine architecture, and cloud security. Vodafone Idea is also working with Cisco's Customer Experience teams on the deployments. "We are in the midst of a large scale network Integration and transformation program to serve our approximately 390 million subscribers," said Vodafone Idea CTO Vishant Vora, in a prepared statement. "Building a robust, secure and future proof network infrastructure based on cloud is a key component of the transformation. The distributed cloud architecture will enable edge and fog computing services for our customers in both the enterprise and consumer spaces. Cisco has collaborated with us in building this fully virtualized, scalable cloud architecture that supports our traditional connectivity as well as IoT." NFVi will be a topic of discussion at this week's Open Networking Summit in San Jose. To date, the promise of NFV has been largely unfulfilled, as it has proven to be a complex endeavor for service providers and vendors. By going with one vendor, Vodafone Idea is able to reduce its NFVi pain points. The Linux Foundation's Heather Kirksey, Vice President, community and ecosystem development, said in a interview with FierceTelecom that there were too many versions of NFVi, which has made them difficult to test and prevented the creation of an industry-wide NFVi ecosystem. A panel today at ONS, which includes Kirksey, AT&T's Amy Wheelus, AT&T's Mark Cottrell, Verizon's Beth Cohen and China Mobile's Qiao Fu, will discuss how an NFVi ecosystem system can be built to reduce the pain points of NFVi and achieve economies of scale.

Iliad Deploys 5G-Ready IP Network with Cisco

Iliad, the newest of Italy's four cellcos, has contracted Cisco to deploy a national IP network powered by Segment Routing IPv6 (SRv6). According to a Cisco press release, the SRv6 deployment enables Iliad to build a 5G-ready network that is extremely scalable with improved reliability, flexibility and agility, all while helping to reduce CAPEX and OPEX. The new architecture is built upon multiple products from the Cisco networking portfolio, including the ASR 9000 and NCS 5500 routers for core IP, NCS routers for DWDM infrastructure, and Nexus switches for data centers. French-owned Iliad joined Italy's mobile market in May 2018 and had attracted more than 2.8 million subscribers by the end of the year.

Cisco, PLDT Team Up for 5G-Ready IP Transport Network

Philippines' leading digital services provider PLDT has partnered with global technology leader Cisco to help transform its IP transport infrastructure into a fully automated software defined 5G-ready IP transport network. Under this partnership, PLDT and Cisco will deploy cutting-edge technology to design and build automated, highly reliable, highly scalable, software-defined next generation infrastructure utilizing PLDT's existing fiber network to seamlessly deliver customized digital experiences to customers. This large-scale investment with Cisco is part of PLDT's broader transport network transformation project, which will be implemented over the next three years. "This investment will raise PLDT's fiber network to the next level. Today we mark another major milestone in PLDT's efforts to help the country gear up for the Industrial Revolution 4.0, enabling us to move up to the next generation of digital technologies, such as 5G, software-defined networking (SDN), artificial intelligence and Internet of Things," said PLDT Chairman Manuel V Pangilinan. "At Cisco, we are committed to working with our customers to transform their infrastructure, so they can unlock growth opportunities as everything becomes connected. PLDT is at the forefront of this transformation and we are proud to partner together to deliver best in class services across the Philippines," said Chuck Robbins, Chairman and CEO, Cisco. PLDT's fiber network footprint of over 244,000 kilometers is the country's most extensive fiber infrastructure. With four cable landing stations linking the country to major international gateways worldwide, PLDT's fiber network also supports the company's array of digital services for both its fixed and wireless customers. Under this project, PLDT and Cisco will deploy technologies across PLDT's network to make it more efficient, more resilient, more scalable, and easier to maintain and repair. The software defined architecture will also enable PLDT to fortify customer services with highly dynamic and agile networking capabilities, as well as cybersecurity to safeguard customer data. "We are building with Cisco one of the most modern transport networks in Asia by maximizing the capabilities of the fiber infrastructure that we have already put in place," said Joachim Horn, PLDT chief technology and information advisor. The automated architecture of the network will also enable PLDT to manage traffic congestion, minimize network outages, and launch new digital services faster. "With this network transformation program, we can empower enterprises and businesses and address their needs for speed, bandwidth and digital services quickly and seamlessly," Horn added. Cisco's Customer Experience team will play a leading role in the end-to-end design, build and deployment of the new infrastructure to extend the network's reach, reliability and scalability. It will also greatly enhance experiences for PLDT's customers and lay a solid foundation for 5G rollout. "Cisco and PLDT share a vision for building a modern infrastructure that redefines everyday experiences for businesses and consumers. Our Customer Experience team understands that technology is just one part of the solution and that it is equally important to have the right design, architecture, deployment strategy and support systems in place to ensure the long-term success of a project of this scale. Our partnership with PLDT shows the breadth of Cisco's capabilities in implementing a fully automated, software-driven network that can serve millions of subscribers, scale rapidly and be ready for 5G," said Miyuki Suzuki, President Asia Pacific, Japan and China at Cisco. The network transformation project is also part of PLDT's 5G efforts, as it is also seen to support the Internet of Things (IoT), as well as Smart City initiatives. "This transformation program will not only increase the network's capacity in anticipation for the upcoming mobile data traffic explosion, it will also make it more intelligent and ready for the deployment of real, standalone 5G," Horn said. "Through partnerships with global technology leaders like Cisco, we are continuously improving our network to ensure that PLDT remains to be the country's technology enabler of choice," said Ernesto R. Alberto, PLDT chief revenue officer. "With a fully automated network, our enterprise customers can expect more tailor-fit digital services that meet their businesses' specific needs today and in the future," said Juan Victor Hernandez, senior vice president and head of enterprise for PLDT. Cisco is leading the disruption in the industry with its technology innovations in software-defined networking, 5G, subscriber experience (mobile, cable, fixed), automation, optical and optics. Together with its Customer Experience team of experts, Cisco enables service providers, media and web companies to reduce cost and complexity, helps scale and secure their networks, and grow their revenue.

DialogicONE 3.0 Offers Visual Service Creation and Rapid Prototyping, Enables Acceleration of CSP IoT Solutions

Dialogic, a cloud-optimized applications and infrastructure solutions provider for service providers, enterprises, and developers, announced today the general availability of DialogicONE 3.0, a major release of the company's application integration and orchestration platform, adding a number of cutting-edge features that enable service providers to generate applications at a rapid pace with IoT platforms and for 5G networks. Two particularly significant features were added with the 3.0 release – Visual Service Creation and Rapid Prototyping. Both allow non-developers to gain access to tools for innovation and creation of unique applications in hours and days, as opposed to weeks or months. Visual Service Creation enables integration with any API and development of services running consolidated data models, by utilizing rules and actions to create logic and flow of triggers in an event-driven solution architecture. Rapid Prototyping, integrated with Visual Service Creation, enables easy creation of native mobile applications connected to services running on the DialogicONE platform. iOS and Android phone and tablets are supported for administration of proof of concepts, prototypes, and trial solutions. "Visual Service Creation and Rapid Prototyping in DialogicONE 3.0 are key milestones in our vision to provide agile, modern, scalable, and highly innovative development and production environments for service providers around the globe," said Peter Kuciak, Group Vice President of DialogicONE. "Our aim is to be a major enabling platform for service providers seeking acceleration of new solutions as they deploy IoT capabilities and 5G networks." DialogicONE provides a unique platform to transform many service provider departments into self-serving innovation hubs – by giving everyone access to visual intuitive tools that can bring new ideas to life in days and at a fraction of budgets previously required to build trial solutions with teams of developers. "Dialogic's heritage lies in state-of-the-art tools that helped power the VoIP revolution and the creation of countless service provider solutions," said Bill Crank, CEO of Dialogic. "DialogicONE continues this legacy into next-generation technologies such as IoT, AI, and AR/MR, plus allows service providers to easily test many new ideas for the 5G networks being deployed by Tier1 service providers around the globe."

Eutelsat Partners with Seraphim Space Camp, the UK's First Accelerator for Space Technology Startups

Eutelsat Communications (Euronext Paris: ETL) is set to become a partner of Seraphim Space Camp, the UK's first accelerator for space technology start-ups. Launched by Seraphim Capital, the world's leading SpaceTech venture fund, Seraphim Space Camp was created a year ago in London. Eutelsat will join the likes of the European Space Agency, Rolls-Royce, and Airbus in supporting the 3rd edition of the Seraphim Space Camp program. Over the course of 9 weeks, the selected startups will have their businesses accelerated to become investment ready and to achieve commercial scale, receiving assistance with fund-raising, business and commercial advice, individual coaching and mentoring opportunities, as well as access to Seraphim Space Camp's industry network. Eutelsat will be feeding into this ecosystem by actively engaging and providing its satellite expertise and space heritage to those participating start-ups, thus gaining exposure to a range of technological innovations which could support its future growth. Jean-Hubert Lenotte, Eutelsat's Director of Strategy and Strategic Marketing said: "We are delighted to partner with the Seraphim Space Camp and to play our part in stimulating the technological innovation which drives the development of our sector. This engagement underlines our commitment to an open innovation strategy. Seraphim Space Camp's comprehensive and hands-on approach has already established itself

as the go-to accelerator in the space field, notably leveraging the current dynamism of the UK space sector." Rob Desborough, Director of Seraphim Space Camp said: "We're incredibly pleased to announce our partnership with Eutelsat. Many of the companies we select are utilizing satellite data to solve on-Earth challenges, so to have onboard one of the world's leading satellite operators brings significant additional value to the program. We look forward to working closely with Eutelsat throughout Mission #3 and beyond as we take Seraphim Space Camp to Europe."

Facebook Opens Innovation Lab in Pakistan

Facebook and Pakistan's Ministry of Information Technology & Telecom along with the National Technology Fund (IGNITE) launched the first Facebook Innovation Lab in Pakistan at a ceremony attended by policy makers and technocrats. Located in the National Incubation Center (NIC) at the Lahore University of Management Sciences (LUMS), the Innovation Lab will focus on providing infrastructure access to developers, entrepreneurs and community groups enabling them to network, train and grow their expertise. It will also help developers build products and applications using emerging technology like Virtual Reality (VR)."We are proud to launch Facebook Innovation Lab as a part of our long term commitment to support innovation and the developer community in Pakistan. Facebook is committed to building an impactful community in Pakistan and we believe it is important to support businesses, startups and the individuals who are driving innovation to grow and succeed. We are confident that through our partnership with the Ministry of Information Technology and Telecom, Ignite, National Incubation Centre (NIC) Lahore, and LUMS, Facebook Innovation Lab will not only be a unique training and innovation center, but will support a vibrant and transformative technology community in the country", said Jason Lin, Head of Startup Programs (APAC), Facebook. This is the first innovation lab launched by Facebook in Pakistan. The Lab will give startups the infrastructure and the access they need to refine and scale their business models so they can succeed in Pakistan and scale internationally. The lab not only provides a showcase of the latest technology, but participants will be matched with mentors, as well as connect with Facebook's global and exclusive experts, industry leaders, and specialists in product innovation, business growth, and data protection. Attending the launch, Yusuf Hussain, Chief Executive Officer (CEO) of Ignite said, "Augmented Reality (AR), Virtual Reality (VR) and Artificial Intelligence are rapidly expanding and will be major sectors of the future. Ignite's partnership with Facebook, one of the world's leading AR/VR development platform, will help launch this crucial 4IR technology in Pakistan in a big way." Participants will access FbStart, a global program designed to help start-ups build and grow their businesses. Finally participants are encouraged to connect and support other developers and entrepreneurs through Developer Circles, a community-driven program for developer collaboration. One of the founders who shared how technology, especially VR, helped their vision was Saadan Ahmed, Founder and CEO of Vanilla Arcade, a company which offers immersive and interactive experiences to advertisers and educational institutions. "AR/VR has allowed us to connect the youth of Pakistan to experience the culture and history of their country in the most immersive way possible. It is the future of storytelling and education," said Ahmed. Other startups at the launch included Advertelligent who help support retailers understand foot traffic and Vcella who use technology to connect Pakistan's artisans to the rest of the world through a virtual marketplace. Facebook Innovation Lab is aimed at encouraging South Asia's spirit of entrepreneurship and startup growth. In addition to the program the lab will also host initiatives such as housing community events and workshops and providing trainings for startups. Another key feature of the lab is that it welcomes startups and entrepreneurs based in Pakistan who would like to deep dive into the emerging technology space. LUMS Vice Chancellor, Dr. Arshad Ahmad said, "Innovation is the backbone of cutting edge research and quality teaching at LUMS. Facebook Innovation Lab Pakistan provides leverage to our core offerings and enables us to achieve another level of training and mentorship – it promises to create social capital amongst young entrepreneurs that will drive their ideas with no boundaries."

Huawei: Region's 5G Ecosystem Growing Faster than Expected

Looking ahead to an all-connected, all-intelligent world, Huawei—a leading global provider of information and communications technology (ICT) infrastructure and smart devices—recently hosted top ICT industry leaders at its '5G is ON' forum, co-located at the SAMENA Leaders' Summit.

During the forum, organizations from the public and private sectors laid plans for 5G readiness in the region, while examining best practices ahead of large-scale 5G network deployments in the Middle East and internationally. Huawei provided insights on how 5G can benefit the acceleration of digital transformation, help achieve the targets of the national visions and agendas, in addition to pushing the development of different industries and sectors in the region.

Mr. Wang Su, VP of Huawei Middle East Marketing, said:" 5G industrial development is accelerating. Huawei will work with ecosystem cooperators on Cloud X solutions (Cloud VR & Cloud Gaming, etc.) and vertical industry applications (Oil & Gas, etc.) through its wireless XLabs and ME OpenLab, and introduce these use cases to Middle East operators along the 5G journey as partners rather than vendors".

Huawei is working with customers and partners to drive the large-scale commercial rollout of 5G, and build a mature 5G ecosystem that thrives on shared success, pushes the limits of technology and promotes social progress along the way.

Mr. Pierric Duthoit, Industry Director, Google MENA, said: "We are happy to participate at the 5G is ON forum in Leaders' Summit, SAMENA. As 5G is transforming most industries, we believe that the acceleration of the development of video consumption on Youtube and the rise of new applications such as VR/AR with Google Lens, Google Photos, Google Paly Store and cloud gaming will certainly benefit from the 5G. Google is working towards providing the best experience to our customers."

Mr. Hajime (Gen) Nakamura, General Manager, Sony Professional Solutions MEA, said: "To thrive in today's media environment, you need to deliver content anytime, anywhere to an unprecedented range of platforms. You need to do it efficiently, reducing your footprint, streamlining operations and achieving financial flexibility – all without sacrificing quality. Sony's Intelligent Media Services enhanced with the introduction of 5G services will provide customers flexibility to unlock more value from their content."

Mr. Wang Xiangning, connected-drone project manager from China Unicom Research Institute, said: "China Unicom considers connected- drone as a growth engine in To B business in 5G age.5G technology with high bandwidth, low latency capabilities are naturally equipped with high-definition image/ video transmission and remote control. Ecosystem and unified international industry standard are vital for 5G drone business successful. China Unicom would like to share the experiences which is happening in China and promote to build unified international connected drone standard with Huawei, TYJW and other partners who would like to join us in Middle East region and worldwide."

Mr. Yang Meng, CTO of TYJW, said: "Connected drone involves cloud computing, Big DATA and AI, is an inevitable way for operators to expand their business in low altitude IoT and 5G, has already widely applied in China by China Unicom and TYJW."

Mr. Du Yeqing, VP of Huawei 5G Product Line hosted and introduced the progress of Huawei 5G ecosystem cooperation strategy. For the past few years, one of Huawei's main focus areas has been creating the 5G ecosystem through collaborating with leading partners in the region and globally. Currently, we finished joint solution development with TYJW for the long-distance connected drone solution, with Visyon for the Cloud VR application solution, with LetinVR for Cloud VR live broadcasting solution, with BoE for 4K/8K video solution and with PlayGiga for Cloud Gaming solution in the region.

All factors that 5G need are available now: 5G chipsets, CPEs and spectrum are ready to serve the large scale rollout of 5G in the region. 5G is an E2E system and Huawei's strength is not only staying in wireless but in all aspects of 5G, from

devices, to network, and to ecosystems. In 2018 Huawei announced the world's most powerful 5G chipset and CPEs with up to 4.6Gbps downlink. Recently, Huawei announced the world's 1st foldable 5G smartphone – Mate X.

The root reason of Huawei's leadership in 5G is our insistent and heavy investment in 5G for the past 10 years. We have brought 283 global industry partners and 57 regional partners into X-lab. Huawei believes it will only take 3 years to achieve 500 million users to 5G, which took 6 years for 4G and 9 years for 3G. It is estimated to have 1 million sites of 5G globally in 2019.

Mr. An Jian, President of Carrier Network Business Group, Huawei Middle East, said "Huawei established X-lab 3 years ago to explore vertical use cases with our global partners. Also, here in Middle East, we launched a local ME ecosystem partnership program last year, to incubate local use cases in the region. We believe that the oil industry can champion that transformation to harness the power of 5G. In Middle East, all of the GCC countries have started 5G deployment. I believe the GCC will keep leading in the global 5G race for years to come."

Under the summit theme 'Early Proliferation of 5G - Vital to Building the Digital Economy', Huawei participated in several top discussions at the Summit. These included the high-level leaders' roundtable conversation addressing the impact of 5G, industry 4.0, cross-industry engagement, and digital enablement. Huawei was also a key contributor to the leaders' panel discussion, with participants examining key policies that will enable the transition to an inclusive 5G ecosystem across the Middle East.

Alongside the various discussions, Huawei presented its end-to-end 5G solutions within a dedicated exhibition area, including 5G-ready technologies such as chipsets and consumer devices, network infrastructure, and bespoke solutions for over 280 global industry partners.

A number of Huawei's ecosystem partners were with the company at the SAMENA Leaders' Summit, including: Google, Sony, China Unicomm, TYJW, Playgiga, Vsiyon, LetinVR, BoE, Aerodyne, No Fire Cloud, Quectel, INLIFE-HANDNET, MGI TECH Co. Ltd, HiScene, DALU ROBOTECH, and Fibocom.

Huawei Says Launches 'World's First' 5G Communications Hardware for Autos

China's Huawei Technologies launched on Monday what it said was the world's first 5G communications hardware for the automotive industry, in a sign of its growing ambitions to become a key supplier to the sector for self-driving technology. Huawei said in a statement that the so-called MH5000 module is based on the Balong 5000 5G chip which it launched in January. "Based on this chip, Huawei has developed the world's first 5G car module with high speed and high quality," it said. It launched the module at the Shanghai Autoshow, which began last week and runs until Thursday. "As an important communication product for future intelligent car transportation, this 5G car module will promote the automotive industry to move towards the 5G era," Huawei said. It said the module will aid its plans to start commercializing 5G network technology for the automotive sector in the second half of this year. Huawei has in recent years been testing technology for intelligent connected cars in Chinese cities such as Shanghai, Shenzhen and Wuxi and has signed cooperation deals with a swathe of car makers including FAW, Dongfeng and Changan. The company, which is also the world's biggest telecoms equipment maker, is striving to lead the global race for next-generation 5G networks but has come under increasing scrutiny from Washington which alleges that its equipment could be used for espionage. Huawei has repeatedly denied the allegations.

Huawei Launches Cloud & AI Innovation Lab in Singapore

HUAWEI CLOUD SUMMIT 2019 was held in Singapore. HUAWEI announced the launch of Cloud & AI Innovation Lab in Singapore at the summit. The lab will cultivate local AI talents, bridge Singapore with state-of-art AI technologies globally, and accelerate Cloud & AI innovations. All these missions line up well with Singapore's Smart Nation initiatives. Summit attracted over 2,000 customers, partners, industry academics, and developers from Singapore and the Asia-Pacific region gathered to share and discuss innovative products and intelligent practices from fields such as cloud computing, AI (artificial intelligence), and big data.

Outstanding Cloud Services for Asia Pacific

Backed by the compute power and a wide range of AI solutions offered by HUAWEI CLOUD, the lab will provide powerful AI services and resources, including AI R&D robots, Traffic Intelligent Twins, and AI development kits. The lab opening will deepen collaboration with local universities and enterprises in carrying out research. AI developers and companies in Singapore and the Asia-Pacific region will have the opportunity to join in more research projects and innovations on AI training and learning. These R&D activities will foster top AI talent and incubate more AI applications. Edward Deng, President of HUAWEI CLOUD Global Market said: "Singapore is an international center of innovation, also a strategical hub for China-funded and overseas enterprises in the Asia-Pacific region. HUAWEI CLOUD attaches great importance to development in Singapore and the Asia Pacific. HUAWEI CLOUD provides industry-leading full-stack intelligent cloud services to bring together government, universities, enterprises, and partners to innovate, and to help accelerate their intelligent transformation." HUAWEI CLOUD also announced the launch of its "Go-China/Go-Global" plan to help more enterprises develop worldwide services. The company is committed to providing the worldwide Internet, gaming, finance, and video markets with a series of unique, advantageous services that connect users globally, adapt to various networks, and lead in new trends. This plan includes exclusive services such as:

ARM cloud service for mobile phones.

High-defense IP addresses providing service traffic isolation and DDoS attack prevention.

Cloud video services with ultra-low distribution costs.

Cloud video service able to ensure continued clear broadcast in sub-par network conditions.

HD live broadcast for low-speed networks.

HUAWEI CLOUD will also cover key areas in Europe, Africa, China, North America, and Latin America. It provides unified management of accounts for efficient O&M and resource management, builds a stable international network with high-speed channels, and provides quality experience with its global service. During the summit, HUAWEI CLOUD signed Memorandums of Understanding (MOU) with multiple companies to deepen cooperation in the Asia-Pacific market in the field of cloud computing and AI. They jointly released a program to build a better-connected, smart Asia-Pacific.

At the summit, HUAWEI CLOUD also released three flagship cloud services, including:

- New-generation ECS C6, the industry's first new-generation Intel® Xeon® Cascade Lake processor, leading industry computing performance by 15% and able to provide 10 million PPS in network performance.
- Newest Object Storage Service (OBS), utilizes unique HUAWEI CLOUD algorithms to achieve the highest performance in the industry. Single-stream bandwidth reaches 2.4 Gbps, one bucket supports billions of objects, and data reliability reaches 99.99%, meeting long-term storage requirements for massive volumes of data.
- The new-generation high-performance distributed Taurus database has seven times the performance of native MySQL databases. It supports cross-AZ deployment and delivers an impressive 128 TB of in storage, meeting the requirements of the financial industry. This solution provides the massive-scale storage needed in high throughput conditions for carriers and large enterprises. HUAWEI CLOUD offers more than 160 cloud services and 140 types of solutions, operating 40 availability zones in 23 geographic regions around the world. HUAWEI CLOUD has 59 types of AI services with 159 functions.

Four Advantages, Empowering Intelligent Upgrades in Singapore

Digital transformations powered by the Internet, ICT, and mobile terminals started to boom a few years ago, bringing huge

benefits. The revolution today is intelligent transformation. Governments, societies, enterprises, families, and individuals are all involved. AI will bring tremendous changes and generate unprecedented productivity. According to Edward Deng, Huawei has a profound accumulation of technical knowledge and practice. With this, HUAWEI CLOUD will continuously use its full stack and the four core advantages to enable intelligent upgrade and transformation, and accelerate service innovation. Edward spoke to four main advantages:

First, HUAWEI CLOUD+AI powers digital transformation for organizations everywhere. It helps enterprises enhance IT and business operations efficiency, increase production capacity, reduce CAPEX and OPEX, and improve business agility. Huawei estimates that almost all companies will have migrated their businesses to clouds by 2025, 97% of large enterprises will use AI, and 77% of cloud applications will rely on AI. AI will become a key competitive point in cloud.

Second, Huawei hybrid cloud is an optimal choice for large enterprises to migrate their business to the cloud. It enables some remarkable core business value, including high efficiency, low cost, top security, and freeing agility. In recent years, Huawei has maintained rapid growth in sales without adding significantly more employees to its ranks. This is because we invested heavily in ICT and promoted the large-scale application of new technologies such as cloud and AI. Huawei's 30 years of successful experience in digital transformation is now shared through HUAWEI CLOUD in the form of services. It will bring technological benefits to more enterprises. The HUAWEI CLOUD ICT solution has served 48 of the Fortune 100 enterprises and 221 of the top 500 enterprises in the world. It has become the first choice for governments and enterprises in the Cloud 2.0 era.

Third, HUAWEI CLOUD+AI is the driving force for intelligent transformation. HUAWEI CLOUD believes that AI implementation requires deep integration of know-how and data with powerful AI computing and algorithms. In the past year, HUAWEI CLOUD has explored over 300 AI projects in more than 10 industries. The experience gained from these projects enables HUAWEI CLOUD to quickly and accurately help Singapore industries, enterprises, and citizens enjoy the value and benefits from AI technologies.

Fourth, HUAWEI CLOUD has earned the trust of customers and partners with our proven commitments. With global network infrastructure resources and services, HUAWEI CLOUD provides customers with localized services and support. With a unified open architecture, 40 AZs in 23 regions, and over 1500 CDN nodes and networks, enterprises have all the support they need to quickly and efficiently expand their international services. As a neutral and trusted cloud partner, HUAWEI CLOUD provides customers with cloud services that comply with security and compliance requirements at home and abroad.

The four core advantages of HUAWEI CLOUD will cover Singapore and the Asia-Pacific region. With the advantages brought by an open ecosystem, full-stack technologies, and experience in innovation, various industries will see acceleration of intelligent upgrade.

Huawei Partners with Infosys to Further Build Its Cloud Ecosystem

Huawei's continued quest to be one of the world's largest cloud players took a small step forward with the announcement of a new partnership with Infosys. Huawei Cloud has signed a memorandum of understanding (MOU) with India-based IT firm Infosys in order to help enterprises transition to the digital cloud. As part of the MOU, Infosys will join the Huawei Cloud Partner Network (HCPN) in order to better blend Infosys' products with Huawei Cloud's offerings. "Combining Huawei Cloud's product innovation and Infosys' strengths in next-generation digital services, we will help our clients accelerate their transition to the cloud," said Infosys President Ravi Kumar, in a prepared statement. "As part of this engagement, we will provide a suite of technologies hosted on Huawei Cloud, such as workload migration solutions including SAP and other enterprise workloads." Over the past several years, Huawei has made a determined effort to become one of the world's largest cloud providers, but it faces stiff competition from Amazon Web Services, Microsoft Azure, and Google Cloud. Closer to home, Huawei also competes with China-based Alibaba. Alibaba has been making a concerted effort to expand its cloud business into Europe. According to a February report by Synergy Research Group, Amazon Web Services increased its market share at the end of last year to the point where it is equivalent in size to the next four competitors combined. In order, Microsoft, Google, IBM and Alibaba held the top spots after AWS, according to Synergy Research Group. While Huawei wasn't mentioned among the top cloud providers in the report, it has been trying to build a cloud ecosystem since at least 2016 when it first launched its "All Cloud" strategy for ICT infrastructure. A year later, Huawei announced it was seeking cloud computing partners to become the world's fifth largest cloud provider behind AWS, Azure, Google and Alibaba. Given its size, Huawei Cloud may be able to muscle its way into cloud markets that are currently underserved by the top four companies, but there are also a host of medium and regional cloud companies. In first quarter earnings report, which was the company's first, Huawei touted the artificial intelligence capabilities that are in Huawei Cloud. "Huawei CLOUD remains committed to innovation. It aims to build the best possible hybrid cloud, provide full-stack AI solutions for intelligent industries, and make inclusive AI a reality," the company said in its earnings report. "More than one million enterprise users and developers have chosen to work with Huawei CLOUD. In Q1, Huawei Cloud services were launched in Singapore, and Huawei Cloud released its AI model market." In today's press release, Huawei said the number of HCPN partners had exceeded 6,000. Working with those partners, Huawei Cloud has added 2,800 applications that are available in 23 regions around the world.

Huawei Launches the One Thousand Dreams Program

At the China and Central and Eastern European (CEE) Countries Economic and Trade Forum held in Croatia, Huawei announced the launch of the "One Thousand Dreams" social contribution program. This program plans to train 1,000 ICT talents in total across 16 CEE countries (including Poland, Estonia, Latvia, Lithuania, Romania, Bulgaria, Hungary, Czech, Slovakia, Slovenia, Serbia, Croatia, Bosnia , Herzegovina, Montenegro, Northern Macedonia and Albania), and donate 1,000 books to university libraries and 1,000 toys to children's hospitals in each of the 16 countries over the next five years. As the flagship social contribution program in CEE, "One Thousand Dreams" aims to provide a long-term and sustainable platform for the youth in the region, and encourage them to work on the ICT sector, helping their countries build an intelligent society in the future. During the 16+1 summit, Huawei was invited to participate in "TODAY, TOMORROW, TOGETHER"- the China-CEEC education exchange exhibition, where Huawei demonstrated the smart education solutions for remote teaching scenarios and the latest WIFI-6 technology which can support the campus networking of the next generation. 2019 marks the China-CEE Countries Education and Youth Exchange Year. The two sides aim to enhance mutual understanding through various means such as dialogues, visits, and training, and strengthen their cooperation in the areas of education and youth support. ICT technologies can effectively improve education experiences and contribute to high-quality education for everyone. Huawei has constantly emphasized the importance of investing in developing ICT skills of the youth and cultivating local ICT talent. These efforts will help transfer knowledge, strengthen people's understanding of and interest in the ICT industry, and encourage more people to enter the digital world. Li Jian, President of Huawei's European Region said, "It is not enough to only have connectivity in the future digital world. Huawei wants to acquaint more people with the benefits of digital technologies, and enable them to access and use digital knowledge. Children and young people are the hope of the future digital world. The "One Thousand Dreams" we launch today is a five-year social contribution program. Through continuous investment, Huawei hopes to improve the digital skills of the youth in CEE countries, and encourage more young people to find a passion for science and willingness to explore it. This is what Huawei is committed to achieving during its operations in CEE." People can make better use of information and digital tools by receiving ICT training. This is why Huawei has focused on improving ICT education. As Huawei's global flagship CSR program, the Seeds for the Future program had taken place in 108 countries and regions worldwide by the end of 2017. Over the past five years, nearly 300 university students from 16 CEE countries have benefited from this.

Telecom Fiji Deploying 10G-PON Network with Huawei

Telecom Fiji and Huawei have jointly announced the deployment of all-fiber 10Gbps Passive Optical Network (10G-PON) broadband access infrastructure, designed to provide gigabit-speed internet access for households and enterprises. Claiming a first in the South Pacific islands region, the partners underlined that the 10Gbps-capable network will support 'rich digital services' including multi-channel 4K/8K video and VR, smart home applications, high speed business connections and more.

China Tower and Huawei Conduct Joint Innovation Test on 5G Energy Solutions

China Tower and Huawei have announced the completion of a joint innovation test on 5G energy solutions. The results showed that by using innovative technologies such as intelligent peak shaving, intelligent voltage boosting, and intelligent energy storage, it is possible to achieve an efficient, low-cost site deployment without changing the mains, power distribution, and cabinets in the evolution to 5G. The joint innovation results provide insight into the power supply mode for 5G sites and demonstrate the value of the joint efforts being made by the two parties to promote the maturity of the 5G power industry. With network capacity set to increase rapidly in the 5G era, the power consumption required for a single 5G site is much higher than a 4G site. In addition, a large number of end sites will be deployed, causing the power consumption of the entire network to increase exponentially. To reduce site construction costs, sharing must come first. As the coordinator of China's tower infrastructure construction and sharing, China Tower faces a series of challenges in 5G construction: The power consumption of 5G base stations greatly increases, with existing base stations face capacity expansion and reconstruction. However, mains capacity expansion costs are high and take a long time, which severely affects the pace of 5G deployment while greatly increasing investment. In addition, the DC power system, batteries, and air conditioners at most existing sites need to be expanded and reconstructed. In the remote scenario of 5G high-power active antenna units (AAUs), the cable loss is high. The remote voltage is even lower than the operating voltage of the AAU in some cases. As a result, the AAU cannot work. To address the issues in 5G construction and O&M and formulate a comprehensive power supply solution for 5G sites, China Tower and Huawei agreed a joint innovation initiation in December 2018 and set up a joint working team to lower investment, reduce OPEX, and achieve intelligent O&M. The 5G energy joint innovation test was conducted on multiple topics, such as insufficient mains capacity in special scenarios, peak load shaving, and intelligent battery management and accurate configuration. The entire process, from 5G network power supply requirement reviews and test case designs to comprehensive tests, was conducted an expert team from China Tower and Huawei Network Energy Product Line. Based on the industry's first 5G-oriented power supply solution provided by Huawei, the test, which was conducted in Hangzhou, China verifies the functions of intelligent peak shaving, intelligent voltage boosting, and intelligent energy storage. The site in Hefeng Village is used as an example. The average load is 1.4 kW, while the peak load is 2.7 kW, and the AC power limit is 1.6 kW. When 5G services are simulated, the peak load exceeds the power limit and lithium batteries start to power the load to achieve intelligent peak shaving. When the load is light, lithium batteries immediately switch to the equalized charging mode. Huawei's 5G Power Solution intelligently controls batteries and air conditioners based on a sites power consumption and mains capacity to achieve "no mains change" and thereby reduces the capital investment when sites evolve to 5G. In addition, the team also tested various intelligent features such as intelligent solar access, hybrid use of lead-acid and lithium batteries (battery pooling), and mixed use of old and new power supplies (power pooling) to verify the on-demand battery and power supply configuration and modular evolution. "This joint innovation provides insight into the 5G power solution of China Tower," said Tong Kebo, General Manager of the Technical Support Center, Zhejiang Branch of China Tower. "Intelligent peak shaving and voltage boosting addresses long periods and high costs caused by mains and cable reconstruction. The hybrid use of smart lithium batteries and old lead-acid batteries refines our backup power supply and maximizes the value of our investment. The success of this innovative test breaks the limitations of traditional solutions on 5G site construction and O&M, and is of great significance for large-scale 5G commercial use by China Tower." The joint innovation test between Huawei and China Tower on 5G energy solutions will help build sustainable infrastructure in the 5G era, strengthen the ability to cope with climate change, and contribute to the achievement of Goal 9: Industry, Innovation and Infrastructure and Goal 13: Climate Action in the UN Sustainable Development Goals (SDGs). In 2018, Huawei 5G Power Solution won the "5G Green Energy Industry Strength Award" by People's Posts and Telecommunications News, an authoritative newspaper in China's communication and information industry.

Nokia and Nordic Telecom Launch the World's First Mission Critical Communication-ready LTE Network in the 410-430 MHz Band

Nokia and Nordic Telecom have launched the world's first Mission Critical Communication (MCC)-ready LTE network in the recently opened up 410-430 MHz band. As a result of Nokia's advanced and future-proof mobile broadband solution, the Czech operator Nordic Telecom will be able to jumpstart public protection and disaster relief efforts with innovative services only possible on mobile broadband networks. LTE-based critical communications that enables real-time video and data services is the biggest need of disaster relief responders around the world. On top of the mission critical requirements, high security, high datarate and low latency, the public safety community also requires wide area coverage, which is best supported by low frequency bands. With the recently opened 410-430 MHz band that can now serve as a dedicated spectrum for MCC/PPDR and Internet of Things (IoT) solutions in Europe, accelerated LTE adoption for critical communications and mobile broadband applications is around the corner. Jan Cornej, Investment Manager, Nordic Telecom said, "As a pioneer in this space, we are looking forward to proving to the market that modern and new generation MCC services can be provided on an LTE network. We are very happy to announce our cooperation with Nokia who is providing us with a completely secure and future-proof solution, dedicated local team, technical advisory and professional services." Ales Vozenilek, country head for Czech Republic at Nokia said, "The superior capacity and throughput performance of LTE allows first responders to leverage applications, like video, to be better informed and act faster. Advanced prioritization mechanisms provide mission-critical grade service availability and security. Our solution will now enable a new segment of services on the market, opening a new cooperation in the ecosystem of critical communication networks." Nokia will deploy its LTE radio network solution, IP network technology, Dense Wavelength Division Multiplex (DWDM) technology and will install Mission Critical Push to Talk (MCPPT) application solutions like Group Communication.

Proximus Deploys Nokia's Biggest Router to Increase Capacity Tenfold

The new IP backbone will support broadband and mobile services with greater capacity, scalability and programmability. Proximus announced it would increase the capacity of its IP transport network by ten times last August. The operator and Nokia say they are on schedule with the TITAN (for Terabit IP Transport and Aggregation Network) upgrade to the backbone network. In the seven months since the announcement, they have connected 165 out of the 600 buildings that need to be connected to the new infrastructure and migrated 30% of the 50,000 optic fibers. The migration will continue in stages until 2021, each time for a specific geographic area and with minimal regional impact. The Proximus teams carry out these infrastructure works between midnight and 6 am to limit the customer impact to a minimum. TITAN will connect Proximus's mobile, high-speed DSL and FTTH networks. The upgraded backbone will provide support for new services such as augmented and virtual reality, IoT and the roll out of 5G. Proximus is one of the first operators to deploy the Nokia's top-end 7750 Service Router-14s (SR-14s) as part of the ongoing Fiber for Belgium investment. It will help the operator lower costs by halving energy consumption and has "unique" security features. Proximus' engineers are working closely Nokia's team based in Antwerp, at the Belgium World Competence Centre. Patrick Delcoigne, Director Network Engineering & Operations at Proximus, said, "TITAN is laying the foundations of a hyperscale network, propelling Proximus into the terabit era…becoming among the world's pioneers in activating the biggest equipment ever deployed in a telecom operator network and so defining the new capacity reference standards."

Nokia's Revolutionary 5G Virtual Testing Speeds Deployment

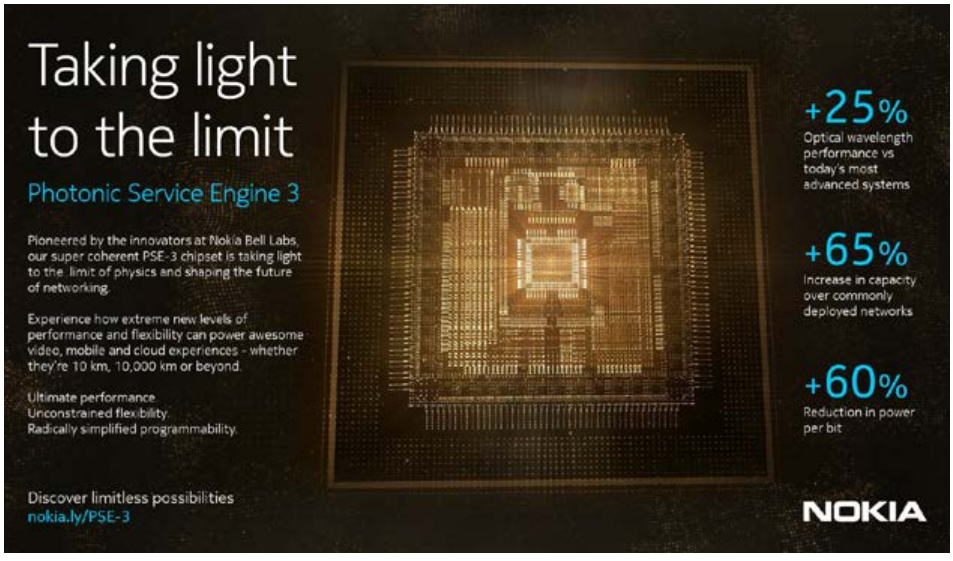
Nokia is making 5G deployments faster and more cost-efficient with its patent-pending 5G virtual testing environment. In its over-the-air validation area in Oulu, Finland, Nokia works with operators to simulate massive MIMO antenna beamforming performance by combining physical testing with a leading edge virtual environment. 5G increases the complexity of physical antennas, the algorithms necessary to deliver optimal efficiency, as well as the sheer number of site deployments. In the 5G test lab, Nokia combines a unique physical over-the-air test environment with virtual reality (VR) to test and verify the optimal site locations of the antennas for operators. Using Nokia's patent-pending approach, the test lab simulates a multitude of different physical environments to improve both the accuracy and performance of 5G mMIMO beamforming antennas in the real world. The lab is also used to verify ReefShark chipset massive performance gains and test ReefShark components in complete radio systems as ReefShark based deployments are continuing to accelerate. Furthermore, the test lab is instrumental in the development of artificial intelligence and machine learning algorithms, which are vital to maximize the capabilities and spectral efficiency of mMIMO antennas. By combining the physical and VR worlds together with mixed reality, this unique lab creates a powerful tool for real-world massive MIMO deployment and is being leveraged by leading 5G operators such as Telia in Finland. Timo Hietalahti, Head of Network Architecture and Development at Telia Finland: "Telia is at forefront of 5G technology in Europe. Nokia's unique lab environment helps us to identify 5G radio network planning challenges earlier and solve them faster. This is a big step forward, as it builds the bridge from product design to network implementation and optimization." Tommi Uitto, President of Mobile Networks at Nokia: "We are very proud of our one-of-a-kind 5G virtual reality testing environment. Instead of expensive and time-consuming drive tests in the city streets, we can build a digital twin on the test lab wall and simulate the mobile devices moving around and the antenna beams following them. This is used for verification, troubleshooting and optimization, making it faster and more efficient to deploy 5G."

Nokia Hits the Big 30 with A1 Telekom 5G Deal

Nokia is celebrating its 30th commercial 5G contract, following a new deal with A1 Telekom in Austria. Nokia will provide 5G wireless technology and cloud-based core network technology. This is the latest instalment of a long-standing partnership between the two companies, which has included the successful expansion of 3G and 4G/LTE mobile networks and the roll-out of Austria's largest fiber-optic network. "Together with Nokia, we are using the full potential of 5G," said A1 CEO, Marcus Grausam. "We rely on a long-standing partner with whom we have already successfully implemented numerous major projects in the past. Now the starting signal has been given for the expansion of the A1 5G network throughout Austria, which will open up new application worlds and transform business models. "Working with Nokia, A1 implemented Austria's first campus network for Vienna Airport. In Gmünd, the "first 5G city in Austria", the partners conducted the first 5G live data connection in January. This deal brings the number of 5G commercial contracts Nokia has around the world to 30, including 16 with publicly named service provider customers. "This achievement marks a proud moment for Nokia as a company," said Rajeev Suri, President and Chief Executive Officer of Nokia. "With these agreements, creating new partnerships and continuing existing relationships around the world, we can see the promise of 5G becoming a reality. Many of the 30 commercial 5G deals we celebrate today include multiple elements from across our end-to-end portfolio as our customers turn to Nokia at each stage of their 5G investment cycle," he added.

Netia Trials Nokia's PSE-3 Technology over Live Production Network

Polish alternative network provider could double fiber capacity, lower costs and simplify operations with PSE-3. Netia conducted the first field trial of Nokia's Photonic Service Engine 3 (PSE-3) super coherent technology over a live production network. Netia is the largest alternative network operator in Poland, with over 50,000 kilometers of fiber connecting more than 80% of A and B class office buildings in the country. It recently upgraded its backbone network to flex-grid technology, enabling the use of high baud-rate wavelengths, allowing the carrier to more than double supported data rates for links of any distance. Nokia says the PSE-3 chipset "maximizes the capacity and performance of every link in your optical network". The digital signal processor (DSP) uses a technique called probabilistic constellation shaping (PCS). It finely adjusts the optical signal to maximize the data-carrying capacity of Dense Wavelength Division Multiplexing (DWDM) optical wavelengths over any distance. In the trial, wavelengths driven by the Nokia PSE-3 and operating at 62-68Gbaud traversed Netia's flex-grid infrastructure in 75GHz channels. Network paths currently supporting 100G and 200G wavelengths were shown to support more than 300G and 500G respectively, more than doubling network capacity. Grzegorz Bartler, member of the board and CTO at Netia, said, "Netia continues to invest in our infrastructure to ensure our customers benefit from the most technologically advanced network in Poland. "The results of this field trial mean that our backbone network, originally designed for a total capacity of 8.8 terabits-per-second, now has a proven roadmap to 29Tbps, ensuring we can continue to keep up with the rapid growth of our business and consumer services." Nicolas Almendro, head of Europe and Middle East Africa Optics Business Development at Nokia, added, "We're excited that Netia could be the first carrier to trial the PSE-3 over a live network, and to prove that their network is prepared for the next wave of capacity growth."



PCCW Global Upgrades Internet Infrastructure in Mozambique

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, has completed a major Internet infrastructure upgrade in Mozambique. PCCW Global's significant upgrade of its Internet backbone will dramatically improve connectivity in the traditionally underserved southern African nation and, as a consequence, vastly improve international communications and increase the number of Internet users in the country while lowering overall connectivity costs. PCCW Global continues to extend its network service coverage in hard-to-reach and high-demand markets in Africa with a specific focus on improving network interconnection, access to cloud, and lowering the cost of connectivity for end users. PCCW Global was one of the early pioneers of African connectivity by delivering sophisticated hybrid solutions that combine fiber, satellite, microwave, and wireless connectivity to meet the unique needs of African service providers

and enterprises. PCCW Global's African coverage expanded dramatically in 2012 with the acquisition of Gateway Communications, a pan-African provider of carrier and network solutions on the continent. Today, PCCW Global operates one of Africa's most advanced regional and international networks with capacity on all major optical-fiber subsea cables and facilitating capacity to all African land-locked countries. PCCW Global also continues to deliver service where necessary throughout the continent from satellite transponders and earth stations deployed on the continent and beyond. Mr. Frederick Chui, Chief Commercial Officer, PCCW Global, said, "In Mozambique, our aim is to provide users such as global enterprises, content delivery networks, Internet service providers, and content providers with affordable connectivity to and from the country with the hope of gradually increasing the number of Internet users. We are pleased to be making additional investment to help further reduce the barriers to content availability and distribution that can have a significant impact on the Internet in Africa and will help make existing international content more accessible."

SP Telecom to Build an Alternative Data Fiber Network in Singapore

SP Telecom, a joint venture between ST Engineering and SP Group, announced its plans to build a fiber network equipped with intelligence capabilities as an alternative to the existing network infrastructure in Singapore. The new Software-Defined Network with Network Functions Virtualization (SDN-NFV) will enable users to have holistic network management that provides greater control, visibility and scalability for their network. Leveraging artificial intelligence and machine learning, it can predict and prevent network congestion to ensure uninterrupted connectivity. It is also in-built with cybersecurity capabilities, making SP Telecom's network a resilient, secure, and cost-effective alternative solution for government organizations and enterprises, in particular for those that serve critical functions. SP Telecom is currently the only network service provider that offers true network diversity. In Singapore, different network providers utilize a common network infrastructure for their service offerings. A service outage that affects this common infrastructure will impact all customers on the shared facility, regardless of the network provider. Therefore, network disruption cannot be completely avoided even by subscribing to two or more network providers. SP Telecom's fiber network addresses this issue by offering diversified connectivity, by laying its fiber alongside SP Group's power lines. This will create a separate and distinct network infrastructure, which is also more durable than other fiber cables due to better physical protection being buried deeper underground. The new intelligent network that SP Telecom is building will further enhance its diversified network offering with next-generation cloud-like agility and flexibility to cater to the dynamic network demands of today's enterprises. Network functions can be deployed as a service-on-demand without costly hardware investment. This includes bandwidth on-demand, access to the Internet of Things-as-a-Service (IoT-a-a-S) platform, edge cloud resources, and cybersecurity enhancements. Customers will enjoy cost savings as they can opt for usage-based charging, instead of traditional fixed price plans and long-term contracts. This is enabled by the state-of-the-art Business and Operation Support System (B/OSS) that delivers end-to-end zero-touch service ordering, provisioning and managing capabilities. Through a secure Customer Service Portal that runs on a cloud network, businesses will be able to instantly request for connectivity services, manage their network requirements dynamically with minimal human intervention, and configure network functions according to their needs. Through this journey, customers will also be kept up to date with real-time service deployment updates and alerts. SP Telecom has engaged PCCW Solutions as its consultancy partner to develop this end-to-end SDN-NFV fiber network solution. Combined with telecommunications, network and information technology capabilities from PCCW Group, PCCW Solutions will contribute its extensive experience and proven expertise to support SP Telecom in delivering an advanced, next-generation business network. Mr. Titus Yong, Chief Executive Officer of SP Telecom, said, "An increasing number of businesses rely on their communications systems for mission-critical applications. They can no longer afford any downtime that can cause major problems and significant losses in terms of costs, productivity and reputation. As SP Telecom forges forward towards providing an advanced solution that supports Smart City developments, we are confident that the consultancy partnership with PCCW Solutions will enable our plans of becoming an advanced network provider to meet fast-evolving digital needs globally." Mr. Ramez Younan, Managing Director of PCCW Solutions said, "By leveraging our strong industry expertise and leading-edge technologies, PCCW Solutions is delighted to be SP Telecom's business transformation partner in implementing innovative strategies to help expand its service offering and progress as a unique next-gen telecom service provider. We are committed to working closely with SP Telecom to deliver superior value to its customers, enabling self-service, high-quality and agile digital services across platforms anytime, anywhere." SP Telecom's new digital service will be on showcase at SP Telecom's Innovation Hub which will be ready by end June 2019.

SES Announces First Quarter Results

SES S.A. announced its financial results for the three months ended 31 March 2019 with revenue and EBITDA in line with company expectations and SES on track to deliver on its 2019 financial outlook. Continued focus on execution has delivered major wins in the Networks business which is soon to be enhanced with the addition of four new O3b satellites, successfully launched at the beginning of April 2019. Steve Collar, President and CEO, commented: "We have made a solid start to 2019 with our Q1 results fully in line with our expectations. We have delivered another good quarter in our Networks business, building on an outstanding year of double-digit growth in 2018. Strong focus on cost control, along with the ongoing flattening and reshaping of our organization around our customers, is yielding positive results. Our recent customer success with Ritz-Carlton, our managed services expertise for unmanned civilian aviation with EMSA and our cloud-enabling capabilities with Resolute Mining create unique value to our customers and sustain growth. In addition, the recent entry into service of SES-12 over Asia-Pacific and the announcement of a significant anchor customer in Indonesia with Teleglobal will help us to continue to outperform the market and to deliver on our 2019 outlook. We look forward to the entry into service in early Q3 of the four additional O3b satellites recently launched, completing the original constellation and paving the way for O3b mPOWER in 2021. Notwithstanding challenging market conditions in Video, SES' reach continued to grow and we now deliver prime video content to over 355 million households or one billion people across our video neighborhoods around the world. The recent deals we signed with Discovery, Nordic Entertainment Group and Crown Media highlight our approach to partner with the biggest broadcasters to deliver the best services and viewing experiences anywhere to any device. In addition, we continued to expand our international footprint with new partnerships such as Benin and our growing technical reach in Africa, Asia Pacific and Latin America. In parallel, SES and its CBA partners continued to work closely with the FCC, content owners, cable operators and other engaged stakeholders to deliver a transparent, fair and agile adoption of 5G in the United States."

SES Shareholders Approve All Resolutions at Annual General Meeting

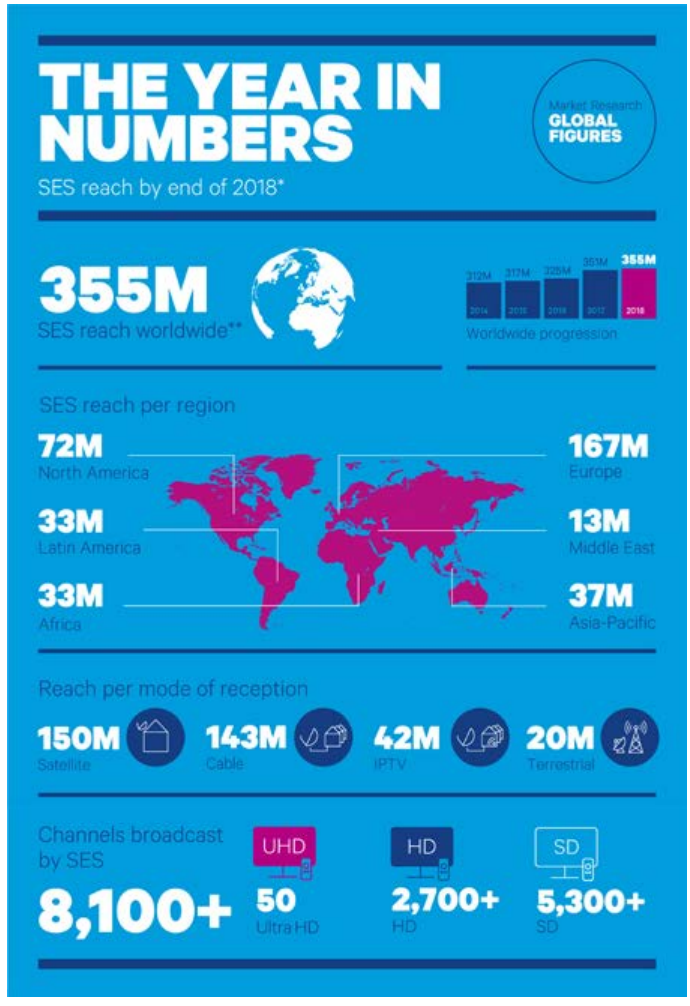
SES held its Annual General Meeting (AGM) in Betzdorf, Luxembourg. The shareholders approved all proposed resolutions, notably the company's 2018 accounts and the proposed dividend of EUR 0.80 per A-share, which will be paid to shareholders on 25 April 2019. Shareholders re-elected the following five directors for a three-year term: Mr. Romain Bausch, Mr. Victor Casier, Mrs. Tsega Gebreyes, Mr. François Tesch and Ms. Françoise Thoma. Following the shareholders' meeting, the Board of Directors re-elected Mr. Romain Bausch as Chairperson for a period of one year and both Mrs. Tsega Gebreyes and Mrs. Anne-Catherine Ries were elected as Vice-Chairperson also for a period of one year.

SES Networks, Teleglobal Bring Broadband to Rural Indonesia

SES Networks teamed up with Teleglobal to bring broadband access and mobile connectivity services to rural communities in Indonesia, delivered by SES' managed data services and the SES-12 satellite. Under a new agreement, Teleglobal and SES Networks will be partaking in the Ministry of Communication and Information Technology's universal service obligation (USO) project via its USO agency Badan Aksesibilitas Telekomunikasi dan Informasi (BAKTI) to provide broadband internet access and mobile backhaul services to 150,000 sites. The five-year agreement will see Teleglobal contract 1.3 GHz of capacity on SES-12, one of SES' High Throughput Satellites (HTS) covering the Asia-Pacific region, with an option to extend for a further five years. The largest SES GEO HTS covering Asia-Pacific has six regional beams and 72 high throughput user spot beams and can provide cost-effective solutions for broadcasters, content operators, mobile network operators, internet service providers, enterprise, maritime, and aeronautical and government customers across Asia-Pacific and the Middle East. "Teleglobal is honored to be chosen by Indonesia's Ministry of Communication and Information Technology as one of the key providers for satellite capacity for the BAKTI project. At Teleglobal, we believe in the power of connectivity, in opening new doors of opportunity to communities in Indonesia and around the world," said Candra Indianto, Teleglobal Director. "With the new service offering, Teleglobal is bridging the digital divide and bringing much-needed e-Government and other essential services to the underserved rural communities of Indonesia. SES Networks' unparalleled global reach and operational expertise make them the ideal partner to provide reliable, high-speed broadband connectivity to all corners of Indonesia."

SES Reach Grows to 355 Million Homes Worldwide

SES strengthens its position as the world's leading video distributor via satellite as the number of TV households it serves increased by more than 4 million to over 355 million in 2018. The results from the SES's annual market research highlighted further growth in SES's technical reach and underlined the important role of satellite in delivering video to large audiences directly and indirectly in a reliable and cost-effective manner. The results showed an increase in SES's technical reach in Europe, Latin America, Asia-Pacific, and Africa. In Africa, this included the addition of Kenya to the survey where more than 2 million TV homes across the country rely on SES for their TV content. In Europe, satellite broadcasting, and especially Direct-to-Home (DTH), remains the leading distribution technology, with SES serving 167 million TV homes across the continent. The SES fleet is also delivering video content to 72 million households across North America, mainly via the important U.S. cable neighborhoods. Across other markets, SES continues to expand its technical reach, now serving 37 million TV homes in Asia-Pacific, 33 million in Latin America, 33 million in Africa, and 13 million TV homes in the Middle East. The results underscore the essential value proposition of satellite broadcasting as a highly attractive platform for reliable and cost-effective video delivery to large audiences. These qualities make it ideal for distributing HD and UHD programming, and SES is today delivering nearly 2,800 HD TV channels and over 40 commercial UHD TV channels – more than any other satellite service provider. 2018 was the 25th year that SES has conducted the Satellite Monitor survey. The detailed data it delivers about the reach of SES and video viewing trends has proven to be a valuable tool for SES's customers, supporting SES's position as a trusted partner to the world's leading broadcasters and content owners. "At SES, we invest in tools and services to help our customers gather information about markets they operate in so that they can be even more successful in their business. The Satellite Monitor is one such tool that demonstrates the long-term value of SES's core video neighborhoods and extensive reach to our customers," said Ferdinand Kayser, CEO of SES Video. "Regardless of the shift in consumption habits, it is clear that our business



remains an essential tool in delivering a high-quality viewing experience to the world's leading broadcasters and content owners. Through the differentiation of our services, we will continue to support their development and future success."

Umniah, and JEPCO Sign Partnership to Establish New Company Operating an Over-Ground Fiber Optic Network

Batelco Group's Jordanian subsidiary - Umniah, and the Jordan Electric Power Company (JEPCO), have signed a partnership, under which a new company will be established to create the infrastructure for a large-scale fiber optic network servicing the areas operated by JEPCO. This will deliver wholesale high-bandwidth internet services to telecom companies and service providers, eventually reaching more than 1.4 million homes and businesses. The agreement was signed by Umniah's CEO Ziad Shatara and JEPCO Chairman Isam Bdeir in a ceremony attended by a number of board members and senior executives from both companies. The partnership is considered one of the most significant between two private sector companies operating in critical sectors in the Kingdom, and which both offer services that are essential to furthering economic growth, and impact the daily lives of Jordanians nationwide. Under this partnership, a new company co-owned by JEPCO and Umniah will be established and — once all necessary permits and certifications are acquired — will roll out a new fiber optic network covering all areas in which JEPCO operates. This in turn will serve subscribers of both companies in addition to offering wholesale services to other service providers. This agreement reiterates Umniah's continued efforts to accelerate digital transformation in the Kingdom by creating accessible infrastructure and services. The new fiber optic network will help countless communities gain access to reliable broadband internet and to experience the full potential of the modern digital age. This pioneering partnership, falls in line with Batelco Group's overriding strategy that aims to satisfy economic, social and developmental needs across its host markets, in addition to investing in an innovative and unique business model for its operating companies that adds value and offers clients an edge. Ihab Hinnawi, the CEO of Batelco Group commended the efforts of Umniah to revolutionize the Jordanian telecommunications landscape, and to support the efforts of the government to create a digital economy. He further underscored Batelco Group's confidence in Jordan's economic and investment potential, noting that this agreement will help broaden the scope of investments made by Batelco in the Kingdom. Hinnawi also added that, "This strategic partnership demonstrates the effect of Batelco's innovation, efforts, unique offerings as well as its highly effective organizational culture, which are all inspired by a firm conviction that our commitment to the communities in which we operate makes our strategy more sustainable while entrenching our uniqueness and decreasing the cost on our clients." The strategic partnership has enjoyed strong support from Umniah's shareholders due to its high impact in strengthening the telecom's local and regional positioning and providing customers with the best services while simultaneously supporting the country's developmental efforts and satisfying the Jordanian government's requirements. JEPCO Chairman Isam Bdeir, highlighted the importance of this partnership with Umniah, which he noted will yield considerable returns to its investors, partners and the overall economy by implementing a forward-thinking business model that integrates the energy and telecommunications sectors. He added that the new company and the planned fiber optic network will revolutionize the delivery, billing and communications operations for JEPCO, thus helping to bring Jordan's electrical grid into the twenty-first century. Meanwhile, Umniah's CEO Ziad Shatara, who signed the partnership agreement on behalf of the company, expressed his gratitude to JEPCO for choosing Umniah as a partner in this large-scale project. "This partnership is yet another milestone in Umniah's ever-growing legacy, one of which we are all proud. Our primary objective is to accelerate internet and digital penetration nationwide and to redefine the way Jordanians perceive and interact with technology." "More importantly, this partnership will help propel the local economy by creating an environment that is conducive to business development and growth. This will help create additional job opportunities, all the while providing existing businesses with the tools and infrastructure needed to expand their operations," he added. In 2018, Umniah and JEPCO had completed one of the largest infrastructural projects in the Kingdom by establishing an over-ground fiber optic network running in parallel to the electrical grids operated by JEPCO. This network aided in connecting and automating a number of power substations and in the installation of smart counters throughout various areas in Amman. Moreover, the network has also allowed JEPCO to remotely manage electrical grids in various areas. The partnership is also facilitating the delivery of cutting-edge internet services to various areas, with more areas set to receive coverage in 2019.

REGIONAL NEWS

UAE Teams Up with Microsoft to Promote AI Governance and Ethics

The UAE Minister of State for Artificial Intelligence Omar Sultan Al Olama has signed a Memorandum of Understanding with Microsoft Gulf to enhance joint cooperation in the field of AI development, governance and ethics in the country. Sayed Hashish, Regional General Manager for Microsoft Gulf signed the agreement on behalf of the company. During the signing ceremony, Al Olama confirmed that the UAE government adopts an integrated and dynamic model for the utilization of artificial intelligence that supports industry growth, development of new sectors as well as strengthening governance and ethics frameworks, ultimately anticipating future challenges and creating a positive change for humanity. As part of the agreement, the two entities will develop a set of concepts, strategies and future ideas and study implementation mechanisms then implementing them. "The UAE government focuses on enhancing innovation in modern technology applications and employing them in achieving sustainable development, and realizing the vision of Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai," said Al Olama. The focus of this collaboration will be on four key areas: identifying and developing technological solutions based on artificial intelligence to achieve the United Nations goals of sustainable development, enhancing the use of artificial intelligence in all government bodies in the UAE, establishing an integrated and global framework for governance and AI ethics, contributing to achieving the outputs of the UAE Strategy for Artificial Intelligence. "It is a privilege to work with the UAE Government on its plans for digital transformation. The country has long led the region on artificial intelligence adoption and development to integrate smart technologies into a vast array of digital touchpoints across the nation – empowering everyone to achieve more," said Jean-Philippe Courtois, Executive Vice President and President, Microsoft Global Sales, Marketing and Operations. "Microsoft shares this vision, as our goal is to make AI accessible and valuable to everyone by amplifying human ingenuity. We look forward to working together and support the efforts of the government to ensure that AI is developed and used in a trusted and inclusive way, benefitting our society with a human-centered approach". Further into the agreement, Microsoft will develop its existing AI programs and frameworks to support the UAE's efforts to achieve the United Nations goals of sustainable development. Areas of cooperation include national capacity training in AI programs, certification in software and cloud computing, and the organization and sponsorship of emerging technology competitions and events for government and private entities. Microsoft will also organize training programs every three months for data specialists in various government agencies, as well as workshops on artificial intelligence. The company is also organizing the second UAE AI Camp with the National Program for Artificial Intelligence in cooperation with a group of federal, local and international agencies. The spring camp focuses on introducing the trainees to the most prominent emerging technologies in the field of machine learning and data science. The summer camp will be held in July and August and will focus on the development of robotics and programming skills.

GCC Telecoms Market 'More Advanced' Than Europe for First Time

The GCC's telecoms market is "more advanced" than Europe is today, says an Ericsson executive – a situation which he says has never happened before in the telecommunications industry. Chafic Traboulsi, Regional Vice President and Head of Networks for the Middle East and Africa at Ericsson, says the Gulf is among the world leaders in 5G. Speaking on the sidelines of the SAMENA Telecommunications Council's Leaders' Summit in Dubai on April 18, he also said as great as the progress has been, much work remains until affordable 5G is available for everyone in the region. "It's a more advanced market than Europe today when it comes to telecoms," he says. "This has never been the case [before]." However, as developed as the GCC market is, Traboulsi said business can't become complacent. "There needs to be fresh thinking." He added it's also important not to "overhype" 5G until the use cases justify the technology. "We shouldn't overhype it," he says. "We should be cautious in order to not drive expectations that won't be met. That (over-hyping) could backfire. We need to not overdo it." In order to facilitate the growth of 5G, Traboulsi said a relatively easy solution would be to make more signal space – or "spectrum" – available to be used. More spectrum could especially be a "reliever" for the exponential rise in capacity created by ever-more data being collected and consumers streaming, uploading and downloading more video than ever before and running applications online. Overall, he said he's optimistic for the future of 5G in the region. "The region is taking the right steps. There's a lot that needs to be done – but this region is doing that." And 6G? Its still "quite a ways off," said Traboulsi. This year's edition of the SAMENA Leaders' Summit – as with most years – was held at Atlantis, The Palm, at the top of the Palm Jumeirah in Dubai. With Huawei as the main sponsor for the sixth consecutive year, this year's theme was 5G. The event brought together CEOs from major Middle East and African operators, as well as suppliers, vendors and more – including top executives from companies across the telecommunications ecosystem from around the world. Also participating were several government ministers, from both the UAE and abroad. As an integral part of the SAMENA Leaders' Summit, to accelerate the large-scale deployment of 5G, Huawei hosted the "5G is ON" Forum, which served as an occasion for 5G industry partners to discuss how emerging 5G-enabled intelligent services and innovations may help telecommunications operators to identify new business opportunities, thereby enhancing prospects for achieving growth.

Tech Companies Form Regional Alliance, Eye Presence in Saudi Arabia

In a bid to expand its presence in the Middle East, Belgian global technology company Barco has entered into a partnership with Mindware, a regional value-added distributor of IT solutions. "This is very good news, and I'm happy to see Barco and Mindware joining forces and be present in the Saudi market," said Dominique Mineur, Belgian ambassador to the Kingdom. The Vision 2030 reform plan "is very important in the development of Saudi Arabia, but also in terms of opportunities for different businesses," she added. Ramzi Itani, Barco's vice president for the Middle East and Africa, and Nicholas Argyrides, Mindware's general manager for the Gulf, signed a contract formalizing the partnership. The agreement includes hosting workshops and events to promote collaboration across target markets, starting with Saudi Arabia and the UAE. "We are committed to building synergies in Saudi Arabia and across the region that help us benefit from the growing opportunities within the enterprise market," said Itani. "At Barco, we plan to continue working toward building strong relationships with partners in the country, both to strengthen its current positioning as well expand its base further into the market." Argyrides said: "Digital transformation is leading the GCC (Gulf Cooperation Council) region, particularly Saudi Arabia, into a new era of operational efficiency and growth, especially in the ICT (information and communications technology) sector." He added: "Mindware is well positioned to deliver our brand promise across the region's IT distribution channels."

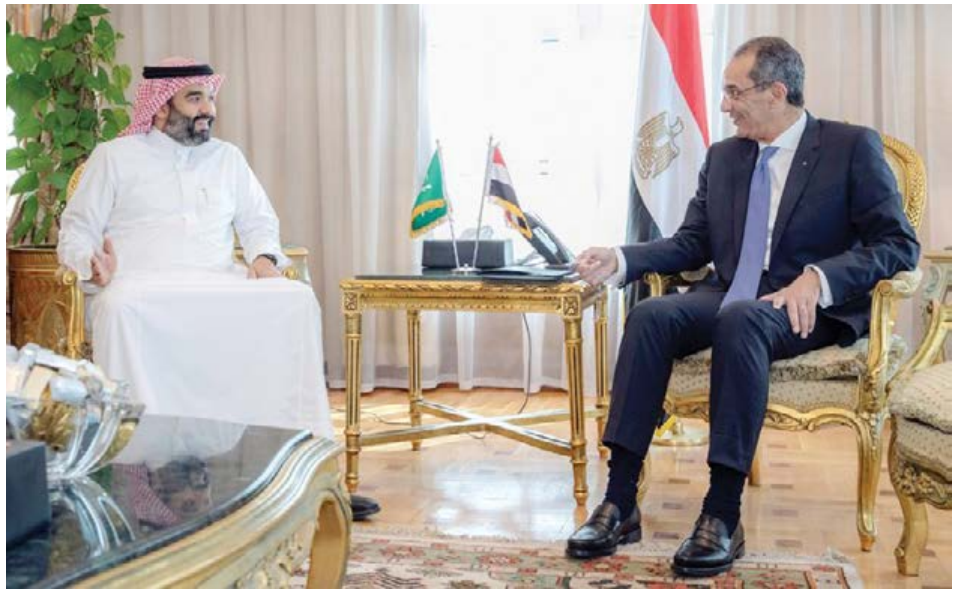
Egypt to Become Region's Digital Hub

In a roundtable discussion at the "Belt and Road" initiative summit on Saturday, Egypt's President Abdel Fattah El-Sisi announced Egypt as the regional digital hub for data transfer between three continents, Asia, Africa and Europe. During his speech, El-Sisi highlighted how the Egypt has one of the strongest submarine cable crossings across the world, which will attract investors in the field which will develop and monetize the infrastructure. This is will strengthen Egypt's digital economy closing the market gap bridge between developed and developing countries. Three years ago, a new breakthrough and promising opportunity for Egypt to partake on the "Belt and Road" initiative lead to the participation of

President Abdel-Fattah Al-Sisi as head of a ministerial delegation in the forum's activities. Launched in 2013 by Chinese President Xi Jinping, the initiative was initially a Chinese proposal which later developed into a global consensus based in Beijing, the world's second largest economy and one of the world's leading e-business and technological development. The "Belt and Road" summit for international cooperation has become an important platform for all countries and organizations involved to deepen exchanges, enhance trust and maintain close contacts where several presidents and prime ministers attended. This initiative covers 68 countries with 65 percent of the world's population, which places the Suez Canal as one of the key axes of facilitating the initiative. Egypt's participation in it makes it an important strategic and economic center for the Arab region and the world at large. It makes Cairo a trade hub between Beijing and the rest of the world and increases traffic revenues from the Suez Canal. The role of the Suez Canal is pivotal as it facilitates the trade movement between China to various countries across the world. During the second session of the China-Arab Forum, which took place on April 15 and 16 in Shanghai under the theme "Reform and Development", 17 Arab countries signed documents for the economic cooperation within the "Belt and Road" initiative. So far, China has so far established strategic partnerships with 12 Arab countries.

Saudi Delegation in Egypt to Discuss Partnership in Communication and IT

Saudi Minister of Telecommunication and IT Abdullah Al-Sawaha arrived in Cairo. He is heading a delegation of his ministry and Saudi Arabia's private IT and communication companies. He met his Egyptian counterpart Amr Talat and discussed ways to enhance bilateral ties and joint investment opportunities in the field of communications and information technology. "The visit aims to establish close and fruitful cooperation and partnership with Egyptian companies in the field of communications and information technology, as part of our objective to localize technology in Saudi Arabia and develop digital skills among Saudi nationals," Al-Sawaha said. Later, the Saudi delegation visited the Egyptian Institute of Information Technology and Communications, the Information Technology Industry Development Agency (ITIDA), and the Technology Innovation and Entrepreneurship Center (TIEC), to gain an insight on how to train and develop skills in IT and communications technology, and to encourage Saudi and Egyptian businessmen in both countries to venture into this field.



Saudi-Chinese Partnership Has the Potential to Create MENA's Largest Digital Economy, Says Minister of ICT

Eng. Abdullah Al-Swaha, Minister of Communications and Information Technology, unveiled that the partnership between the Kingdom of Saudi Arabia and the People's Republic of China has all the optimal factors to lead establishing the largest digital economy in the Middle East and North Africa (MENA), especially in health, smart cities, e-commerce, education and tourism sectors. Promising, noting that these promising sectors are expected to grow and make great leaps in the Kingdom in the next few years. This came during his participation today 25 April 2019 in the opening of the Second Belt and Road Forum for International Cooperation, as part of a high-profile delegation led by the Minister of Energy, Industry and Mineral Resources HE Eng. Khaled Al-Falih, with the membership of some Saudi ministers. The Forum was attended by 39 presidents and prime ministers, in addition to experts, intellectuals, businessmen, media and officials from 100 countries. During a speech at an accompanying event entitled 'Promoting digital advancement through partnerships', Minister Al-Swaha stated that the Kingdom now has the largest and fastest growing market for technology in the MENA region, at a compound annual growth rate of 7%. He added that it would reach over $ 35 billion in 2030. Eng. Al-Swaha said that the Kingdom today has an ambitious roadmap for transformation at all levels, supported by a number of factors, the most important of which is the strong Saudi economy, which today represents a global investment powerhouse with a great impact on the mobility of the global economy. This is empowered by an exceptional geographical and religious advantage, as the heart of the Arab and Muslim worlds, a global hub that links three continents, and a vibrant society based mostly on aspiring youth and skilled and trained work force, to compete aptly in the various activities and disciplines of the labor market. According to Al-Swaha, the digital structure existing today in the Kingdom has tremendous potential and its applications are a reality, in terms of smart government services, e-commerce and digital health applications, electronic payment, renewal of documents, and issuing of licenses and commercial licenses, all of which is now digitally made easily and conveniently without the need to bother visiting the relevant government agencies. The two-day Belt and Road Forum for International Cooperation in Beijing is one of the mechanisms for cooperation in the implementation of the Belt and Road Initiative according to its implementation vision released in 2015. The participation in this forum is aimed at strengthening relations in various fields on various issues and consolidating as well as promoting the bilateral relations between the two countries.

Egypt and the World Bank Consider Strategies to Boost Broadband Penetration Rate in the Country

The Minister of IT and Communications, received a delegation of the World Bank and the IFC. Led by the World Bank's coordinator of the MENA region Carlo Rossotto, the delegation discussed various strategies to boost the broadband penetration rate in Egypt. Currently, 3G and 4G technologies are the most used. Recently, Egypt made huge investments in the mobile and fixed broadband. Consequently, the number of mobile internet subscribers is gradually increasing. At the end of Q4, 2018, this number grew from 32.79 million (in Q4, 2017) to 35.06 million. During that same period, the number of USB modem users decreased from 3.26 million users in Q4, 2017 to 3.21 million in Q4, 2018. For the fixed segment, optical fiber is gradually replacing copper wire networks. The meeting of April 23, 2019, falls within the framework of the ongoing collaboration between the World Bank and the IT and communications ministry. This collaboration is namely for the upgrading to Egypt's broadband strategy, the elaboration of an economic model that should help identify the main sectors to increase the contribution of the IT sector to growth. World Bank also organized a workshop to present success stories and the investment models (which contributed to transformation via the digital) in the communications sector to Egyptian officials.

PMN and Telenor Microfinance Bank Sign an Agreement to Digitize Pakistan's Microfinance Industry

Aiming to further its efforts towards bringing the unbanked and underbanked into the fold of financial services, Pakistan Microfinance Network (PMN) has signed an agreement with Telenor Microfinance Bank (TMB), in the presence of the management of both institutions, to digitize Pakistan's microfinance industry through 'Digital Services Platform (DSP).' PMN is grateful for the support being provided by the UKAID's DFID for this initiative. DSP will enable Microfinance Providers (MFPs) to ride on the rail road of Digital Financial Service Providers with the twin objectives of increasing accessibility for clients and bringing efficiency through available distribution channel. The agreement will help the microfinance sector to achieve its goal of reaching out to 10m borrowers, 50m deposit accounts and 11m insurance clients by 2020. PMN aims to leverage the capabilities of Telenor Microfinance Bank's branchless banking solutions to power its Digital Services Platform that will offer digital payments services in a shared hosting environment. Building such a platform for the microfinance sector is pivotal to increase outreach of financial services as envisaged by National Financial Inclusion Strategy (NFIS) and Financial Inclusion Program (FIP). DSP will be integrated with Telenor Microfinance Bank for its agent network for disbursement and repayment transactions. PMN will also be using the bank's services for daily settlement of funds with its members. This collaboration will allow clients of PMN member institutions to receive loans and deposit loan repayments at Telenor Bank's agents as well as through mobile wallets. This will help in increasing the outreach of microfinance institutions by leveraging the outreach of TMB's wide agent network. Speaking on the occasion, Syed Mohsin Ahmed, CEO at PMN said, "This agreement is beginning of a long journey, a journey in which we want to keep a lens on our clients and work with our members towards end to end digitization of the Microfinance operations – from loan acquisition to recovery and from opening of m-wallet accounts to increased usability of those accounts. Our aim is to create a network effect that transforms the way we have been working and move towards digital transactions at the chabriwala level". Aslam Hayat, acting CEO, Telenor Microfinance Bank commented, "Telenor Microfinance Bank (TMB) aims to enable the underserved people of Pakistan to transform their lives, by creating a digital ecosystem, whereby mobile wallets become a central platform, which will help achieve economic empowerment and rapid growth. This collaboration with PMN will enable their member institutions to receive and deposit loan repayments by leveraging TMB's agents and wallets, thereby providing more convenience and wider accessibility."

Tunisie Telecom and 3S Sign MoU to launch Tunisia's First IoT Network

Incumbent operator Tunisie Telecom signed a memorandum of understanding with IT firm 3S for the launch of a LoRaWAN Internet Of Things (IoT) national network developed by LoRa Alliance. The agreement was signed by Mohamed Fadhel Kraiem, CEO of Tunisie Telecom, and Adel Dahmani, deputy managing director of 3S, in the presence of Anouar Maârouf, Tunisia's minister of IT and digital economy. According to Tunisie Telecom and 3S, this ambitious project is mainly aimed at addressing the various emergencies requiring the transmission of small quantities of long-range information with energy and cost constraints. It is also aimed at businesses and startups in their IoT projects.

Large Scale 5G Rollout Included In Vodafone Qatar, Huawei Deal

Vodafone Qatar and Huawei have signed a strategic agreement on a network enhancement program including large scale 5G technology rollout. The agreement is aimed at further accelerating the adoption of new generation technology including 5G and Internet of Things (IoT) to support applications such as smart cities, artificial intelligence and others, The Peninsula reported. Vodafone Qatar chairman Abdulla Nasser Al Misnad declared: 'Vodafone Qatar is proud to be laying the ground for future technologies that will support Qatar and its vision to be a leader in the development of smart cities and digital economies of the world. We are delighted to further develop our partnership with Huawei, who has been the front-runner in terms of innovation related to their early role in the standardization of 5G technologies globally. The planned expansion and enhancement of our wireless network will place it in the ranks of the best in the world.'

Super-Fast 5G Mobile to Launch in Saudi Arabia within Months

Saudi Arabia has about 1,000 telecoms towers already supporting 5G and the super-fast mobile services will be available within months, a senior government official said. Ben Flanagan DEAD SEA, Jordan: Saudi Arabia has about 1,000 telecoms towers already supporting 5G and the super-fast mobile services will be available within months, a senior government official said. The next-generation networks will allow smartphone users to download a movie in seconds. But the technology is more geared toward industry, said Haytham Al-Ohali, Vice Minister at Saudi Arabia's Ministry of Communications & Information Technology. "We currently have around 1,000 towers up and running 5G," Al-Ohali told Arab News at the World Economic Forum in Jordan. "Our operators need to put the financial packages together — and having the handsets available, that would help." Al-Ohali said he hoped 5G will be launched in Saudi Arabia "either toward the end of Q2, or early Q3 this year." The uptake of the technology is expected to add $19 billion to Saudi Arabia's gross domestic product, and 20,000 jobs, by 2030. While 5G will be available to consumers, its real use is for technologies like driverless cars and in machine-to-machine communication, Al-Ohali said. "Downloading a movie in four seconds is not the promise of 5G … 5G is the first network that's not built for the consumer. It's built for machines, it's built for industry," he said. "I think (consumers) will love the extra speeds that 5G brings, but in a country where 4G is very robust like Saudi Arabia, and provides good speeds — currently Saudi Arabia is ranked ahead of the UK and Japan in terms of 4G speeds — I don't think that increment is really worth the investment from the operators. What I think the promise is, is industry, machine-to-machine." The vice-minister said Saudi Arabia is in talks with industry groups over the prospect of 5G use for digitization within factories, and is also studying its use in health and education. Nations globally are racing to develop 5G networks, an issue complicated by US concerns over the security of equipment produced by Chinese telecoms manufacturer Huawei. Al-Ohali said that any company meeting security requirements was welcome to do business in the Kingdom. "Like any other technology … in Saudi Arabia, there are certain security requirements. We welcome any vendor who complies to come and operate in Saudi Arabia," he said. Al-Ohali earlier addressed the World Economic Forum during a panel discussion with Rafiah Ibrahim, head of Ericsson in the Middle East and Africa.

alfa MANAGED BY ORASCOM TELECOM

Another first by Alfa, eSIM is here

Now Available at Alfa Stores

ARTICLE

5G Monetization Challenges - Internal and External

Joseph Abou Rjeily
Corporate Strategy & PMO Director
Alfa

5G deployment is accelerating rapidly but the implications are much wider than just the network. One of the most important challenges is to put in place the systems and processes to monetize 5G and the new services and business models it enables. One of the most frequent questions we get from our Business Support System (BSS) customers is "how do we plan for 5G monetization?".

5G will make it possible for communications service providers to improve their business in various ways. Just as 4G shook up the landscape, whereby data packages became more important than voice and SMS packages, 5G brings opportunities for communications service providers to offer new services.

The first 5G deployments are expected to go live within the next few months. 5G is promising to enable many disruptive functionalities, such as:

1. Ultra-low latency communication (URLLC),
2. Enhanced Mobile Broadband with high bandwidth/throughput (eMBB),
3. Fixed Wireless Access (5G FWA)
4. Network exposure that will allow new levels of programmability in telecom core networks.

5G will make it possible for communications service providers to improve their business in various ways. Just as 4G shook up the landscape, whereby data packages became more important than voice and SMS packages, 5G brings opportunities for communications service providers to offer new services.

Internal Operators challenges: Optimal Monetization Systems

Digital Service Providers (DSPs) recognize the strategic importance of 5G and have either started to make significant investments to deliver network upgrades over the next decade or are getting ready to do so.

Even though DSPs are pursuing their efforts to deploy 5G, it is still unclear for them how to monetize the 5G investments.

While faster mobile broadband and fixed wireless access (FWA) are expected to generate more opportunities to the Mobile Operators, the potential of other consumer services such as Artificial Intelligence, Network Exposure and low latency applications remains uncertain.

The uncertainty related to the new use cases that 5G will support is reflecting on the Digital Service Providers (DSPs) strategies. DSPs are unsure about the right direction that will enable the monetization of the 5G services. The existing monetization systems have limited capacity to scale or support new use cases. Operators currently feel the urgency to understand the implications of the emerging use cases and to define their systems strategy toward embracing modern cloud-based monetization platforms.

The DSPs monetization engines are key success factors to the success of 5G use cases. The DSPs challenge consists of having to design new monetization systems without being aware of the use cases that these systems will need to support. This is inducing complexities and delays to the transformation of the monetization systems to ensure they remain future-proof.

When Apple introduced the App Store on July 10, 2008 with 500 apps, it ignited a cultural, social and economic phenomenon that changed how people work, play, meet, travel and so much more. Over the past decade, the App Store has created a safe place for users of all ages to get the very best apps and a vibrant app economy for developers of all sizes, from all over the world, to thrive.

In a similar way, 5G Core can bring disruption to the network level by opening up the mobile network's operating system and exposing core network capabilities to external parties, so they can program their applications to use mobile connectivity and edge computing. No one can predict the implications of such openness on the DSP's network capabilities.

DSPs are under pressure to develop business cases that will provide reasonable returns on their 5G investments. The 5G monetization is fraught with challenges there is no clarity over the applications and use cases that will steer the 5G revenues.

5G Core can bring disruption to the network level by opening up the mobile network's operating system and exposing core network capabilities to external parties, so they can program their applications to use mobile connectivity and edge computing.

External Market Challenges: Use Cases profitability and relevance

The first wave of 5G opportunities is expected to address the consumers market that will be led by early adopters who will sign up for higher data speeds and upgrade to 5G-ready smartphones.

The next wave will focus on the enterprise markets that is relatively new segment for many DSPs today, but is promising more opportunities than the consumer market. From wave to wave, the DSPs are expecting to build clarity over the enterprise use cases they should pursue.

5G supporters are advocating that 5G will unlock incremental opportunities that will fundamentally transform many industries: Agriculture, Construction, Utilities, Media/ Entertainment, Healthcare, Transportation, Finance/Banking, retail…. Those opportunities are expected to revolutionize the way we do things and announce a 4th industrial revolution.

The 5G success will be determined by its impact on society. This is driven, not only by the relevance of the use cases that will address verticals and industries, but also on the capabilities of the DSPs to monetize their investments and the network suppliers to finance their research and development. Any 5G use case should balance the interests of all involved parties, similarly to how:

- 2G enabled Mobile voice Communications for people and businesses and secured high revenues and profits to the manufacturers and MNOs,
- 3G availed Mobile Broadband and created new revenues streams to the Telco industry players
- 4G steered network traffic from Voice to Data, allowing the mobile application business to thrive over the Operators networks. It exponentially grew data traffic and congested Operators pipes while it opened new revenue streams for operators and suppliers based on IoT.

Conclusion:

If 5G use cases are not lucrative to DSPs as they are expected to be impactful on the industries they serve, the 5G uptake might take longer than hoped. 5G profit margins should be able to finance research and development that will lead to creating new patterns or killer applications.

The 5G success will be determined by its impact on society. This is driven, not only by the relevance of the use cases that will address verticals and industries, but also on the capabilities of the DSPs to monetize their investments and the network suppliers to finance their research and development.

The Telecommunications industry, since 2G in early 90s, was always resourceful in finding the way to over achieve forecasts and fuel its own growth. The current uncertainty over the optimal DSPs monetization systems, coupled with the unclarity over the 5G applications and use cases that will fuel the operators profitability, are only temporary. The Mobile industry should be able to have better visibility over the internal and external challenges after the commercial 5G networks become operational and start exploring the potentials of the verticals and industries.


عرب سات
ARABSAT
عالمنا... عالمكم.
Our world. Your world.
Our world.
Managed Services.
Your world.
عالمنا.
الخدمات المدارة.
عالمكم.
BROADBAND SERVICES
ENTERPRISE & GOVERNMENT
IP-TRUNKING
3G/4G BACKHAULING
/Arabsat
@Arabsat
/Arabsat
www.arabsat.com

SATELLITE NEWS

The UAE's Mars Mission Hope Probe Reaches an 85 Percent Build Completion

The plan by the UAE Space Agency and Mohammad Bin Rashid Space Center (MBRSC) is to launch their Emirates Mars Mission known as Hope next summer via a Japanese H-2A rocket, with a Mars orbit being reached by December of 2021. The 1.5 ton Hope Probe build is now 85 percent complete, according to the organizations, with the majority of the parts in place with the unit going through the testing process. Major milestones that have been met during this process include the ability of the probes to communicate with ground stations. Next up are the environmental tests, which are hoped to be concluded by December of this year. Aboard the Hope will be the fully completed...

- Emirates eXploration Imager (EXI): capture and delivery of high-resolution color images
- Emirates Mars Ultraviolet Spectrometer (EMUS): examination of temperature patterns, icewater vapor and dust in the atmosphere of Mars
- Emirates Mars Infrared Spectrometer (EMIRS): upper atmosphere analysis

According to Dr. Ahmad Bel Houl Al Falasi, the Minister of State for Higher Education and Advanced Skills as well as the Chairman of the UAE Space Agency, the UAE is on the verge of making history, after turning the nation's dream of becoming the first Arabic and Islamic country to send a spacecraft to Mars into reality. This monumental endeavor is the culmination of the efforts of a skilled and experienced team of young Emiratis, who with the support of the nation and visionary leadership, will secure the UAE's position at the forefront of space exploration and the international space sector.

Claro Argentina Selects Comtech Platform for Mobile Backhaul

Claro Argentina selected Comtech Telecommunications'Heights Networking Platform to connect rural communities throughout Argentina with high-speed 2G/3G and LTE backhaul. The Heights Networking Platform is a Very Small Aperture Terminal (VSAT) platform that combines Comtech EF Data's waveforms, Heights Dynamic Network Access (H-DNA), header and payload compression engines, Wide-Area Network (WAN) and General Packet Radio Service Tunneling Protocol (GTP) optimization, bandwidth and power management along with bi-directional adaptive coding and modulation capability. Claro Argentina will also deploy an array of Comtech EF Data products that complement the Heights Networking Platform, including the NetVue Integrated Management System, FX Series WAN Optimization, and LPOD and LPOD-R Block Up Converters. Ronan Medina, Manager of Transmission and IP Engineering of Claro Argentina commented, "As the market-leading Mobile Network Operator in Argentina, we are happy to announce a further expansion of our network to remote communities. We chose Comtech EF Data as our partner based on its proven track record of delivering the highest performance and high spectral efficiency satellite backhaul solutions with the lowest possible jitter and delay to provide an outstanding Quality of Experience for end users."

Horizon Technologies FlyingFish™ SIGINT System Adapted for Satellite Applications Catapult Smallsat

Horizon Technologies and the Satellite Applications Catapult have signed a contract to adapt Horizon Technologies' existing FlyingFish™ signals intelligence (SIGINT) system for a 6U CubeSat platform as part of the Catapult's In-Orbit Demonstration program. Funded by Innovate UK, it is expected that the satellite will be on-orbit and operational before the end of 2020. At present, all ships are fitted with Automatic Identification Signals (AIS), which can be detected by satellites, but can also be manually turned off to avoid detection when undertaking activities such as illegal fishing, piracy, smuggling, and transshipments, amongst others. The payload on board IOD-3 AMBER will be able to locate and track vessels worldwide by picking up their electronic emissions using an L-band Satphone detection sensor package derived from the existing FlyingFish™ system combined with an AIS receiver, and other sensors to detect maritime radars, and correlate these signals against the presence of AIS beacons. Known as IOD-3 AMBER, the satellite will work together with Horizon Technologies' Amber Ground Exploitation Station (GES) to be established in Cornwall (Newquay). The development of the GES was funded by Innovate UK in 2018 to provide end-to-end data services linked to illegal maritime activity to customers worldwide, and the GES will be operational by the time IOD-3 AMBER is launched. The satellite bus will be supplied by Glasgow-based AAC Clyde Space and will be deployed into orbit from the International Space Station by launch provider Nanoracks. Horizon Technologies already has a proven track record of working with national governments, international and regional organizations, and private industry. Later this year, Horizon Technologies will host customer validation workshops to discuss how current and future customers will use the data supplied by IOD-3 AMBER in the most optimal manner possible. Horizon Technologies will be exhibiting and discussing their IOD-3 AMBER launch and the Amber Constellation as part of the UK Department for International Trade (DIT) UK Pavilion (stand 617) at the May 6-9 satellite trade show in Washington, DC. John Beckner, CEO of Horizon Technologies, said as a UK SME, the company is pleased to work in partnership with the Satellite Applications Catapult for Amber as part of the In-Orbit Demonstration program. The program is a perfect example of the benefits of an optimal private/public partnership. By the end of next year, the firm's UK and international customers will be receiving ship geolocation data (to include GPS locations) of maritime vessels via a number of RF emissions. The world will have taken a major step forward in its quest to monitor international illegal maritime activity. Stuart Martin, CEO of the Satellite Applications Catapult, added that the Satellite Applications Catapult has been committed to the use of space-based technologies for tracking illegal maritime activity since 2013. It is the company's role as a Catapult to grow the market for satellite-enabled services like Amber and working with Horizon Technologies to deliver new capability from a CubeSat platform demonstrates the tremendous potential of the In-Orbit Demonstration program. Tim Just, Head of Space at Innovate UK, noted that this partnership announcement between UK SME Horizon Technologies and the Satellite Applications Catapult is welcome news. It illustrates the value of the In-Orbit Demonstration program to create an environment for businesses to test their innovative products and services and ultimately help grow the UK space sector.

Hughes Launches Satellite Service in Chile

US-based satellite provider Hughes Network Systems has launched its HughesNet high-speed satellite broadband service in Chile, covering more than 98% of homes, including those in areas that are either unserved or underserved by fixed and fixed-wireless providers. The launch follows on the heels of launches in Brazil, Ecuador, Colombia and Peru, the operator stated, adding that it currently serves over 1.3 million consumer and business customers throughout the Americas. Its service plans in Chile feature data transfer rates of up to 50Mbps/5Mbps (download/upload). 'With the commencement of HughesNet in Chile, we continue our strategy to expand internet access across the Americas with attractive pricing plans and fast, reliable service,' Hughes senior VP International Vinod Shukla was quoted as saying, adding: 'Now, more Chileans can do more online, including web browsing, email, shopping, social media and downloading music and video.'

ORBCOMM Signs ÅAC Microtec's Clyde Space to Build Two Smallsats

ÅAC Microtec subsidiary Clyde Space plans to build and begin operating in 2020 two cubesats equipped with Automatic Identification System (AIS) receivers for ORBCOMM in a contract valued at 54 million Swedish Krona ($5.9 million). Under the contract, Clyde Space will install three dedicated AIS receivers including a receiver based on a software-defined radio (SDR) on each of the four-kilogram cubesats. Clyde Space also will equip the cubesats with antennas to maximize detection of AIS messages, according to an ÅAC Microtec news release issued on April 9. Clyde Space will deliver AIS data gathered by the cubesats to ORBCOMM under an exclusive license, marking an important step in ÅAC Microtec's strategy to expand their business by building and operating spacecraft for customers. ORBCOMM processes more than 30 million AIS messages from more than 200,000 vessels per day for government and commercial customers, according to the news release. For ORBCOMM, this contract demonstrates the firm's commitment to the AIS market. Rolf Hallencreutz, ÅAC Microtec chairman, said this project with ORBCOMM represents a major milestone for ÅAC Microtec and Clyde Space as it is a collaboration with an established, leading data services company as well as because of the firm's strategic move to a satellite service model. John Stolte, ORBCOMM's EVP of technology and operations, said the company is pleased to partner with ÅAC Microtec and Clyde Space to enhance the firm's existing AIS service with two, state-of-the-art, next-generation satellites to continue providing customers around the world with the best service offering for AIS data.

NAPA Signs Up to Become First Certified Application Provider for Inmarsat's IoT Service

Inmarsat and NAPA, the leading provider of maritime software, services and data analysis, have signed an agreement to enable ship owners and ship managers to access and analyze real-time onboard data more efficiently through a dedicated application hosted on Inmarsat's new Fleet Data IoT service. Developed by Inmarsat and Danelec Marine, and made commercially available earlier this year, Fleet Data collects data from onboard sensors, pre-processes that data, and uploads it to a central cloud-based database equipped with a dashboard and an Application Process Interface (API). NAPA will then use this data to offer services for vessel performance monitoring, analytics and optimizations. Research published last year by Inmarsat on digital transformation in shipping* indicated that, on average, ship operators and managers plan to spend $2.5 million on IoT-based solutions within three years and expect average IoT-driven cost savings of 14% over the next five years. However, the research strongly suggested that a greater maritime appetite for IoT-based solutions would emerge if more data could be delivered and analyzed in real-time. "We are delighted that NAPA will be our first certified application provider for Fleet Data. This partnership and the NAPA application will help overcome key difficulties faced by those frustrated with the challenge of aggregating vessel data on-board and getting it efficiently onshore to improve fuel optimization," says Stefano Poli, VP, Business Development, Inmarsat Maritime. "It will allow ship operators and managers to access, control and analyze their own data, through the NAPA application on Fleet Data and via a secure platform that is fully scalable, fleet-wide and now commercially available on both Fleet Xpress and FleetBroadband," says Mr. Poli. "Our NAPA Fleet Intelligence platform is built to utilize ship performance data from all kinds of data sources, such as noon reports, or AIS, and to scale according to the data available, allowing as many vessels as possible to use data to improve their operations," says Mr. Pekka Pakkanen, Director, Development, NAPA Shipping Solutions. "However, the most accurate performance evaluations and predictions need both good quality and high frequency data, which is just what Fleet Data provides. For us, the key is to provide value from the data collected, based on expertise in hydrodynamics, optimization and analytics. This scalable way of obtaining data opens new possibilities to enhance the benefits of this value added service for the whole shipping industry," says Mr. Pakkanen. In addition to Fleet Data, Inmarsat is also providing dedicated bandwidth services for application providers across both its L-Band and Ka-Band networks and recently signed an agreement with SRH Marine SAIT to provide ECDIS updates via FleetBroadband. *The Industrial IOT on Land and at Sea – published July 2018; research commissioned to Vanson Bourne, specialist technology market research company.

AST & Science Announces Successful Launch of Its First Satellite

AST & Science has announced that its first satellite, designated BlueWalker 1, has been successfully launched, stabilized in orbit and is ready for operations. The BlueWalker 1 nano-satellite was launched into orbit on a PSLC-C45 launch vehicle from the Datish Dhawan Space Center in India April 1. The satellite is functioning satisfactorily and is ready to move into full operation. BlueWalker 1 is flying in a stable low-Earth orbit (LEO) at an altitude of about 500 miles. It will serve as a testbed for AST & Science patented technologies in space over the next several years. "This is an important step forward in completing the development and testing of our patented technology, which underpins our plan to deploy large numbers of ultra-powerful LEO satellites in space for a variety of defense and commercial applications," said Abel Avellan, chairman and CEO of AST & Science. "The new technology, which is being tested and validated on the BlueWalker satellites, will be used for the satellite modules that we will produce at our new manufacturing plant in Midland, Texas," Avellan added. "This factory has the capacity to build up to 100,000 satellite modules per year." Earlier this year, AST & Science opened a new U.S. office in the Washington, D.C. area and a design center for RF and electronics in Israel, complementing the corporate headquarters and 85,000 sq. ft. high-volume manufacturing plant in the Midland Space Port Business Park. AST & Science also acquired a controlling interest in NanoAvionics in 2018. The company has assembled a global team of 94 engineers and scientists, 18 of whom are PhDs, according to Avellan.

Satcube to Demo Satcube Ku Satellite Terminal

Satcube will demonstrate their Satcube Ku satellite terminal at the Washington DC satellite trade show from May 6–9 demonstrations will be conducted at the Walter E. Washington Convention Center. Satcube Ku highlights and demonstrations:

- Compact and light weight, feature-rich GUI: Red Dot Design winner 2019
- Benchmark, portable satellite terminal enabling rapid broadband connectivity almost anywhere on earth, with no need for engineering expertise
- Significantly outperforms BGAN devices and services in size, speed, ease-of-use and cost
- Designed for broadcast media, emergency responders, public safety organizations, tele-medicine, NGO´s, those in remote work locations needing high capacity communications

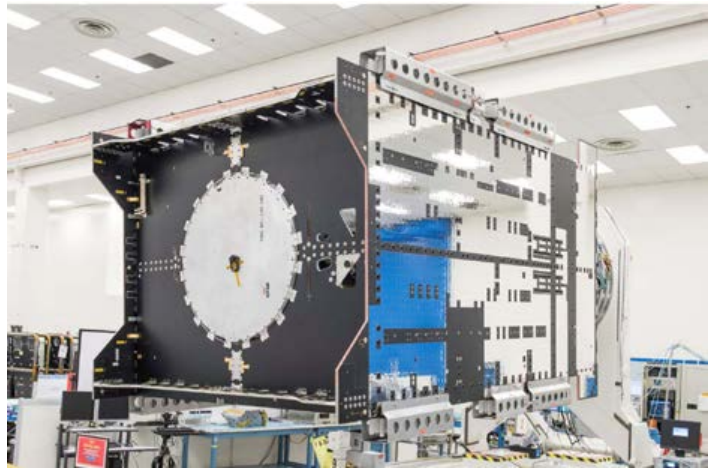
Satcube provides seamless broadband connectivity over satellite through easy to use, lightweight terminals. The innovative Satcube Ku portable satellite terminal is a highly compact, user-friendly device that delivers quick connectivity empowering people at work, businesses and global organizations, to communicate and deliver critical services at any time. Jakob Kallmér, CEO, Satcube, said the company's mission is making seamless, high-capacity, satellite broadband made easy. Comparable to a large laptop in size, the lightweight Satcube Ku terminal provides the ease of an iPhone and deployment of broadband in less than a minute. Tapping Satcube's market-leading offering, coupled with best-in-class technology and portable design, the company is serving industry verticals and work places requiring broadband connectivity where limited or no 3G/4G connectivity is available.

Xplornet Signs an Agreement with Hughes for Most of the Canadian Capacity on the JUPITER 3 Satellite

Xplornet Communications Inc. has announced the next advancement in broadband technology that will bring rural Canadians faster speeds and more data. Xplornet has entered into a lifetime agreement with Hughes Network Systems, LLC (Hughes), for substantially all of the Canadian satellite broadband capacity on Hughes' next-generation JUPITER 3 Ultra High Density Satellite. For rural Canadians, the JUPITER 3 satellite will make internet download speeds of 100 Megabits per second (Mbps) available. Planned for launch in 2021, the satellite is designed to provide coverage of 90 percent of Canada's population and will bring about 50 Gbps of capacity to current and potential Xplornet customers. Once in commercial operation, Xplornet's new internet service is anticipated to deliver more data and the fastest residential download speeds offered via satellite in Canada, at 100 megabits per second. The total value of the investment for capacity, gateway equipment, operational support and consumer premise equipment is over $250 million (USD). Allison Lenehan, President and CEO of Xplornet, reported that the company welcomes the opportunity to continue the firm's long-standing relationship with Hughes to add this third Jupiter satellite to the company's network, which will deliver dramatically faster speeds up to 100 Mbps to customers, connecting them to what matters. Paul Gaske, EVP and GM, North America, at Hughes, noted that for more than a decade, Xplornet has teamed with Hughes for satellite capacity and equipment to help them bring the benefits of broadband to Canadians.

Kacific's 1st Satellite Moves into Final Construction Stage

Following the successful completion of payload and bus integration, Boeing will begin antenna range testing and core testing of Kacific's Kacific1 satellite. Kacific's first satellite is a High Throughput Satellite (HTS) currently in production at Boeing's El Segundo, California facility for satellite technology. It is 75 percent through module level testing and about to move into the final phase of construction. The satellite will then undergo mechanical vibration and acoustic environmental testing. "We're looking forward to seeing the fully formed satellite and are regularly in touch with Boeing for progress updates," Bob Perpall, Chief Technology Officer, Kacific said. "Our team is counting down the months to service commencement. We are currently working with customers to help them prepare for the high-speed Ka-band broadband through installation of ground technology and developing tailored solutions for people and organizations in Asia-Pacific, such as enterprise level broadband services and community-based Wi-Fi solutions."



Viasat, China Satcom Bring IFC to Airlines over China

Viasat and China Satellite Communications (China Satcom) entered into a strategic partnership to jointly provide In-Flight Connectivity (IFC) services within China for domestic and international airlines. Viasat and China Satcom will help enable Viasat's global airline customers to have roaming connectivity when flying over China; provide IFC service to domestic flights within China; and enable Chinese airlines to roam onto Viasat's global network. China Satcom is a licensed telecommunications service provider in China and also owns and operates a Ka-band spotbeam satellite system in China, which is the only Ka-band system currently available for IFC service in the country. Yet today, only about four percent of flights within China are connected. "Our agreement with China Satcom is a significant step towards realizing a seamless global community of high performance IFC. China Satcom is now the only satellite operator and licensed service provider in China with the bandwidth resources to deliver the in-flight experience our airline customers have come to expect and depend on," said Don Buchman, vice president and general manager, Commercial Aviation, Viasat. "Our partnership is a natural way to extend state-of-the-art services specific to China Satcom's fleet and the China domestic market, and create a global roaming alliance for our existing and new domestic and international customers and the rapidly growing Chinese global commercial airline fleet. We are honored to work with China Satcom in China to make IFC-at-scale a reality."

Relativity's Rocket to Launch Mu Space's LEO Satellite

Business Wire Relativity, partnered with mu Space, a Thai satellite and space technology company, to launch a satellite to Low-Earth Orbit (LEO) on Relativity's Terran 1 rocket, the world's first 3D printed rocket. Relativity's 3D printing technology platform together with Terran 1's flexible architecture aims to provide mu Space a faster and more reliable launch at a lower total mission cost. Relativity is developing the first a aerospace platform to integrate Machine Learning (ML), software, and robotics with metal 3D printing technology to build and launch rockets in a shorter amount of time. The company expects to build its Terran 1 rocket from raw material to launch-ready in less than 60 days. Additionally, mu Space is developing both LEO and Geosynchronous Earth Orbit (GEO) satellite and space technologies to help accelerate the adoption of Internet of Things (IoT) devices in smart cities, and encourage new space investments in the Asia-Pacific region. Mu Space's LEO satellite will be a primary, dedicated payload on Relativity's Terran 1 rocket, launching in 2022. "Mu Space is accelerating space technology development in Asia, and we consider the moon as the next explorable body in space beyond Earth," said James Yenbamroong, CEO and founder of mu Space. "Relativity has the vision, team, and technology to deliver exceptional advantages in launching mu Space's payloads, and supporting our goal of creating an interplanetary society in the future."

Comtech Announces Claro Argentina Selected Heights Networking Platform for Mobile Backhaul Infrastructure

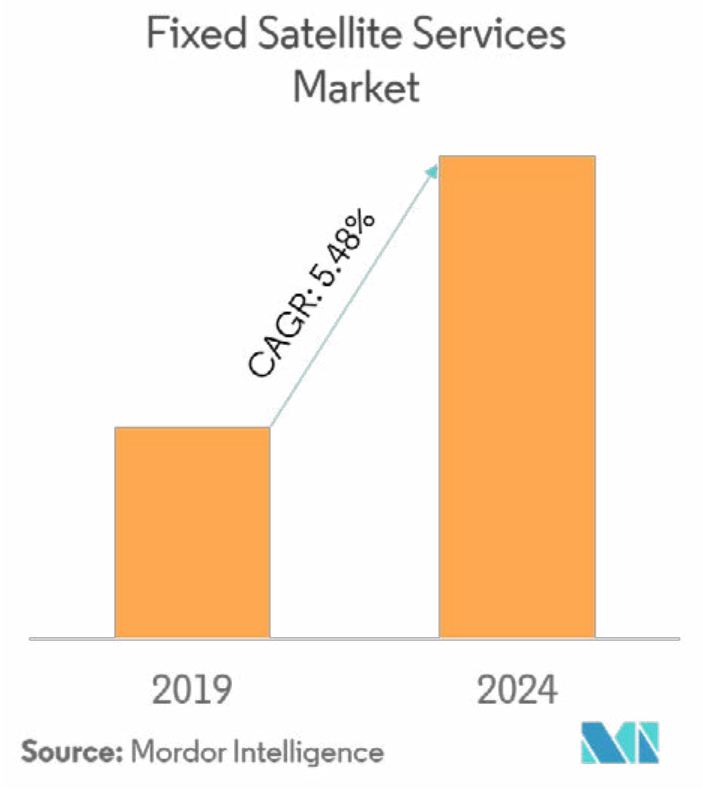
Comtech EF Data Corp., which is part of the Commercial Solutions segment, has had its Heights™ Networking Platform selected by Claro Argentina to connect rural communities throughout Argentina with high-speed 2G/3G and LTE backhaul. The Heights™ Networking Platform is a VSAT platform that combines Comtech EF Data's most efficient waveforms, Heights Dynamic Network Access ("H-DNA"), header and payload compression engines, WAN and GTP optimization, multi-tier Quality of Service, proven dynamic bandwidth and power management along with bi-directional Adaptive Coding & Modulation capability, providing the industry's highest user throughput, highest availability and most optimal resource utilization. Claro Argentina will also deploy an array of Comtech EF Data products that complement the Heights™ Networking Platform, including the NetVue Integrated Management System, FX Series WAN Optimization, and LPOD and LPOD-R Block Up Converters. Ronan Medina, Manager of Transmission and IP Engineering of Claro Argentina commented, "As the market-leading Mobile Network Operator in Argentina, we are happy to announce a further expansion of our network to remote communities. We chose Comtech EF Data as our partner based on its proven track record of delivering the highest performance and high spectral efficiency satellite backhaul solutions with the lowest possible jitter and delay to provide an outstanding Quality of Experience for end users." According to Alejandro Boarini, Chief of Engineering for Claro Argentina, "The decision to select Comtech EF Data was mainly based on the combination of its H-DNA technology, the security and management tools of the Heights™ Networking Platform, and the proven track record of both Comtech EF Data and its local partner, TCTech Argentina, that will carry out the network implementation." "We are exceptionally proud to have been selected by Claro Argentina to roll out our industry-leading satellite backhaul solution enabling mobile broadband communication for hundreds of thousands of Claro Argentina subscribers across more than 250 communities throughout Argentina," said Richard Swardh, Senior Vice President Mobile Network Operators of Comtech EF Data. "Our Heights platform has once again proven that it provides the lowest OPEX and best total cost of ownership of any satellite platform on the market, while at the same time enabling Claro Argentina's customers to enjoy the highest Quality of Experience and throughput possible."

Hughes, Xplornet Deliver Broadband to Rural Canada

Canadian rural broadband provider Xplornet Communications entered into a contract with Hughes Network Systems, agreeing to a lifetime capacity agreement on the next-generation JUPITER3 Ultra High Density Satellite (UHDS), designated EchoStar XXIV. In a contract valued at more than $250 million over 15 years, the agreement is for approximately 50 Gbps of Ka-band capacity reaching more than 90 percent of the population of Canada, along with system gateway and consumer premise equipment and operational and support services. Currently under construction, EchoStar XXIV is expected to launch in 2021 and bring more than 500 Gbps of capacity across the Americas. Powered by the latest JUPITER System technology, EchoStar XXIV aims to enable the continued growth of high-speed services for applications including consumer, enterprise, aeronautical, cellular backhaul and community Wi-Fi, and bridging the digital divide. The satellite is expected to deliver broadband services for 15 years and will join the largest fleet of High Throughput Satellites (HTS) across the Americas, all utilizing JUPITER System technology, including EchoStar XVII, EchoStar XIX, Hughes 65 West and Hughes 63 West. "This agreement marks another milestone in our longstanding relationship with Hughes," said Allison Lenehan, CEO of Xplornet. "JUPITER 3 is expected to provide the highest speed satellite Internet service in Canada, with download speeds of 100 Mbps, answering our customers' need for fast and reliable broadband to connect them to what matters."

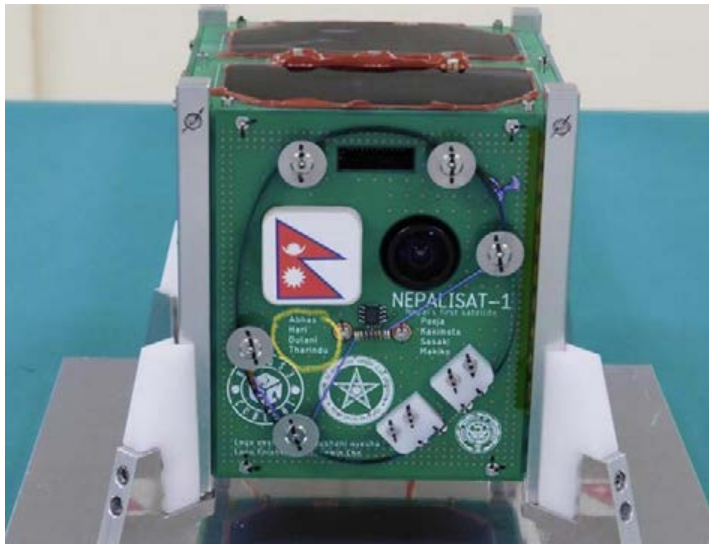
Global Fixed Satellite Services Market Set to Grow

According to the "Fixed Satellite Services (FSS) Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024" report, the market reached a value of $20.2 billion in 2018. Looking forward, the market to reach a value of US$ 25.7 billion by 2024, registering a CAGR of around 4 percent during 2019-2024. Fixed satellite services, also known as FSS, are radiocommunication services used between different earth stations. These satellite services use the Very Small Aperture Terminal (VSAT) technology for sending and receiving telephone calls and television signals for broadcasting. They offer low power output and have large dish-style antennas for better service reception. On account of inflating income levels and rising sales of smartphones, high-speed internet has become one of the necessities for communication. As a result, the demand for broadband has increased significantly in recent years which, in turn, is impelling the growth of the global fixed satellite services market. Owing to a rise in the adoption of HDTV channels and emerging DTH TV platforms, there has been an escalation in the overall demand for fixed satellite services across the globe. Increasing expenditure on military satellite communication; telecom backhaul, content and broadcast delivery; and enterprise and broadband connectivity is anticipated to drive the demand for fixed satellite services during the forecast period. There has been a rise in the demand for high-throughput connectivity and corporate enterprise networks in the oil and gas industry. This has provided several growth opportunities to the major players operating in the global FSS market. The report has also analyzed the competitive landscape of the market with some of the key players being Embratel Star One, Eutelsat Communications, Telesat Holdings, SKY Perfect JSAT Holdings, Thaicom Public Company, Nigerian Communications Satellites, Telenor Satellite Broadcasting, Singapore Telecommunications (Singtel), SES S.A, Arabsat, Hispasat, Intelsat, etc.



Nepal Launches Its First Satellite NepaliSat-1 from US

Nepal successfully launched its first satellite into space from the US to gather detailed geographical information of the Himalayan nation, evoking unbridled excitement among the people and scientists. Developed by the Nepalese scientists, NepaliSat-1 satellite was launched at 2:31 am (Nepal time) from Virginia in United States, according to Nepal Academy of Science and Technology (NAST). Two Nepali scientists, Aabhas Maskey and Hariram Shrestha who are currently studying at Japanese Kyushu Institute of Technology, developed the satellite under the BIRDS project of their institute. Prime Minister K P Sharma Oli congratulated all the scientists and institutions involved in the development of the satellite. He said it was a matter of prestige for the country to have its own satellite. "Though a humble beginning, with the launching of NepaliSat-1 Nepal has entered the Space-Era. I wish to congratulate all those scientists and institutions that were involved right from the development to its launching thereby enhancing the prestige of our country," he said in a tweet.



Northrop Grumman Successfully Launches NASA Mission

Northrop Grumman successfully launched its Antares rocket carrying a Cygnus spacecraft yesterday at 4:46 p.m. EDT from the Mid-Atlantic Regional Spaceport Pad 0A on Wallops Island, Virginia, at NASA's Wallops Flight Facility. The launch marks Northrop Grumman's 11th cargo mission carrying supplies to the astronauts aboard the International Space Station (ISS) for NASA. Following the release of Cygnus, Antares performed another new capability, deploying secondary satellites for science, technology, engineering and mathematics outreach programs. This included the NASA-sponsored 3U CubeSat called Student Aerothermal Spectrometer Satellite of Illinois and Indiana CubeSat (SASSI2) and 60 ThinSats sponsored by Virginia Space Flight Authority. Additionally, the spacecraft carried Orbital Micro Systems'first satellite in its Global Environmental Monitoring System (GEMS) constellation — the IOD-1. "This launch marks a new innovative capability for Antares and Cygnus, which enables a 24-hour late load of critical cargo," said Scott Lehr, vice president and general manager, flight systems, Northrop Grumman. "We are proud to partner with NASA to provide more commercial capabilities supporting their missions. Congratulations to the entire team on an excellent launch."

Intelsat Reports Intelsat 29e Satellite Failure

Intelsat has announced that the anomaly previously disclosed on April 10, 2019 has resulted in the total loss of the Intelsat 29e spacecraft. A failure review board has been convened with the satellite's manufacturer, Boeing, to complete a comprehensive analysis of the cause of the anomaly. Late on April 7, the Intelsat 29e propulsion system experienced damage that caused a leak of the propellant on board the satellite resulting in a service disruption to customers on the satellite. While working to recover the satellite, a second anomaly occurred, after which all efforts to recover the satellite were unsuccessful. Since the anomaly, Intelsat has been in active contact with affected customers. Restoration paths on other Intelsat satellites serving the region and third-party satellites have been provided for a majority of the disrupted services. Migration and service restoration are well underway; highlighting the resiliency of the Intelsat fleet and the benefit of the robust Ku-band open architecture ecosystem.

Hughes Satellite-Enabled Community Wi-Fi Hotspots Provide Affordable Internet Access across Vast Areas of Russia

Hughes Network Systems has announced the deployment of 1,300 satellite-enabled Community Wi-Fi Hotspots across Russia by longtime service provider customers AltegroSky Group of Companies and KB Iskra. With an average of 250 people having access to each of the Home/SMB hotspots, the providers will reach over 300,000 people in the Far East, Siberia, Central, Ural and Caspian/Volga regions, where Internet access was previously unavailable or unaffordable. Both KB Iskra and AltegroSky are leading satellite communications operators in the Russian market and have delivered a wide range of broadband services utilizing Hughes systems for over a decade, including over Wi-Fi hotspots. The Community Wi-Fi solution offers a cost-effective path to extend Internet service in areas where terrestrial broadband is unavailable or unaffordable, employing industry standard 802.11 Wi-Fi access points combined with a shared VSAT terminal for cost-effective satellite backhaul. This approach yields an affordable neighborhood service where any user can access the Internet with a Wi-Fi capable handheld or laptop, and requires substantially less capex per household than a traditional broadband deployment. Homeowners pay a monthly or even seasonal subscription fee to the operator to have Internet access in their homes. "Before we began providing Community Wi-Fi service with Hughes, many villages in Russia did not have access to reliable broadband Internet service," said Sergey Pekhterev, head of the AltegroSky Group. "We are pleased to report that, today, we have connected hundreds of villages to the Internet." Andrey Romulov, chairman of the Board of Directors of KB Iskra, added, "About 90 percent of our B2C subscribers are connected to Hughes VSATs collectively. This solution achieved such popularity due to its low cost of entry, as well as having high quality, customer-oriented local support. For villagers, broadband Internet access is sometimes the only way to use public services and receive online education. It is difficult to overestimate the social significance of satellite solutions – we are constantly witnessing dramatic improvements in the lives of local communities, and these stories inspire us to continue the development of digital services." "Our partnerships with AltegroSky and Corporate Group Iskra underscore the essential role of High-Throughput Satellite (HTS) technology in connecting the unconnected," said Vinay Patel, senior director, International Division at Hughes. "The Community Wi-Fi solution and subscriber business model solve the very real problem of bringing affordable Internet access to communities everywhere, especially in areas outside the reach of terrestrial broadband." The Hughes Community Wi-Fi solution leverages the Hughes JUPITER™ System, the next generation VSAT platform designed and optimized for broadband services, and currently enables more than 32,000 Wi-Fi hotspots in Mexico, Brazil, Indonesia and Russia, with trials underway in other countries to help bridge the digital divide.

Tonga Government Signs 15-Year Satellite Contract with Kacific

Kacific Broadband Satellites Group (Kacific) has signed a 15-year agreement with Tonga Satellite Limited, a Tongan government company, to provide a high-quality satellite broadband solution to the Pacific island nation. The bandwidth supplied by the high throughput Kacific1 satellite will be used to connect communities in 89 remote outer islands; transmission speeds will be equivalent to those available in the main cities of Tonga. In the case of a fiber cable outage – similar to the one experienced over twelve days in January 2019 – the satellite bandwidth can be redistributed and shared with Tonga's main centers. The bandwidth supplied by Kacific will be focused on government infrastructure such as hospitals, health clinics and dispensaries, primary and secondary schools, police stations and post offices. The bandwidth will also be used to support local businesses and foster the creation of new platforms for economic development, such as cooperative marketplaces promoted by the Tongan government. The Kingdom of Tonga is a Pacific Island nation comprising 169 islands, of which 36 are inhabited. These stretch across approximately 800km of water. The population of just over 108,000 people – of which 82,000 are classified as living in rural areas – usually consume around 2.4Gbps of broadband bandwidth, the press release notes.

Historic Arabsat-6A Launch is a Success

The Arabsat-6A satellite is on its way to its intended orbit at 30.5 degrees East after its successful launch on SpaceX's Falcon Heavy rocket, the Saudi operator confirmed. Built by Lockheed Martin as its largest and most powerful commercial satellite to date, Arabsat-6A will provide high-capacity telecommunications, delivering television, radio, internet, and mobile communications to customers in the Middle East, Africa, and Europe. The spacecraft is the last of Arabsat's 6th generation satellites. The satellite utilizes advanced Ka-spot beam capabilities and Ku and Ka-band coverage, in addition to other frequency bands. The Arabsat-6A mission was also a complete success for SpaceX. Not only did the U.S. launch provider successfully lift the Arabsat payload to orbit, it also successfully landed all three of its boosters back on Earth. The Falcon Heavy's main booster to make a difficult landing at sea — on a ship positioned hundreds of miles offshore in the Atlantic Ocean. Falcon Heavy's two side boosters landed at Cape Canaveral Air Force Station in Florida. Arabsat CEO Khaled bin Ahmed Balkheyour called the launch a, "momentous leap in the field of commercial satellites manufacturing and launching." "We are thankful for 6A satellite launch success as it was challenging for us and SpaceX because it is the first largest and heaviest satellite lifted by SpaceX on the most powerful rocket in operation today, the Falcon Heavy," said Balkheyour, who also acknowledged contributions from his own team. "Arabsat's success during the past two months, the launch of HS4 satellite at 39 degrees East for [Arabsat subsidiary] Hellas Sat last February and this success today could not have been possible without the help of the hard working young Arab engineers from Arabsat headquarter and its two ground stations in Riyadh and Tunisia, where those satellites are operated and controlled. To those young engineers who were fully involved in the design of these satellites and the supervision of the manufacturing stages, we owe them all thanks and praise."

Amazon to Launch 3,236 Satellites to Provide Fast Broadband Worldwide

The initiative is called Project Kuiper and has been registered with the International Telecommunication Union (ITU). Amazon is just the latest entrant to the space race: a number of companies intend to launch a constellation of satellites to support communications. They include Elon Musk's SpaceX, which is launching the Starlink constellation, OneWeb which is backed by SoftBank, as well as Boeing's venture and Telesat. Amazon is a publicly traded company, with a long history of investing heavily to create future growth. Amazon's co-founder and CEO, Jeff Bezos, has his own space outfit, Blue Origin, which is likely to launch the satellites. One commentator noted that the profit motive was clear: doubling Amazon's addressable market by adding 4 billion potential new customers and with the option of offering bundled services, not just connectivity. It will also bolster Bezos' cloud business, Amazon Web Services (AWS). Last November, Amazon announced a new business unit, AWS Ground Station which is to build 12 satellites facilities around the world to transmit data to and from satellites in orbit. As yet there are no details about how long it will take to deploy the constellation or cost. The Iridium constellation, announced back in the 1980s, then developed by Motorola became operational in 1997, after several changes of plan (originally the constellation was to have comprised 77 satellites, the atomic number of the element Iridium). The last phase, which took place over a decade, was completed recently at a cost of about $3 billion, according to CNBC.

O3b Satellites Roar into Space, Scaling SES's MEO Constellation

O3b Medium Earth Orbit (MEO) satellites were successfully launched by Arianespace at the Guiana Space Centre in Kourou, French Guiana on 4 April, 14:03 PM local time, SES announced. The Soyuz launch marks a significant milestone in SES's O3b MEO journey, bringing the number of O3b satellites to 20, and making the transition into its next-generation MEO system. The seamless scalability of the constellation means that the additional satellites will enhance coverage across the globe and enable SES Networks to provide greater service availability and reliability to cater to the increasing demand for networked applications in the government, telecom, cloud, maritime and energy markets. The satellites were built by Thales Alenia Space. As the only operationally- and commercially-proven non-geostationary satellite orbit (NGSO) broadband constellation, the O3b MEO system has been successful since its first launch in 2013. It is the only satellite-based system currently delivering fibre-like high-performance data connectivity services, MEF Carrier Ethernet certified services and certified Cloud connectivity services. The unique high-throughput O3b constellation has been key in helping SES achieve its bold vision of changing lives by connecting people. Its positive impact can be felt by customers operating in nearly 50 countries today:

- Benefitting mobile networks with more than 15 million end users
- Serving 4 out of the 6 oil & gas super majors in key offshore markets
- Empowering an exceptional connectivity experience to 4 out of the 5 leading global cruise lines
- Working with government and humanitarian agencies to restore connectivity for millions affected by natural disasters in Peru and Puerto Rico

"This launch marks a very important part in the O3b journey. We started O3b with this bold vision of changing lives by connecting people. We wanted to create a meaningful impact, and we have. We have connected underserved communities with high-performance internet. We have restored connectivity across disaster zones. We have changed the notion that you can't be as connected at sea as on land. And we have made the cloud available to businesses where it was never possible before," said John-Paul Hemingway, Chief Executive Officer of SES Networks. "As this launch completes our first-gen O3b system of 20 satellites, it also marks the transition into our next-generation MEO system, O3b mPOWER, the only fully-funded NGSO broadband system in development today. When O3b mPOWER launches in 2021, SES will bring massive scale to our proven O3b model – driving digital transformation and cloud adoption virtually everywhere on the planet." Located almost 8,000 km away from the earth's surface, the O3b constellation delivers fiber-equivalent performance and has massive geographic reach, enabling the delivery of high-performance data networks and solutions – including cloud services and applications – across the globe.

AfricaOnline's JOLA Satellite Broadband Service Now Live in Ghana

AfricaOnline Ghana (iWayAfrica), a subsidiary of Gondwana International Networks (GIN) offering services to more than 67,000 corporate and over 20,000 consumer subscribers across sub-Saharan Africa, has launched a new satellite broadband service promising 100% coverage of the country through multiple spot beams. The ISP says its new Ka-Band JOLA-branded service will reach even the most remote parts of the interior of Ghana, but will also benefit business continuity services in urban areas as well. 'We are proud to be the first to launch the Avanti HYLAS4 service in Ghana. Our rigorous testing over the past few months has given us the confidence that our customers will be very satisfied with the quality of service and speeds of up to 35Mbps download,' said AfricaOnline (Ghana) Managing Director Foster Plender. GIN has partnered with Avanti since 2014 for the rollout of high speed satellite services in Southern and Eastern Africa. In August 2018 the group was granted Master Distributor status for its new service on the latest satellite, HYLAS4, with new market focus on West and Central Africa.


HUAWEI
Bring digital to every person,
home and organization for
a fully connected, intelligent world

ARTICLE

5G Force: Why Rapid Rollout of 5th Generation Connectivity is Crucial

The time for 5G is now. Business, standards, products, terminals, and security are fully ready, and a mature 5G ecosystem has emerged. Rapid integration of the next generation of network connectivity could be the turning point for Middle East governments pursuing strategic plans to develop globally-competitive, diversified, knowledge-based economies.

Huawei commits to support from a top-level consultative perspective to ensure 5G is achieved with maximum speed and quality, and nurture a 5G ecosystem which will help organizations rapidly capitalize from the commercialization of 5G.

The success of 5G is largely dependent on two elements. Firstly governments, operators and their partners setting up adequate infrastructure, and secondly looking ahead to develop use cases which reach beyond traditional telecommunications services.

Preparing infrastructure for 5G is largely dependent on local governments and operators. Huawei commits to support from a top-level consultative perspective to ensure 5G is achieved with maximum speed and quality, and nurture a 5G ecosystem which will help organizations rapidly capitalize from the commercialization of 5G. Regional governments have demonstrated admirable foresight in prioritizing digitalization to drive forward the next stage of economic development – but challenges remain.

We want to emphasize the need for early and quick deployment and commercialization of 5G, to outline our capabilities as a brand, as well as demonstrate our vision for the future of 5G.

Eliminating barriers

As we work towards a future fueled by 5G, our focus is on how we can ensure the right foundations are in place to allow maximum benefits and efficiency for our evolving digital economy. We need to eliminate the barriers that would affect us achieving economies of scale, saving costs and increasing productivity, while preparing for major technologies of the future.

Charles Yang
President
Huawei Middle East

HUAWEI

New services that 5G will enable, such as Artificial Intelligence (AI) and autonomous driving networks, have the potential to drive demand as well as accelerate digitization of the economy.

5G networks will require a far denser coverage than current networks provide. To this end, infrastructure and set-up must be carried out in an efficient and timely manner. New services that 5G will enable, such as Artificial Intelligence (AI) and autonomous driving networks, have the potential to drive demand as well as accelerate digitization of the economy. Who benefits from these services and why are operators questioning their investments?

To answer this, we must lay out how delayed deployment would impact the economic trajectory for governments and operators, and identify the myriad benefits they would miss.

Essential benefits

The fifth generation will enable a level of mobile connectivity that will power state-of-the-art technologies, such as AI, autonomous transport, cloud computing, and smart home appliances. 5G-enabled digitalization has the power to drive revenues for organizations across vertical sectors, from energy and utilities, to manufacturing, to healthcare, retail, financial services, and more.

For operators, the benefits are also manifold. Denser network coverage will allow for better faster coverage and more capacity, providing users with a consistent experience and ensuring customer satisfaction. It will also power the Internet of Things (IoT), where devices and systems are interconnected.

Huawei has been working with our ecosystem partners to test and validate industry use cases for 5G through our Wireless X Labs. Our research leaves no doubt that while initial investment to networks may be high, their cost will be rapidly recouped through the economic opportunities 5G will bring. We have established a number of special interest groups, including the Digital Sky Initiative, Wireless eHealth, and Connected Factory, to study new commercial applications which will justify investing in network transformation. Our research makes a clear case that organizations across the board will benefit from early investment in 5G, as innovation inspires new growth for enterprises.

Huawei's 5G solution

As our Chief Marketing Officer of Huawei Wireless Solution, Peter Zhou stated: "Huawei is dedicated to taking complexity and creating simplicity. We are eager to make 5G deployment efficient and convenient through systematic innovation, helping 5G enter the fast track."

Through our lead ranking in the industry we have devoted our efforts to quick and easy deployment. Huawei is leading a global movement to embrace the new era of digitalization 5G is inspiring.

We also prioritize forming key partnerships and working to provide innovative business opportunities for organizations, while looking to the future in terms of growing our AI-enabling intelligence operations.

Above all we want to provide solutions. A key solution to addressing infrastructural and cost issues is through choosing a partner that will facilitate the entire journey, from setting-up base stations to trialing and testing. Huawei is one of the only companies to provide End-to-End 5G solutions and full-lifecycle service capabilities which can be applied across all scenarios. Customized infrastructure tailored to their unique requirements means businesses can modify 5G in their own way towards their desired outcome.

At Huawei, our primary and unswerving commitment is to maintain customer network stability and security. When it comes to security, we believe the ultimate solution is extensive R&D – this is why in 2018 alone, Huawei invested USD 14.9 billion (14.1% of its sales revenue) in R&D, ranking fifth globally in The 2018 EU Industrial R&D Investment Scoreboard. Over the last ten years, Huawei's R&D expenditure has reached more than USD 70.5 billion. According to official data released by the World Intellectual Property Organization (WIPO), Huawei filed 5,405 patent applications to this organization in 2018, ranking first among all companies globally.

A key solution to addressing infrastructural and cost issues is through choosing a partner that will facilitate the entire journey, from setting-up base stations to trialing and testing. Huawei is one of the only companies to provide End-to-End 5G solutions and full-lifecycle service capabilities which can be applied across all scenarios.

Bringing digital to every person, home, and organization for a fully connected, intelligent world is Huawei's commitment. On that note I urge regional partners and operators to exercise their vision and work together to deliver 5G faster, making its benefits more widely available so their economic and social impacts can be felt immediately across the Middle East.

WHOLESALE NEWS

Western Balkan Nations Agree to Abolish Roaming Charges

Representatives of six countries in the Western Balkans – Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Montenegro and Serbia – have inked an agreement under which they will gradually remove all roaming costs in the region. According to BalkanInsight, following the signing of the deal in Belgrade yesterday (4 April) the aforementioned countries say they will all work to harmonies pricing for mobile voice calls, SMS messages and data. The report cites Kosovo Minister for Economic Development Valdrin Lluka as saying that the pact will come into effect from 1 July, at which time, calls for those roaming costing EUR0.190 (USD0.213) per minute from that date, while SMS messages will cost EUR0.060 per message and 1MB of data will be charged at EUR0.025. Looking ahead, it is understood that from 1 July 2021 roaming charges will be abolished altogether under the 'Roam like at Home' concept.

ILR Publishes New Regulations for Wholesale Access; Sets Price Ceilings for Unbundling

Sector watchdog the Luxembourg Institute of Regulation (Institut Luxembourgeois de Regulation, ILR) has published a series of decisions regarding the country's wholesale broadband markets. For operators designated as having significant market power (SMP), the ILR has introduced a new series of procedures to monitor and control equivalence of inputs (EoI). A separate regulation, meanwhile, established the conditions and standards for SMP operators to conduct obligatory economic replicability tests. The tests must be applied to its 'flagship' retail products that include a broadband service (i.e. both standalone and bundled products). Flagship products refers to all high speed products contributing together, in descending order, 70% of total revenue from retail broadband products and any retail broadband product that individually represents at least a 10% share of the operator's total retail broadband revenue. The regulator also set new tariff ceilings for local loop and local sub-loop unbundling services. For full unbundled access to the local loop, the ILR set a maximum fee per connection of EUR8.26 (USD9.27) per month for the period from 1 January 2018 to 31 December 2018, whilst the rates for 2019 and 2020 would increase to EUR8.43 and EUR8.60, respectively. The monthly fee for unbundled access to the local sub-loop was set at EUR5.25 for 2018, EUR5.34 for 2019 and EUR5.44 for 2020.

Macau to Shut Down 2G Networks for Roaming Users

Authorities in Macau have approved a plan by three of the territory's mobile operators to finally switch off their 2G networks. The cellcos – CTM, Hutchison and SmarTone – stopped offering GSM-based 2G services for domestic users in mid-2015, but maintained their networks for roaming visitors from mainland China. A fourth operator – China Telecom Macau – was allowed to terminate its own CDMA-based 2G services back in 2010. A statement from the regulator, the Post and Telecommunications Bureau (CTT), says the operators are now free to switch off their legacy GSM systems from 1 August 2019, with spectrum to be freed up for other technologies. 93% of mobile users in Macau are subscribed to 4G services, with the remainder using 3G networks.

Serbia and Russia to Work towards Ending Roaming Charges

Regulators in Serbia and Russia have agreed to begin working together towards ending roaming charges between the two countries, Russia's Federal Antimonopoly Service (FAS) said in a statement. The announcement followed a conference in Belgrade on competition protection, attended by officials from antitrust authorities across the region. During a meeting between Deputy Head of FAS Anatoly Golomolzin and the head of Serbia's Regulatory Agency for Electronic Communications and Postal Services (Regulatorna agencija za elektronske komunikacije i postanske usluge, RATEL), the two parties also agreed to cooperate further by sharing information and material on non-discriminatory access to telecommunication and postal markets. As previously reported by TeleGeography's CommsUpdate, Serbia was one of six west Balkans nations to ink an agreement earlier this month to gradually remove roaming fees across the region by mid-2021. The other signatories were Albania, Bosnia and Herzegovina, North Macedonia, Montenegro and Kosovo.

CTIA Applauds White House for Rejecting Government-Mandated Wholesale 5G Network

While some stakeholders are waiting for more details to emerge about the FCC's plan to get 5G to more rural areas through a designated $20 billion fund, CTIA took the opportunity on Friday to applaud the White House for committing to 5G—and not through some sort of government-run system. President Donald Trump sang the praises of 5G during an event at the White House where an assortment of industries were represented, including farmers, construction workers and tower climbers, and FCC Chairman Ajit Pai presented his plans for keeping the U.S. ahead in the race to 5G. Notably, in his remarks, President Trump made clear that a government-led 5G network is not part of his program. "Leading through the government, we don't want to do that because it won't be nearly as good, nearly as fast, and especially in that business I think that [they'll] be better at doing the job than a lot of the folks that we know and love," he said, adding that the administration is focused on freeing up spectrum and removing regulatory barriers. CTIA President and CEO Meredith Attwell Baker said the statement by the president puts an end—once and for all—to "any misguided notions of nationalizing spectrum resources or government-mandated wholesale 5G markets. The White House's continued commitment to the free-market principles that have made the U.S. the global leader in wireless recognizes this industry's remarkable track record of investing in our nation's connectivity infrastructure—$226 billion in the last nine years alone." Standing next to President Trump, Chairman Pai outlined how through the Facilitate America's Superiority in 5G Technology (the 5G FAST Plan), the FCC is pushing more spectrum into the marketplace, modernizing regulations and promoting 5G infrastructure. "In the race to 5G, our early success is still—early. We still need to do more. And we will," Pai said before outlining his next two major initiatives. The first is a 5G spectrum auction that will begin on Dec. 10 and include the 37, 39 and 47 GHz bands—the largest spectrum auction in the nation's history. The second part of the plan gets a little more controversial. The FCC aims to create a new $20.4 billion Rural Digital Opportunity Fund to extend high-speed broadband to up to 4 million homes and small businesses in rural America. "These next-generation networks will bring greater economic opportunity to America's Heartland and will help support future 5G technologies," Pai said. During an earlier conference call with reporters, Pai said the money will come from the repurposing of the Universal Service Fund. The specific details will be determined after the FCC goes through its usual notice and comment process, but there are core principles that Pai would like to see in it: that it's funded on the basis of a reverse auction; that it targets unserved parts of the country; and that it serves high-quality broadband to rural areas. When asked about the chairman's plans before the White House event, Commissioners Jessica Rosenworcel and Gregory Sparks, both Democrats, said they were not informed of the proposals beforehand and were eager to hear details. Their comments came during a routine press conference the commissioners held after their monthly open meeting. Rosenworcel emphasized, however, that covering rural areas will

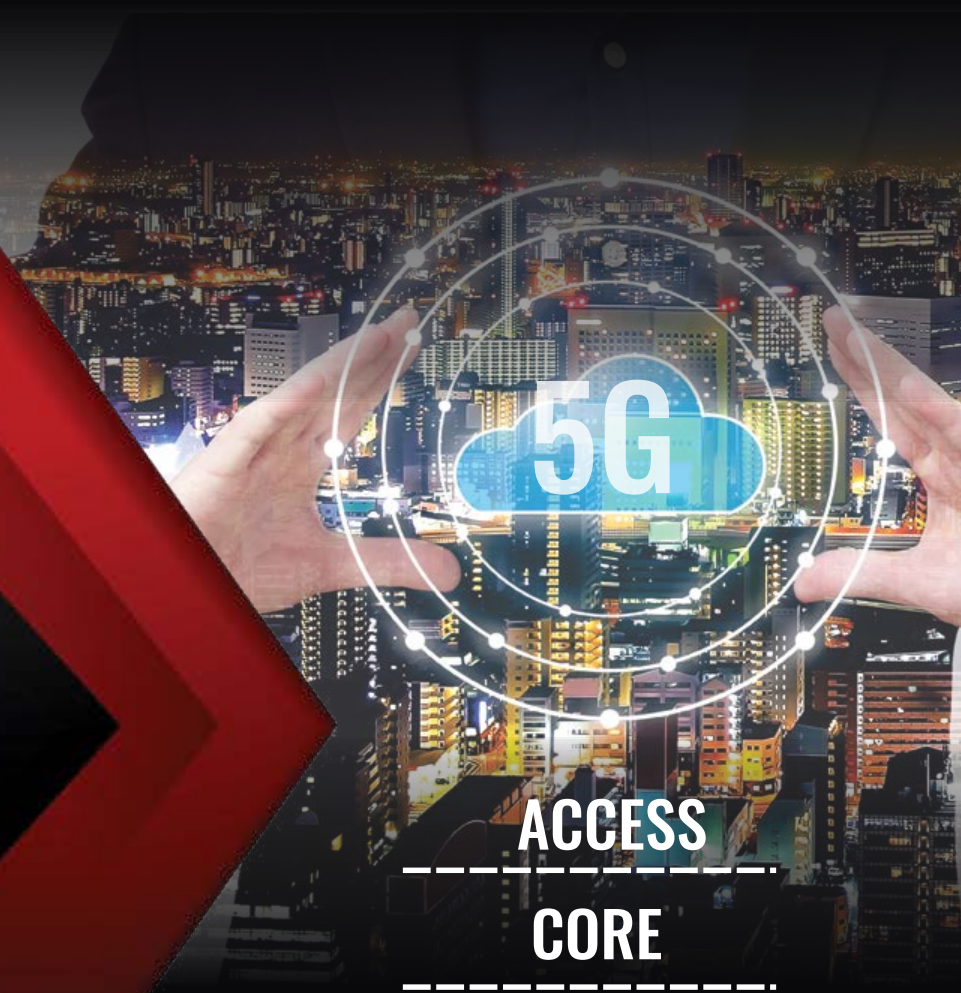
require midband spectrum, and the U.S. has zero midband spectrum queued up for auction. Based on what was publicly known as of Friday afternoon, several other groups praised the government's moves. David Williams, president of the Taxpayers Protection Alliance, who has described his organization as nonpartisan, applauded President Trump and Chairman Pai for rejecting the prospect of 5G nationalization. "America has become the leader in internet deployment due to light-touch regulation that allows providers flexibility in helping close the digital divide, expanding access with minimal or no costs to federal, state, and local governments," Williams said in a statement. He added that the FCC has made plenty of progress over the past two years in nixing needless rules and keeping regulators out of the 5G deployment process. "The commission is far from perfect, and the announced 'Rural Digital Opportunity Fund' will have to be carefully monitored to make sure that the billions of taxpayer dollars actually go to underserved or unserved areas," he said. "But President Trump and Chairman Pai's announcement shows that the government will continue to pave the way for rapid 5G deployment by keeping bureaucrats at bay." Competitive Carriers Association (CCA) President and CEO Steven K. Berry thanked the administration for its focus on deploying 5G throughout the U.S., particularly for including rural areas in its plan, and said he looks forward to continued work with policymakers to make it happen. "Auctioning additional spectrum and providing certainty regarding deployment policies will support industry efforts to bring the latest wireless services to urban and rural areas alike," Berry said in a statement. "Revolutionary services and technologies depend on robust wireless connectivity, and it's critically important to ensure Americans in all corners of the country have access to these services. The economic, education, health, social—and many other—benefits that come with connectivity are countless, and to make sure rural Americans have comparable services to urban areas, we must support both fixed and mobile networks. "The Wi-Fi Alliance is also on board. "Wi-Fi Alliance applauds FCC efforts to expand 5G services through establishment of the Rural Opportunity Fund. Wi-Fi is essential to extending carrier 5G networks' coverage and enabling ubiquitous broadband and low-latency connections. This will aid in delivering much needed broadband connectivity to rural areas, powering e-commerce, smart farming, hospitals, education institutions and even emergency communications," said Alex Roytblat, senior director of worldwide regulatory affairs at Wi-Fi Alliance.

CRA Qatar Confirms Implementation of the Fourth Phase of Reduced GCC Price Caps for Roaming Charges

The Communications Regulatory Authority (CRA) of Qatar confirms that, as of April 1, 2019, telecom service providers in Qatar have implemented the fourth phase of the regulation on reducing retail price caps for roaming charges within the Gulf Cooperation Council (GCC) countries. This year the fourth phase requires the service providers to reduce the retail price cap of mobile data to QAR 1.82/Mbyte (decreased by around 17% from April 1, 2018). This price cap is a ceiling and the service providers are free to compete by setting prices below this regulatory cap in order to provide more attractive offers to the consumers. It is worth mentioning that the first three phases were implemented on April 1 of 2016, of 2017 and of 2018, and included significant reductions of retail price caps for roaming charges for mobile data, voice calls and SMS services.

Tech Mahindra

INNOVATION ORCHESTRATOR FOR **NETWORK TRANSFORMATION**



ACCESS

CORE

OSS

ENTERPRISE

techmahindra.com

Connected World.
Connected Experiences.

ARTICLE

The 5th Wave of Networks

Manish Vyas
PRESIDENT Communications Business &
Chief Executive-Network Services
Tech Mahindra

Tech Mahindra

Telcos across the globe are gearing up for the 5th Wave of Networks. Historically, each generation of wireless network evolution: 2G, 3G, 4G were primarily driven by significant improvements in RAN (Radio Access Network) technology and each generation of wireless networks successfully delivered voice, data and video services to mass markets. But the 5th wave of networks will have to be much more than just incremental improvements in Radio to successfully meet the gruelling demands of future.

Massive IoT will disproportionately push the network limits on total number of 'connections' as the industry embarks to connect 20B devices and more. And new applications like driverless cars and self-flying drones will demand much lower network 'latency'. Network of the future has to meet these unprecedented demands on: throughput, connections and latency.

Growing video consumption and new applications will continue to drive exponential data traffic growth on mobile networks; video content itself is getting heavier with 4K video. By 2021, mobile video data consumption is set to increase by 870% from 2016. Further AR/VR devices will have a massive multiplier effect on the total data traffic volume and will put much higher 'throughput' demands on the network of the future. Massive IoT will disproportionately push the network limits on total number of 'connections' as the industry embarks to connect 20B devices and more. And new applications like driverless cars and self-flying drones will demand much lower network 'latency'. Network of the future has to meet these unprecedented demands on: throughput, connections and latency.

Some of you might recall the massive challenges CSP networks faced in the early days when smartphones were launched. Network engineers on some days were dealing with 'data tsunamis' as smartphones pushed the network's limits on data throughput. And on others days the same network engineers would be dealing with 'signalling storms', when un-optimized apps were creating havocs on network's signalling traffic. It is worth noting that networks experienced all these challenges with just one type of 'thing': smartphones. We can foresee what's to about come with IoT, when networks will have to deal with massively varying use-cases from massively varying devices. Massive IoT further exacerbates security threats, last year's Mirai DDoS botnet attack clearly exemplifies the threats network of the future will face. It will no longer be viable to profitably operate and secure the network of future with traditional tools and processes. Hyper-automation is the only way forward to meet the hyper-demands of IoT. Big Data, AI, Machine Learning, Analytics will all play a key role in driving hyper-automation of the network of future.

Furthermore, for service providers to seize the emerging opportunities networks will have to deliver more-for-less. According to GSMA, from 2016 – 2020 data traffic on mobile networks is projected to grow at 47% CAGR, while revenue is projected to grow just at 2.1% CAGR during the same period. The math couldn't be simpler; to keep their networks sustainably profitable, service providers have to find solutions that aggressively bend their cost curve. To achieve this, network of the future requires: new architecture. Traditional network appliance models no longer profitably scales to meet the future needs, linear-scale must give way to hyper-scale. Service providers need an architecture that enable networks to be elastic, programmable and agile. Software Defined Networking (SDN) and Network Functions Virtualization (NFV) are the forces that are shaping up the architecture for network of the future. Web-scalers have already proven building hyper-scale software-defined infrastructure leveraging COTS platform and merchant silicon. SDN/NFV promise to do just that for operators; driving optimal resource utilization and enabling them to innovate their networks at the speed-of-cloud.

We strongly believe the three key pillars of the 5th wave of networks are going to be:

- New Radio (NR),
- New Architecture (SDN/NFV), and
- Hyper-Automation (Big Data, AI, ML)

Spectrum is the lifeblood of a mobile network. To dramatically increase network throughput and significantly lower latency, network of the future requires new access. 5G NR is shaping up to address these requirements by significantly improving spectral efficiency and by leveraging higher frequency bands (>6GHz), including mmWave, where much higher channel bandwidths are available. Network of the future will leverage both licensed and unlicensed spectrum, as well as new shared spectrum options like: CBRS 3.5GHz in the U.S. Numerous 5G NR trials are already underway as service providers mature RF technology for 28GHz, 31GHz and even 60GHz mmWave. We are also witnessing dis-aggregation of the base station itself with vRAN (virtualized RAN). vRAN will dramatically lower the cost of the RAN equipment. RRH (Remote Radio Heads) are being decoupled from BBU (Baseband Unit), and BBU itself is being virtualized. And that brings me to NFV.

SDN and NFV are laying the foundation of the network of the future by adapting the Cloud technologies for the carrier networks. We are already witnessing the growing importance open-source-software will play in the network of the future. The industry is humming with numerous open source projects including: OpenStack, OpenDayLight, ONOS, ONAP, OSM, CORD and more. The software architecture itself is evolving to microservices, as service providers demand solutions to be cloud native. Old stovepipe OSS stacks are starting to give way to new-age Management and Orchestration (MANO) solutions that will bring unprecedented agility, enabling service provider to quickly design, realize and offer new services. New architecture will enable service providers to achieve closed-loop-control, such that the network elastically scales up and down depending on varying traffic conditions. Finally, the new architecture will enable network slicing, enabling service providers to programmatically create network slices catering to varying demands of various IoT use cases.

The 5th wave of networks will be go much beyond the Radio innovation. New Radio (NR), New Architecture (SDN/NFV) and Hyper Automation (AI/ML) will be the key pillars for the network of the future. It is one of the most exciting times to be in the communication industry with so much to innovate, so much to transform and so much to grow.

Pairing vast amounts of network data collected in data lakes with the vast amount of compute power now creates the potential to unleash the power of machine learning and AI algorithms to achieve unprecedented levels of hyper-automation. Future networks will be self-aware and self-optimizing. Leveraging predictive analytics these networks will achieve optimal asset utilization and near real-time auto-scaling. They will be able to predict faults and self-heal. Hyper-automation will pave the way for self-defending networks, that will be able to detect traffic anomalies and proactively prevent against security attacks like the recent Mirai massive DDoS Botnet attack.

To conclude, the future of the communication industry looks very bright as the demand for data continues to grow. IoT presents unprecedented growth opportunity for service providers. To successfully seize these growth opportunities, the service providers must transform their networks to achieve unprecedented levels of agility, elasticity and automation. The 5th wave of networks will be go much beyond the Radio innovation. New Radio (NR), New Architecture (SDN/NFV) and Hyper Automation (AI/ML) will be the key pillars for the network of the future. It is one of the most exciting times to be in the communication industry with so much to innovate, so much to transform and so much to grow.

Together Matters | etisalat

T&C apply

Etisalat's *HelloBusiness* Hub

One-stop shop with 12 partners to start your business

Visit the first-in-the-region one-stop shop to cater to all your business needs whether you are a startup or an existing business. Through our 12 partners, we offer services ranging from company registration, licensing, banking, insurance, office leasing, VAT consultancy, office furniture, telecommunication services and more.

Visit us at the 2nd floor, One JLT Building, Jumeirah Lakes Towers, Dubai.

8001HUB | etisalat.ae/hellobusinesshub

Download the Etisalat Business App now!

GET IT ON Google Play

Download on the App Store

TECHNOLOGY NEWS

IoT New Generation of Internet to Move Us into New Era of Technology

In the midst of the accelerating pace of technological innovations and developments in humanity service, new types of technological services have emerged which allow individuals and institutions easy access to the service or goods, most notably the concept of the Internet of things (IoT). IoT means the new generation of the Internet, which allows the understanding of devices connected to each other over the Internet. These devices include various artificial intelligence tools, other instruments sensors, and remote sensing via satellite. IoT technology allows people to control devices without having to be in a specific place to deal with a particular device. This definition transcends the traditional concept of connecting people with computers and smartphones across a single global network and through the traditional Internet. In Kuwait, the IoT Society was established in 2018, it is a public organization that seeks to strengthen the role of governmental and private institutions in the field of Internet objects and to form partnerships to support creators, programmers, application owners and investors in this field. In a statement to KUNA, Kuwait IoT Society spokesperson, Hassan Al-Bahrani said that the association seeks to keep pace with the vision of the country (New Kuwait 2035) through the use of modern technology. It also aims to keep up with this intelligent approach and adapt it in the life of society to move from the traditional era to its digital counterpart, he added. Al-Bahrani noted that the association is working on the preparation of studies to identify projects that could be addressed by IoT technology to take advantage of cost reduction by saving time and effort. He pointed out that one of the benefits offered by IoT to humans is to provide electricity cost, reduce the voltage and time required for operation, alarm and locks, especially that this technology has entered the industrial and service sectors of government agencies such as education, health and technical services institutions. He stressed that the association is preparing a project on measuring the brain waves, monitoring the performance of the devices implanted in the human body, measuring the level of oxygen, monitoring the heartbeat and measuring the level of sugar and blood pressure using the IoT technology. The spokesperson pointed out the importance of IoT technology in smart homes, as the Internet connects all the devices of this house with a mechanism for monitoring and alarm, which contributes to saving the time and energy of the electrical devices by running programmed orders. IoT is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

Japan Operators Earmark $14B for 5G Rollouts

Japan's Ministry of Internal Affairs and Communications allocated 5G spectrum to the country's three incumbent mobile operators and newcomer Rakuten Mobile, after reviewing applications which revealed they plan to invest a combined JPY1.6 trillion ($14.4 billion) to deploy the technology over the next five years, Nikkei Asian Review reported. Market leader NTT Docomo earmarked JPY795 billion, while number two KDDI plans to invest more than JPY466 billion, the newspaper said. SoftBank lined up a JPY206 billion investment, while Rakuten in a statement said it expected to invest JPY200 million "at most". The allocation of spectrum in the 3.7GHz and 28GHz bands comes around a week after mobile operators in South Korea and Verizon in the US launched mobile 5G service to consumers. Japanese operators are required to install 5G base stations in half of 4,500 blocks, or districts, established by the ministry within five years, Nikkei Asian Review said. Docomo and KDDI both target 90 per cent coverage by 2024; SoftBank and Rakuten are aiming for 64 per cent and 56 per cent respectively. All four operators are targeting the launch of mobile 5G services sometime in 2020. In December 2018 they stated they have no plans to deploy gear from Huawei and ZTE in the networks, following a ban on the use of Chinese telecoms equipment by government agencies in the country. Docomo, KDDI and SoftBank are also working toward launching limited commercial 5G services in 2019, with pilots due to take place at the Rugby World Cup. Rakuten Mobile started construction of its network in August 2018 and plans to launch 4G service in October.

Lifecell Tests 32x32 Massive MIMO

Ukrainian mobile operator Lifecell – part of the Turkcell group – has announced testing of 32×32 Massive MIMO technology in Lviv. The test involved active 1800MHz/2600MHz antenna modules supporting 32×32 MIMO which are compatible with future simultaneous 4G/5G technology usage, the company added. Lifecell also highlighted that since the launch of 4G (LTE-2600 in March 2018, LTE-1800 in July 2018) user traffic has shot up, for instance in Lviv total traffic grew annually by 262%, and therefore new technologies such as 32×32 MIMO will be needed to maintain high levels of mobile internet service quality. Lifecell last year claimed to be the first Ukrainian cellco to deploy 4×4 MIMO/256QAM upgrades on its LTE network (utilizing four receiving/ four transmitting antennas).

Enterprises Will Spend $1.18T on Digital Transformation This Year: Report

A recent International Data Corporation (IDC) report says enterprises are ramping up their digital transformation projects to the tune of $1.18 trillion in 2019, an increase in spending of 18% over 2018. IDC forecasts that investments in worldwide digital transformation technologies will total more than $6 trillion over the next four years, which is music to the ears of the service providers that are helping organizations with their transformation journeys. On the technology front, IDC's report says hardware and services investments would account for more than 75% of all digital transformation spending this year. Services spending will be led by IT services ($154 billion) and connectivity services ($102 billion). Hardware spending will be spread across several categories, including enterprise hardware, personal devices, and infrastructure-as-a-service (IaaS) infrastructure, while transformation-related software spending will total $253 billion. The fastest growing technology categories will be IaaS with a compound annual growth rate (CAGR) of nearly 40%, application development and deployment software (26.7% CAGR), and business services (26.5% CAGR.)"Digital transformation is quickly becoming the largest driver of new technology investments and projects among businesses," said Craig Simpson, research manager with IDC's Customer Insights & Analysis group, in a prepared statement. "It is already clear from our research that the businesses which have invested heavily in DX over the last two to three years are already reaping the rewards in terms of faster revenue growth and stronger net profits compared to businesses lagging in DX initiatives and investments." While there are obvious benefits to making the move to a digital world, a large number of the organizations lack the in-house know-how, which is where service providers come in. One of the obstacles to enterprises digital transformations is cutting the cord to the legacy platforms and infrastructures, according to Masergy CEO James Parker, in an interview with FierceTelecom earlier this year. "You can go into companies and they'll still have a plethora of managed processes," Parker said. "Of the processes they have, many are not documented or well enough understood that they could go through a digital process. When you really start to unpick all of the elements that you have to work through to get an enterprise through a digital change or transformation, it is a very rich and broad set of activities." Digital transformations are worth the effort on several levels, according to according to Niels Helkov, head of digital solutions for Orange Business Services in the Americas. In an increasingly competitive landscape, digital transformations can enable better customer experiences, which is a key factor for the multi-national companies that Orange Business Services serves. "Customer experience is a growing part of their digital transformation as the world digitizes," said Helkov, in a previous interview with FierceTelecom. "The way they are going to differentiate themselves, even more so now, is through customer experience. As part of that, they are seeking to build coherent, consistent, global customer experience platforms across their operations worldwide." IDC's report said that the United States and China will be the two largest geographic markets for digital transformation spending by accounting for more than half the worldwide total in 2019. In the U.S., the leading industries will be discrete manufacturing ($63 billion), professional services ($37 billion) and transportation ($34 billion) with transformation spending focused on IT services, applications, and enterprise hardware. In China, the industries spending the most on digital transformation efforts will be discrete manufacturing ($55 billion), process manufacturing ($31 billion), and state/local government ($21 billion). Connectivity services and enterprise hardware will be the largest technology categories in China.

MOTIV Moves towards 5G with Ericsson Partnership and Spectrum Sharing

Russian service provider MOTIV has signed a Memorandum of Understanding (MoU) with Ericsson to test 5G equipment and technologies. Paving the way for the arrival of 5G on MOTIV's network, the 2019-20 agreement includes the testing and deployment of advanced MIMO (multiple input, multiple output) 4x4 antenna configuration, License Assisted Access (LAA) and Massive MIMO technologies. The partners will carry out joint lab testing of 5G Radio Access Network (RAN) and packet core. The MoU also includes the deployment of spectrum-sharing solutions and the launch of 5G pilot zones on MOTIV's commercial network. Alexander Kasiyan, Chief Technology Officer, MOTIV, said, "MOTIV is continuing to invest in the modernization and development of our own network to provide maximum possible data speeds to our subscribers. We currently deploy modern combined base stations supporting LTE TDD-2600 and actively use carrier aggregation. These efforts will increase network capacity in large cities and enable us to provide impressive data speed rates." Sebastian Tolstoy, Head of Ericsson Russia, added, "5G is set to transform lives, industries and workplaces in Russia, so we are pleased to partner with MOTIV on their way to make that happen. Through this Memorandum of Understanding, MOTIV's customers will get to enjoy fantastic new user experiences and benefits as we move towards a 5G reality."

Antel, Nokia Make 5G Call Using 28GHz Band

Uruguayan state-owned operator Antel has teamed up with Nokia to complete the installation of what they are claiming is 'the first 5G commercial network in Latin America'. The deployment took place in the Barra de Manantiales area of Maldonado Department, where the first 5G base transceiver stations (BTS) are operational and ready to provide services. The network, which utilizes the 28GHz band, supported a 5G call as well as a virtual-reality sports application. Andres Tolosa, President of Antel, commented: 'We are very proud to be the first operator in Latin America to set a 5G network into commercial service. This milestone is in line with our strong commitment to the development of the industrial and entertainment sectors as well as a great impulse to application development.'

Samsung Dominates Korea 5G Deployments

Samsung claimed to have supplied the greatest number of 5G base stations to South Korean operators, which lit their commercial consumer services on 5 April. In a statement, Samsung said it delivered more than 53,000 5G base stations, which would give it a 62 per cent share based on the number of sites the operators said they had deployed when they launched their consumer offering. Market leader SK Telecom claimed 38,000 base stations, KT 30,000 and LG Plus 18,000. The operators state the service is available in 85 cities, though The Korea Herald said about 85 per cent of the 5G base stations were located in six cities including Seoul, Busan and Daegu. Cheun Kyungwhoon, head of Samsung's networks business, said in a statement sent to Mobile World Live that by supplying 5G equipment to all three operators, it learned there are different paths to 5G deployments. For example, he explained one operator transmits aggregated 4G and 5G signals to maximize speeds, while another focuses on 5G to provide minimum latency. He was referring to SK Telecom's implementation of a dual-connectivity strategy using LTE and 5G networks to achieve peak data rates of more than 2Gb/s. Rival KT, meanwhile, uses either LTE or 5G in the downlink: the approach restricts the peak data rate to around 1Gb/s, but with lower latency. Cheun said the Massive MIMO unit deployed by the Korean operators is among the smallest and lightest in the industry, "ensuring they can be easily installed" in operators' existing cellular sites with "minimal changes". He noted the ability to reuse existing sites had been key to enabling operators in Korea to deploy a 5G network consisting of tens of thousands of radios within just a few months. The virtualized 5G core used by all three operators supports both legacy 4G networks 5G services in non-standalone mode and can also migrate to standalone through a simple software upgrade, he said. Samsung is also a supplier of 5G gear to US-based Verizon which launched its mobile 5G service in two cities last week: it plans to expand coverage to 30 cities this year.

MTN South Africa Trials 5G Using 28GHz Spectrum at Kyalami Grand Prix Circuit

MTN South Africa has initiated a trial indoor 5G network at the Kyalami Grand Prix Circuit and International Convention Centre in Johannesburg. The company noted that the launch represents the first time it has deployed a trial 5G network in an indoor business environment with standards-based, commercial grade 5G network equipment and devices. The telco said that the initiative will allow for a 'collective evaluation regarding the benefits that 5G connectivity can provide to corporate customers, while laying the foundation to test more advanced 5G use cases'. The 5G network used a 100MHz block of spectrum in the 28GHz band, and generated transmission speeds of 630Mbps/130Mbps (down/uplink).

South Korean initial 5G Coverage Reportedly Clustered in Major Cities

With South Korea's three mobile network operators (MNOs) all having launched commercial 5G services last week, initial coverage is reported to be heavily focused on Seoul and its environs. According to the Korea Herald, Representative Byun Jae-il of the main opposition Liberty Korea Party, was cited as saying that, according to data published by the Ministry of Science and ICT (MSIT), almost 90% of the country's 5G base stations are located in Seoul, its surrounding area and five of the country's metropolitan cities. With Byun claiming that the regulator-produced statistics showed geographical gaps in the initial 5G coverage levels, he said: 'Given the country is in the initial stages of 5G commercialization, its service area is restricted … In order to prevent confusion, the government should come up with more accurate information about areas where the 5G services are available.' 85,261 5G base stations were reported to have been constructed by 5 April (the day 5G services were officially launched), in a total of 17 cities and provinces. Of the total, 72,983 were located in the metropolitan cities of Seoul, Busan, Daegu, Gwangju, Daejeon and Ulsan, according to the MSIT's data. Mobile market leader SK Telecom was said to have deployed around 80% of its 21,203 5G base stations across Seoul and other metropolitan cities, with around 55% of its total sites located in the capital and its surrounding areas. Meanwhile, KT Corp was reported to have constructed 22,645 5G base stations, with around 64% of these located in the capital and its environs, with a further 23% rolled out across five metropolitan cities. Rounding out the nation's cellular providers, LG Uplus was said to have the most concentrated level of coverage, with 94% of its 11,051 5G base stations in Seoul and the surrounding metropolitan areas.

Inwi Announces 5G Pre-Commercial Tests

In Morocco, the mobile telephony operator Inwi announces that it will soon proceed to the commercial launch of the fifth generation mobile network (5G). Before this launch, clients can test this technology. These tests will be carried out thanks to the collaboration between Huawei and Inwi. According to Eric Liu, Huawei's vice-president for solution and marketing in North Africa, in the coming weeks, Huawei will deploy pre-commercial 5G base stations. Let's note that in August 2018, Inwi launched the 4.5G. It also changed its network architecture by installing fiber optics and new 5G compatible transmission solutions. Thanks to this modernization which offers a modern and flexible infrastructure that will adapt to current and future needs, the 5G is now a reality with Inwi, the operator's Network Planning Director Fadoua Bettioui Laroussi says.

KPN Gets EUR300M EIB Loan for 5G Rollout

KPN of the Netherlands has agreed to take out a loan of EUR300 million (USD338 million) from the European Investment Bank (EIB) towards the cost of financing its 5G network rollout, reports Dutch-based Telecompaper. The EIB-supported portion of financing represents roughly 54% of the estimated EUR650 million total investment required for KPN's 5G build-out program.

Sunrise: 5G is Live in 150 Locations

Swiss operator Sunrise has announced that its new 5G network went live on 4 April, with initial coverage of 150 towns, villages and cities. Coverage ranges from 80% to 98% depending on location, with Sunrise noting that it only has partial coverage of larger markets, such as Zurich. Further, the telco has confirmed that the network utilizes spectrum in the 700MHz and 2.4GHz-2.5GHz bands, rather than the millimeter wave (mmWave) frequencies being used to support 5G in other markets. Olaf Swantee, CEO of Sunrise, commented: '5G is live. Until autonomous cars, robots etc. can be used with 5G in the next few years, Sunrise will enable high-bandwidth internet in Switzerland thanks to 5G … "5G for People" is closing the digital divide in Switzerland and making Switzerland Europe's pioneer in digital infrastructures.

City of Brussels Blocks 5G over Radiation Concerns

Plans to pilot 5G in Brussels have been blocked due to concerns over radiation levels, the regional government has confirmed. The government is concerned that 5G technology can't measure the radiation from 5G antennas. With limits of 6 volts per meter (v/m), Brussels has among the strictest telecom radiation regulations in the world. Last year, the Belgian Institute of Postal Services and Telecommunications (BIPT) recommended that Brussels increased the limits to enable the region to capitalize on 5G. Ministers approved an increase to 9v /m indoor and 14.5v /m outdoors. Orange announced plans to roll 5G out in Brussels this year and launch commercial services next year.

Measuring MIMO

However, Céline Fremault, the Minister for Housing, Quality of Life, Environment and Energy in the Government of the Brussels Capital Region, is halting further activity due to concerns that massive MIMO (multiple-input, multiple-output) antennas aren't technically able to measure the amount of radiation emitted and, therefore, staying within legal limits can't be guaranteed. Fremault noted that she recognizes the benefits of 5G in areas such as mobility and even health (with respect to remote operations and rapid diagnostics, for example), but said the people of Brussels will not be "guinea pigs" and as long as radiation can't be accurately measured, 5G plans for Brussels will remain on hold.

5G fact check

As 5G roll-outs begin in Switzerland, Swisscom was recently moved to publish a 5G 'fact check' in the face of growing "misinformation" and consumer concerns around issues such as high-frequency 5G radiation killing birds, the use of 5G by the military as a weapon, and 5G causing cancer. Swisscom said its summary of the issues will be regularly updated. Swisscom spokesman Christian Neuhaus told Swiss public television: "The frequencies are the same as what we've been using for years. They've been analysed in thousands of studies and not one has managed to prove scientifically that there's a serious risk to health."

Belgian challenges

Belgian operators face further challenges in rolling out 5G because the Belgian government has put the spectrum auction on hold until 2020 or later as ministers have been unable to reach consensus on how the proceeds from the auction should be allocated. The government expects to raise some €680 million from the auction.

ARTICLE

5G Opens Huge Opportunity in MEA

Imagine a future where nearly every machine is connected to ubiquitous, high-speed mobile networks that empower a new world of real-time experiences. Think of cars that safely drive themselves, buildings that regulate their electrical and water systems, and doctors that monitor patients' vital signs and make diagnoses remotely in real time. This is the promise of the next generation of mobile technology known as 5G, and it's already being rolled out in some parts of the world.

Syniverse has been right in the thick of helping both mobile operators and enterprises prepare for 5G, and as one of our most recent initiatives, we unveiled the results of a major 5G study at MWC Barcelona earlier this year.

Syniverse has been right in the thick of helping both mobile operators and enterprises prepare for 5G, and as one of our most recent initiatives, we unveiled the results of a major 5G study at MWC Barcelona earlier this year. To prepare for the seismic shift this technology is bringing to the mobile landscape, we conducted a study to assess one of the big unknowns with 5G: How will mobile operators actually begin to make use of 5G to provide new services for enterprises, and how important a part will these services play in operators' business models?

The findings from our 5G study along with other recent customer work point to several crucial insights that MEA operators should use to prepare as they proceed with their 5G rollouts. MEA's large population, surging mobile data use, and lack of fixed-line internet connectivity in regions such as Africa offer a sizable opportunity for 5G in the next few years, and we're looking forward to helping mobile operators and enterprises make the most of this new technology standard.

Pradeep Bhardwaj
Senior Strategy Director and Head of Industry Standards
Syniverse

Syniverse

Importantly, 5G represents a significantly expanded ecosystem in terms of technology components, stakeholders, and spheres of influence for both the enterprise and consumer domains.

Study: Operators Looking Forward to 5G, but not Prepared for It

To find out how operators will use 5G to deliver new services for enterprises and how important these services will be in operators' business models, we partnered with Heavy Reading to conduct a global survey of operators and better understand their 5G preparations. We found that despite operators' enthusiasm for opening new revenue streams with enterprises and their optimism in taking a leading role in providing new 5G enterprise services, there are several concerns about whether these operators are in a position to realize these goals.

Here are some of our findings:

- A majority of respondents (69%) expect to launch 5G commercially before end 2021; but 72% don't expect 5G to be a mass-market commercial service until 2022 or later.
- Operators expect 5G commercial strategies to be evolutionary (63%) rather than disruptive (33%).
- The survey shows a clear swing from consumer to enterprise in 5G, with a combined 59% of the response expecting enterprise to grow in importance. A cohort of market leaders (20%) say they are already well-advanced and confident in their enterprise strategy; a further 26% feel they have a "well-formed strategy," but are not yet "very confident."

What this means for MEA is that many operators are optimistic about driving new revenues from enterprise 5G opportunities. At the same time, many have yet to develop the underlying payment, partnership, and interoperability systems that will allow a 5G ecosystem to monetize itself and flourish.

Importantly, 5G represents a significantly expanded ecosystem in terms of technology components, stakeholders, and spheres of influence for both the enterprise and consumer domains. For this reason, building effective partnerships across the board will be key to the full monetization of 5G.

Key Factors for 5G Rollout

In addition to our study, through our recent customer work and industry participation, we have identified several additional factors that will be critical to successful 5G rollout in MEA.

1. **Availability** - Timely availability of spectrum, chipsets, modems, routers, platforms and devices will be crucial to an early launch of 5G services and applications.
2. **5G and LTE co-existence** - As operators start to deploy 5G, they will likely leverage their existing LTE coverage alongside 5G in the short to medium term through 5G and LTE co-existence options. To do this, most operators are deploying 5G in what is called a Non Stand-Alone option. This allows operators to maximize the return of their LTE current investment. But to do this, operators need to have a clear strategy and well-defined road map in place to ensure 5G-LTE interworking.
3. **Migration paths to 5G** - There are several migration paths to 5G. They will depend on how much spectrum operators have available to roll out 5G in a wide area and what their business models are for launching initial 5G services.
4. **Managing the impact** - Once operators have determined the migration path to 5G, they will have to carefully assess and manage the impact on devices, networks and service continuity and determine how IMS services like VoLTE and RCS will work.
5. **Global reach** - Operators must also continue to focus on expanding their reach to as many LTE networks to offer the widest coverage for their users. IPX has emerged as a fundamental backbone for LTE and other next-generation services, and this technology will play a crucial role in allowing operators to efficiently achieve this global reach.
6. **Ensuring roaming and interoperability** - Enabling ubiquitous LTE roaming has presented big challenges to operators because roaming and interoperability require the testing of a number of processes. These have included signaling processes between new technologies and legacy systems, wholesale clearing and settlement processes, and exchange of payment records. How well operators are able to solve these challenges for 5G will be a key factor in the success of their rollout.

MEA will soon see a dynamic phase of mobile development with unprecedented demands for high-speed, high-capacity networks. 5G will be crucial in enabling this phase.

MEA will soon see a dynamic phase of mobile development with unprecedented demands for high-speed, high-capacity networks. 5G will be crucial in enabling this phase. However, based on our latest study and recent customer work, despite operators' enthusiasm for new 5G enterprise services and revenue streams, it's important that they prepare for 5G's future challenges as much as its present ones.

19TH GLOBAL SYMPOSIUM FOR REGULATORS

ITUGSR PORT VILA 2019

Inclusive connectivity: The future of regulation

9-12 July
Port Vila, Vanuatu

GSR-19 will bring together the global community of regulators, policy-makers and industry leaders in ICT to discuss topics such as:

- digital infrastructure policies and regulation;
- innovative investment and financing mechanisms, trust and confidence in a data driven economy;
- the need for spectrum;
- requirements for fast deployment of 5G in preparation for WRC-19 and the changing consumer role.

GSR-19 will also include a series of thematic events:

Regulatory Associations Meeting

Private Sector Chief Regulatory Officers (CRO) Meeting

Heads of Regulators Executive Roundtable

Click here to see full programme

REGISTER NOW

Organized by ITU in collaboration with the Government of Vanuatu.

#ITUGSR

www.itu.int/gsr2019

REGULATORY NEWS

Filling the Mid-Band Spectrum Gap to Sustain 5G Momentum Technology and Innovation, Telecommunications

The United States has jumped to an early lead in the deployment of fifth generation wireless networks. But there is one hole that needs to be filled if that momentum is to be sustained. The availability of wireless spectrum is the defining constraint for data delivery, and one of 5G's big advantages is that it will utilize a far wider range of spectrum than ever before. Over the past few years the US has moved quickly to open up more "high band" airwaves, which will allow for new super-high capacity links over short distances. The Federal Communications Commission has already moved the 24 and 28 gigahertz bands to the commercial market, and later this year will hold an auction for the 37 and 39 GHz bands as well. Low band airwaves in the range between 400 and 2,400 megahertz are already in use for today's existing 4G networks and will continue to be a foundation of tomorrow's 5G networks. The airwaves in the middle, however — what we call "mid-band" — will be a key component of 5G and need to be unshackled. In fact, a delay here could sidetrack the whole 5G endeavor. A juicy portion of this mid-band spectrum is currently occupied by satellite firms, who use much of it to transmit broadcast and cable TV signals to cable TV ground stations, which then deliver the signals to subscribers via wire. This architecture, however, is something of a relic of the early cable TV architecture. Today, most of these TV signals are, like internet data, delivered via fiber optics. So this important wireless spectrum, which sits between 3.7 and 4.2 gigahertz, is increasingly underutilized, and the satellite firms want to sell it. That's fortunate, because it is perfectly situated to fill a hole in the coming 5G small cell architectures. The existing low bands will continue to provide broad coverage, while the new high bands will provide extremely high capacity links, often in densely populated areas. Mid-band spectrum will fill the gap in between. It can deliver higher data rates than today's low band mobile networks and transmit signals much further than the coming high bands. It will thus powerfully leverage the new 5G networks of small cells, hundreds of thousands of which will sit on lampposts, utility poles, and building roofs. One can already preview this potent architecture in some cities. For example, in Indianapolis, where I live, an early variant of this network, utilizing unlicensed 5 GHz mid-band spectrum, which is also used for Wi-Fi, is delivering peak data rates of 800 megabits per second. Adding up to 200 MHz of licensed spectrum to this architecture will only make it more powerful. Remember that all of today's mobile networks in the US operate with a grand total of only around 600 MHz of spectrum. So an additional 200 MHz of prime airwaves would be a big deal. The trick is finding the fastest and most economical path to repurpose the 3.7-4.2 GHz "C band," as it is known. The satellite companies want to sell it, and the mobile firms would like to buy it. But clearing the spectrum bands in the right way and making sure the new owners can deploy it without interference can be complicated. A group known as the C-band Alliance has proposed a secondary market solution, which could avoid a time-consuming FCC re-auction. As my colleague Dan Lyons recently described, the proposal: There's another proposal that asks the FCC to repurpose the spectrum using a more complicated incentive auction, just as it did with the 600 MHz broadcast TV airwaves. But the C-band Alliance method seems much simpler and quicker.

UK Regulator Praises 5G Progress

Ofcom conceded UK operator concerns around 5G regulation remain a concern, but hailed broader swift progress being made towards launching the next-generation technology. Mansoor Hanif, CTO of the regulator admitted earlier comments by operators regarding barriers hampering deployment efforts means there needed to be government decisions made on some issues "pretty quickly". However, in a presentation, he stated the country is making good progress in the global race to 5G, noting that the country which was the 54th to launch 4G would be in the first wave to have the new network technology. Hanif rebuked calls from 3 UK COO Graham Baxter not to impose coverage obligations in a spectrum auction in 2020, stating 5G "had to be fair for everyone" with a possibility of offering financial incentives to companies willing to roll out in remote areas. "We're trying to get a fair outcome, not earn a certain amount of money for the exchequer," he added. Hanif said there was also a need to investigate a number of innovative technological solutions which could help coverage provision. These include Massive MIMO antennas on top of existing broadcast towers and satellite solutions. Commenting on a spate of announcements by companies developing 5G over satellite, he expects greater cooperation between operators and these new players, especially when it comes to areas where coverage provision is more difficult. This was despite "a lot of friction between satellite and terrestrial industries in the past".

ETSI and the Linux Foundation Agree To Bring Open Source and Standards Closer

Open source technology group the Linux Foundation and European Telecommunications Standards Institute (ETSI) have signed a Memorandum of Understanding (MoU) to collaborate more closely. They say they plan to "bring open source and standards closer and foster synergies between them". Building on the existing working relationship between the two organizations, the collaboration agreement aims to enable faster information-sharing and deployment of open networking technologies. The formal link between communities of experts will encourage and enable collaborative activities, joint communication, promotion and events, as well as potential common initiatives related to interoperability and conformance testing. Areas of mutual interest between ETSI and the Linux Foundation span across a range of technologies, including those focused on network functions virtualization (NFV), management and orchestration (MANO), artificial intelligence (AI) and edge computing. Arpit Joshipura, General Manager, Networking, Edge, and IoT, the Linux Foundation, said, "It's encouraging to see how far the industry has come in such a short time. "This agreement with ETSI signals it's possible to reach a harmonization of collaborative activities across open source and standards for the networking industry. Working together results in less fragmentation, faster deployments, and more streamlined innovation." Luis Jorge Romero, Director General, ETSI, added, "We are eager to deepen our work with the open source communities at the Linux Foundation. "Open Source has been part of our working methods and our technical groups, Open Source MANO being an example, for several years now. Further collaboration provides the standards community with a quick feedback loop on how our specifications are being implemented."

KDDI and Rakuten Sign Government Initiative to Eradicate Cellular Dead Zones By 2024

Nikkei Asian Review reports that Japanese mobile carrier KDDI (au) and new fourth player Rakuten Mobile, a unit of the e-commerce platform Rakuten, have signed up to a government initiative that seeks to ensure reliable network coverage nationwide within the next five years – even in remote, low population-density areas. With the government having set out its stall to see ultra-high speed mobile signals made available to even the remotest communities, it will compensate cellcos with subsidies to offset the cost of installing base stations in unprofitable locations, if multiple carriers work together. The online news portal notes that the Ministry of Internal Affairs and Communications (MIC) and local government authorities have already begun offering financial incentives to carriers that extend services to underserved populations, but 16,000 people still live in mobile 'dead zones'. To address this, KDDI and Rakuten Mobile have submitted plans to the MIC committing themselves to deploying enough 4G LTE base stations to wipe out dead zones by 31 March 2024. According to cellcos' provisional plans, the full-blown installation projects will start 'no earlier than fiscal 2021'. The government is confident that Japan's other leading players – NTT DOCOMO and Softbank Mobile – will sign up to the initiative, and work together to provide a cost-effective deployment.

DoJ Concerned Over Structure of T-Mobile-Sprint Merger

US Department of Justice (DoJ) officials have informed T-Mobile US and Sprint Corp that they have concerns regarding the current structure of the companies' proposed USD26 billion merger, sources familiar with the matter have told the Wall Street Journal. Among other things, DoJ officials have reportedly questioned the oft-repeated claims that the merger will create 'important efficiencies.' One of the sources added that state antitrust officials also have qualms about the merger. Indeed, a meeting between senior government antitrust division officials and advisers to the two mobile companies has been set for later this month. Some Democratic presidential hopefuls are expected to include strong antitrust enforcement messages in their pitches to voters, meaning that opposition to the merger could intensify as the 2020 election campaign heats up. As previously reported by TeleGeography's CommsUpdate, in April 2018 T-Mobile and Sprint entered into a definitive agreement to merge in an all-stock transaction. They seek to create a company which will be 41.7% owned by T-Mobile's parent Deutsche Telekom (DT, which would have overall control) and 27.4% owned by Sprint parent SoftBank Group Corp, with the remaining 30.9% in free float.

GSMA Hails West Africa Mobile Impact

West Africa's mobile ecosystem generated more than $50 billion in economic value in 2018, fuelled by rising mobile phone ownership and ongoing migration to broadband networks, research by the GSMA found. In the Mobile Economy West Africa report, released today (16 April) at the opening of the GSMA's Mobile 360 West Africa event in Abidjan, the GSMA said the value of the mobile industry was equivalent to 8.7 per cent of the region's total GDP in 2018. The industry group predicted the contribution will continue to climb to almost $70 billion by 2023, as more people in the region gain access to both mobile phones and broadband networks. In 2018, unique mobile subscribers reached 185 million, equivalent to 48 per cent of the region's population. The figure is forecast to rise to 248 million by 2025, representing 54 per cent of the population. Akinwale Goodluck, head of Sub-Saharan Africa at the GSMA, said the research underlines the "vital role" the mobile ecosystem is playing in contributing to economic growth, social development and job creation across the region. He urged governments and policy makers in the region to continue developing regulatory frameworks "that encourage innovation and investment in the sector, enabling the provision of mobile-powered digital services to citizens". The GSMA predicted 3G connectivity will overtake 2G as the leading technology in the region this year, supporting half of all mobile connections. Uptake of 4G is also building, with ten new 4G networks recently launching in countries including Burkina Faso, Sierra Leone and Togo, for the first time. In terms of services, the study found mobile is the primary platform for accessing the internet. At the end of 2018, there were 100 million mobile internet users in the region, an increase of almost 20 million year on year. Mobile money also remains a key driver of financial inclusion in West Africa, with 133.6 million registered accounts at the end of 2018, up 23 million on 2017.

ITU to Assist Bangladesh in ICT Development

The International Telecommunication Union (ITU) has assured Bangladesh of providing assistance for the development of the country's information and communication technology sector. The assurance came during a meeting between Bangladesh's State Minister for ICT Zunaid Ahmed Palak and ITU Secretary-General Houlin Zhao in Geneva. It was arranged at the ITU Headquarters. Palak informed Zhao about the government's initiatives and plans to provide internet service to the root level to build a 'Digital Bangladesh'. Zhao told Palak that Bangladesh will get ITU's assistance to develop its ICT sector. There was a fruitful discussion on how ITU can assist in building a 'Digital Bangladesh' through the proper usage of ICT, the ICT Division said in a statement.

South Korea Earmarks $26B for 5G Initiatives

South Korean President Moon Jae-in (pictured) outlined government plans to support the 5G ecosystem by investing more than KRW30 trillion ($26.2 billion) over the next four years, The Korea Herald (KH) reported. Investments will span a variety of segments, such as autonomous driving, smart cities, digital healthcare and smart factories. The government, mobile operators and Samsung held an event on 8 April at Olympic Park in Seoul to celebrate the launch of 5G services to consumers last week. During the event, the president said the country should aim establish "the world's best 5G ecosystem" and garner "15 per cent of the world's market share by 2026", KH reported. He said the government will cut taxes on network construction by up to 3 per cent to support the nationwide rollout of 5G infrastructure. Market leader SK Telecom said it now has 38,000 5G base stations, while KT claims 30,000 and LG Plus 18,000, with the majority deployed in the country's six largest cities, including Seoul, Busan and Daegu. Specific initiatives targeted by the government as part of its push include introducing self-driving shuttles in major cities by 2020; 1,000 5G-powered buses in provincial municipalities in five years; and developing emergency medical treatment services by 2021, KH said. All-told, the president predicted the global 5G market would be worth KRW1,160 trillion by 2026, around double the size of the world's semiconductor industry.

Sweden Could Sell 37% Telia Stake

The Swedish government is being asked to examine the possibility of selling off its 37.3% stake in fixed and mobile telco Telia. Parliament's Committee on Industry and Trade has requested the government to study a potential sale, saying: 'The state's main task is not to own and run companies.' The Centre-left government is known to be against a sale, however, claiming that it is in the interest of national security for the state to retain an interest in Sweden's telecoms infrastructure. According to a report from Reuters, the Telia stake would be valued at around USD7.5 billion.

TRAI Demands Details on Segmented Offers

The Telecom Regulatory Authority of India (TRAI) has instructed all Access Service Providers to submit details of segmented offers – i.e. special rates offered to a portion of subscribers – that were provided between April 2018 and March 2019, ordering operators to hand over the data within 15 days. The matter has been the subject of a bitter legal feud between the incumbent cellcos on one side and newcomer Jio and the TRAI on the other. Jio and TRAI have argued that segmented offers violate non-discrimination rules by allowing operators to provide the same service to different customers at different rates. Incumbents Bharti Airtel and Vodafone Idea claimed that banning the practice would give Jio an unfair advantage, would be impractical and would negatively impact their capacity to attract and retain customers. A decision from the Telecom Dispute Settlement and Appellate Tribunal (TDSAT) in December last year offered a compromise by providing the TRAI with authority to scrutinize segmented offers to ensure that service providers were adhering to principles of non-discrimination. To that end the TDAT's decision granted the regulator powers to 'call for details of any segmented offer about which it may receive complaints,' a process which it made easier by also allowing the TRAI to also call upon service providers to 'continuously, on a monthly basis' inform the authority on the number of segmented offers they had offered to existing customers, along with a declaration that the same benefits had been made available to all existing customers of the same segment or class. The TRAI's order has seemingly combined the two sets of powers, though, demanding detailed information on a monthly basis from the providers, potentially complicating matters for the companies affected. The Economic Times quotes Rajan Matthews, the head of the industry group the Cellular Operators Association of India (COAI), as saying: 'Our members are studying TRAI's direction, and they will subsequently discuss and directly engage with the regulator on the feasibility of the same'. Mr. Matthews added that the COAI would seek legal advice to check that the TRAI's direction falls within the parameters of the TDSAT decision.

Space Agencies Refuse to Vacate 5G Spectrum

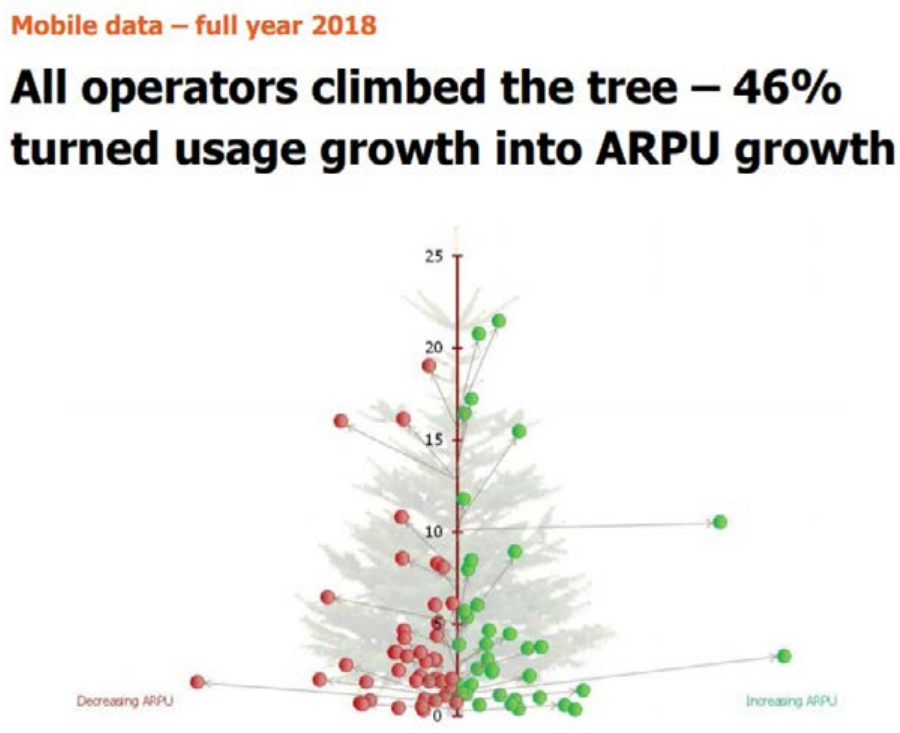
The Indian government's 5G plans have run into difficulties as space agencies the Department of Space (DoS) and the Indian Space Research Organization (Isro) are refusing to vacate spectrum in the 28GHz and 3.5GHz bands, earmarked by the Department of Telecommunications (DoT) for new mobile broadband technologies. The Economic Times cites people familiar with matter as saying that Isro and the DoS have refused to relinquish the airwaves, which they use for satellite communications. Isro reportedly argued against vacating the 28GHz band on the basis that it had not been identified for 5G use. The research body was also reluctant to return a 25MHz tranche of frequencies it holds in the 3300MHz-3600MHz range.

NBTC Abandons OTT Surcharge Plan

Thailand's telecoms regulator the National Broadcasting and Telecommunications Commission (NBTC) has backtracked on its plan to impose a surcharge on network bandwidth usage by over-the-top (OTT) service providers like Facebook and Netflix, The Bangkok Post writes. The surcharge would have been based on the amount of OTT bandwidth used, aiming to indirectly force OTT providers to pay a surcharge to international internet gateway (IIG) operators if the OTT were classified as a 'big OTT'. The initiative was widely criticized on the grounds that it was technically impractical and discouraging to innovation and business development.

Data Usage Rises for All Mobile Operators, But Less Than Half Increase ARPU

In 2018, data usage per SIM grew for all mobile operators ranked in tefficient's latest analysis. Of this, 46% were able to convert this rise in data usage into average revenue per user (ARPU) growth, while 54% could not. Of the 90 ranked global operators, eleven reported monthly SIM usage of above 10 GB. Zain Kuwait has toppled DNA Finland from the top spot for global data usage, with an average consumption of 21.5 GB of data per SIM each month. Successfully converting usage growth into revenue growth, Zain offers unlimited data-only plans for €46 – alongside smartphone plans with up to 1 TB of data (with a hefty price of €116 EUR). There are cheaper options too – but still with very large data buckets. DNA, now ranked second, saw a rise in average SIM usage per month from 15.9 GB in 2017, to 20.8 GB in 2018. Unlimited, speed-tiered, plans – both for data-only and smartphones – are popular in the Finnish market. DNA doesn't report how large a share of its base has unlimited plans, but in Finland as a whole, 67% of non-M2M SIMs are unlimited. Drei (Three) remains in third position, with the company carrying 43% of Austria's total mobile data traffic in Q3 2018. This market share has fallen due to competitors A1 and T-Mobile muscling-in on the data-only home segment. Fourth place is Elisa from Finland (17.2 GB per SIM per month in 2018), Zain from Bahrain (16.5 GB) at number five. Taiwan Mobile (16.2 GB), FarEasTone Taiwan (16.0 GB) and Zain Saudi Arabia (15.5 GB) come in at six, seven and eight places respectively. Telia Finland is given ninth ranking, while Chunghwa from Taiwan is number 10 with 10.8 GB. The report notes that: "All three Finnish operators (DNA, Elisa and Telia) have been able to grow ARPU thanks to more and more customers upgrading to faster (and more expensive) speed tiers on their unlimited plans." All three Lithuanian operators (Tele2, Telia, Bite) and the three large Russian operators (MTS, MegaFon, Beeline) were also able to grow ARPU while growing data usage. The highest maturing-market operator is Jio from India, at number 11. While the company's usage didn't grow much in 2018, for most of 2017 the service was free. "As data consumption is now monetized, it's an achievement of Jio to defend and grow that usage," the report notes. Jio continues to have significantly greater usage than other Indian operators. Rankings from tefficient's public analysis on the development and drivers of mobile data are based on average data usage per SIM, total data traffic and revenue per gigabyte in 2018.



A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

Afghanistan

The draft regulation to Afghanistan High Council of Telecommunications and Information Technology (AHCTIT) which has 4 chapters and 28 articles was approved by President. According to the agency, the aim behind reestablishing of the council is standard and sustainable development of information technology and telecommunications programs across the country. It is merit to mention that existence of the council will be permanent for decision making on telecommunications and information technology projects. The council will be held by the president and the minister of telecommunications and information technology will e its chief executive officer, BNA went on to say. Likewise, general department of High Economic Council (HEC) secretariat will be led by the ministry of telecommunications and information technology. Led by Second Vice President, AHCTIT was officially established on 1386/02/03 based upon presidential decree no. 460 and was operational until 1391. The council has 19 members, 16 of whom were permanent members and three others were performing their duty rotationally. The first meeting of the council is expected to be held in near future.
(April 20, 2019) bakhtarnews.com

Bahrain

In an effort to evolve the Domain Name distribution channels, marketing strategy and registration system, the Telecommunications Regulatory Authority (TRA) hosted a .BH domain name workshop for registrars, resellers and hosting companies in the region. The workshop comes following the issuance of the Royal Decree No. 33 of 2019 stating that TRA is the government authority responsible for registering domain names and the issuance of the Ministerial Resolution No. 11 of 2018 on 18th October 2018 with respect to organizing the registration and utilization of domains for Levels Two and Three Within the framework of Domain's name of the Kingdom of Bahrain. The workshop brought on major updates to .BH and .Albahrain domain names and introduce a new domain name distribution model, which allows authorized businesses (known as accredited registrars) to better allocate .BH and .Albahrain domain names in Bahrain and internationally. It also provided TRA accredited Registrars access to new distribution opportunities for .BH and .Albahrain as well as other added services. The workshop also unveiled TRA's new registry platform, the exciting changes in the allocation of .BH and .Albahrain and how to accredit businesses registering for domain names. (April 30, 2019) tra.org.bh

In an effort to promoting the Arabic electronic content, the Telecommunications Regulatory Authority (TRA), in cooperation with the Internet Corporation for Assigned Names and Numbers (ICANN), has worked to obtain the necessary permissions to manage the Internationalized Domain Name ".bh" which is the Arabic equivalent to the existing English domain (.bh). "The Arabic language is the fastest growing on the Internet in terms of content. Arabic is also the fifth language in the world in terms of the number of speakers which is very important and reflects TRA's keenness to provide a national domain promoting the development of websites with Arabic content." Said TRA Acting General Director Sh. Nasser Bin Mohamed Al Khalifa. "This initiative is the result of Ministerial Resolution No. 11 of 2018 which was published in the Official Gazette on the 18th of October 2018, stating that TRA is the official authority responsible for managing domain name operations in the Kingdom, and also the recently issued Royal Decree No. 33 of 2019 stating that TRA is the government authority responsible for registering domain names and levying collectible fees." Sh. Nasser added. The use of the national domain name also ensures the preservation of intellectual and commercial property rights for well-known trade makers locally and internationally. In order to diversify distribution channels and spread domain names of the Kingdom of Bahrain, TRA has adopted the (registry /registrar) model which will result in competition between authorized registrars to provide the best services including smart applications and electronic registration. Consumers will also be able to register domain names (.bh) through several local and global online channels by Q3 2019 providing consumer choice and competition in the domain name market place. (April 14, 2019) tra.org.bh

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain has launched the final consultation on the reference offer of the new separated entity. This consultation

marks a key milestone in the TRA's delivery of the Batelco Separation Project, a central telecommunications policy objective of the Government's Fourth National Telecoms Plan ("NTP4"). The new wholesale-only entity (NBNetco BSC) will be formed by the separation of Batelco into two distinct legal entities. NBNetco will operate and deploy the single national broadband infrastructure (NBN) in Bahrain on the basis of which all telecom services including 5G will be provided and thus it is vital that service providers are granted access to the NBN on fair and reasonable terms. "It took over 70 meetings over the course of three years to achieve this key milestone." Said Sh. Nasser Bin Mohamed Al Khalifa, Acting General Director of TRA. "Consumers can look forward to innovative and advanced broadband services, lower prices, better quality of service and more benefits. With NBN available for wholesale, there is room for more market players to benefit from this national network and compete on a level playing field, and consumers will be able to reap the rewards of more innovative services." The deadline for responses to this consultation is April 25th, 2019. The TRA will then review responses in preparing its Final Order on the Separated Entity Reference Offer, which will be issued in May of this year.

(April 9, 2019) tra.org.bh

The Telecommunications Regulatory Authority (TRA) has signed a memorandum of understanding (MoU) with the Royal University for Women (RUW) aimed at strengthening the frameworks of cooperation and effective partnership between them. The signing of the MoU comes on the sidelines of the initiative launched by TRA during the year to support promising university research for the telecommunications sector. The MoU was signed by the TRA Sh. Mohammed bin Salman AlKhalifa, Director of Finance, Information Technology and Human Resources and the RUW Dean of the College of Art and Design Dr. Shweta Kinra, at the TRA's headquarters. Under the terms of the MoU, the two parties will work in the coming period to strengthen cooperation through their participation in ongoing awareness programs and public consultation, informing them of the latest developments in the field of telecommunications and providing them with relevant periodicals. The mechanism of implementation between the two parties also included the formation of joint working groups through which the fields falling within the scope of the MoU are consulted on and coordinated. "TRA pays attention to the academic programs that support the telecommunications sector in the Kingdom of Bahrain. Through this strategic partnership, we are keen to maintain constructive communication with educational institutions to enrich their programs. This is as part of the TRA's efforts to develop students' skills and qualify them for the labor market in the telecommunications sector." said Sh. Mohammed bin Salman AlKhalifa. Dr. Shweta Kinra said: "The MoU between the RUW and TRA is part of our commitment to develop the level of vocational training, which will create new opportunities for students and educational staff to provide them with advanced skills and enhance the labor market with qualified cadres." (April 3, 2019) tra.org.bh

The Bahrain Telecommunications Authority (TRA) has held a meeting with the Bahrain Telecommunications Company (BATELCO), with the aim of discussing latest developments on the Company's separation process. This is the latest in a series of meetings (over 70 meetings) and public consultations (8 public consultations), which the TRA has held with the industry in order to ensure the successful implementation of the 4th National Telecommunications Plan, including the separation of Batelco into two separate entities. The TRA is satisfied that the project remains on track and that ultimately the requirements of the sector will be fully addressed. The TRA considers the separation process as fundamental to the new industry structure, which will result in the establishment of a new economic regulatory framework in line with Government's policy directions under the fourth National Telecommunications Plan. Ultimately, the new framework should result in enhanced services for consumers, unprecedented broadband speeds and state of the art suite of services to support the business sector. The TRA is confident that its work will contribute to the Kingdom of Bahrain becoming the strategic investment destination of choice and a regional Centre for information technology and digital communications.

(April 2, 2019) tra.org.bh

Bangladesh

Bangladesh counted 159.78 million mobile phone subscribers in January, up from 158.43 million at end-February, according to data from the Bangladesh Telecommunication Regulatory Commission (BTRC). Grameenphone led the a market with 74.05 million mobile customers in March, up from 73.47 million in February, followed by Robi Axiata with 47.34 million, up from 47.02 million the previous month.

(April 22, 2019) telecompaper.com

Egypt

The National Telecom Regulatory Authority (NTRA) issued lately its periodic report to capture the opinion of mobile service users. This report presents a comparative analysis of the user's assessment of services provided by the four mobile operators operating in the Egyptian market. Surveys are conducted ten times every year, dealing each time with the four companies, examining a sample of users of each of them, based on high usage areas. Each report presents a comparative analysis of the services provided, expressed in graphs that reflect the users' satisfaction with certain determinants such as the overall performance of the operator, an evaluation of customer service quality, accuracy of billing methods and other parameters that aim to determine the users' opinions to improve the services provided.
(April 23, 2019) tra.gov.eg

Iran

The Director of Iran's Communications Regulatory Authority (CRA) says preliminary work is already underway to allocate bandwidth and update regulations for 5G mobile services. Hossein Fallah Joshaqani is quoted by Mehr news agency as saying that preparations for 5G deployment are 'high on the agenda' this year. In February CommsUpdate reported that Iran's ICT Minister Mohammad Javad Azari Jahromi had said that the country is aiming to deploy 5G and IoT networks in Iranian calendar year 1398, which began on 21 March 2019.
(April 8, 2019) telegeography.com

Iraq

Kuwaiti ISP Qualitynet has won a license to provide internet, telecommunications and satellite services in Iraq, the provider's CEO Mohammed Nizar Al-Nusif has confirmed. The official said that the award followed strong competition from several Iraqi and international firms and that, prior to the award, Qualitynet had conducted an 'extensive study of the needs of the Iraqi market, the estimation of investment volumes and feasibility studies for the establishment of infrastructure'. The CEO went on to say that the launch would complement the operator's strategic plan for regional and international expansion. Qualitynet plans to offer a wide range of internet, ICT and satellite communication services across the country, and has already begun working on its network infrastructure rollout. Qualitynet is 90% owned by Bahrain Telecommunications (Batelco), but the Bahraini group signed a share purchase agreement earlier this month to sell its entire stake to Viva Kuwait – a Kuwaiti cellco that is itself majority owned by Saudi Telecom Company (STC).
(April 29, 2019) telegeography.com

Jordan

Under the auspices of TRA, in collaboration with SMT solution, a technical experiment was carried out to transfer the Internet through electricity networks on the campus of the University of Zaytuna in Jordan, in the presence of the President of the University Dr. Turki Obeidat and a number of academic staff and students from the University, The Commission, and representatives from different media organizations. The aim of the experiment is to inform the concerned parties of the latest technologies in providing Internet delivery services at the lowest costs and time and effort through networks and power lines, which provides Internet service to remote areas at high speeds using the infrastructure of networks Electricity alone competes with conventional solutions currently available at low cost, as Jordan aspires to be at the forefront of countries that adopt this technology. In the experiment, the computer and internet networks were delivered in the departments of the Faculty of Engineering and Technology at Al-Zaytoonah University in Jordan at high speeds based on the points of electricity networks only. At the end of the experiment and for the maximum benefit, the invitees were able to submit inquiries and answer them by experts from SMT solution. It is worth noting that the Authority's interest in new technologies and technologies stems from its role in

creating the appropriate regulatory environment and environment capable of absorbing such technologies and services. (April 11, 2019) trc.gov.jo

Jordan secured a deal with Huawei on the construction of three academies in the Kingdom aimed at improving youth technological skills. China's telecom giant penned the document with Jordan on the sidelines of the World Economic Forum on the Middle East and North Africa 2019. Three academies, as per the agreement, are to be set up in collaboration with three public universities from the Kingdom. Over a three-year period, the academies will be providing training to about 3,000 Jordanian students and public sector workers. Huawei and the Ministry of Information and Communications Technology (ICT) will also be joining hands to achieve the Jordanian vision on e-education, e-healthcare and smart cities. (April 8, 2019) menafn.com

The winners of the 2018 Global Global Awards, which are managed and supervised by Global International, are among the most prestigious international awards. The award is mainly for rewarding excellence in the Arab world in all its forms and in various fields, starting with the general work and ending with business awards for private institutions. . Global International awards its awards to three major categories of Arab countries: leadership, business and community. Dr. Ghazi Al-Jabour was selected as one of the top 100 Arab CEOs for 2018. It is worth mentioning that the process of selection of winners is through a methodology approved by the Secretariat of the Award based on a variety of criteria up to 17 criteria, and the following: measuring the impact of candidates in their communities, the positive force, the extent of contribution to achieving the goals at the level of the state and society, Quantitative and practical standards including: Capacity and leadership skills in the field of enterprise and business management, innovation and innovation, establishing a culture of excellence, strategic planning, supporting productivity and reducing waste, keeping pace with contemporary developments and making comparisons at the regional and global levels. Spyware to other factors, such as the scientific and academic achievements of the candidate for this award, which holds the final evaluation of a neutral committee of experts evaluates all candidates from individuals and institutions in accordance with these standards, to be subsequently selecting the winners of the three categories. This award is in addition to the many international and local awards made by the Chairman of the Board of Commissioners of the Telecommunications Regulatory Authority including: winning the Government Innovation Award in the emerging telecommunications markets of the International Association of Mobile Operators (GSMA) 2018 and winning two awards from the King Abdullah II Excellence Awards Governmental and supervisory bodies for the eighth session. Dr. Al Jabour said: "Excellence is not limited. As we enter a stage, we look forward to another stage in order to achieve excellence on a global level. These awards will form a platform for us to launch further excellence. (April 8, 2019) trc.gov.jo

Kuwait

As part of its capacity building initiatives in the Middle East region, Réseaux IP Européens Network Coordination Centre (RIPE NCC), in collaboration with Kuwait's Communication and Information Technology Regulatory Authority (CITRA), successfully conducted a three-day training session in Kuwait on Internet Protocol version 6 (IPv6). The session was attended by some of Kuwait's top Internet service providers (ISPs), telecom operators, and other relevant organizations. During the three-day event, experts from RIPE NCC held three courses for local, regional, and international participants in Kuwait. The 'Basic IPv6 Training Course' focuses on planning IPv6 deployment, while the 'IPv6 Security Training Course' provides an overview of the most relevant IPv6 security topics. The third course is the 'Measurements and Tools Training Course,' which is a hands-on introductory course to RIPEstat and RIPE Atlas. Fahad Sulaiman Al Fahd, Chief of Telecommunications Sector at CITRA said: "Telecommunications and technology has become increasingly important, especially in the drive towards economic growth and in light of the rapid digital transformation efforts, both locally and internationally. Building capacity is essential for technological advancements, which reinforces the pivotal role of these training sessions under the umbrella of RIPE NCC in cooperation with the authority. The move also reflects our continuing support for the Kuwaiti Government's digital transformation efforts across various industries. We are pleased with the strategic partnership with RIPE NCC and we look forward to further advancing local skills and talent in line with the changing trends across all levels." Al-Fahd explained that the rapid growth in technology and digital services such as the Internet of Things (IoT) has led to an increase in the demand for Internet services, which has helped in achieving social and economic development on a global scale. Through the exchange of experiences and support of network operators through workshops, conferences and meetings, the CITRA, in cooperation with RIPE NCC, contributes to the sustainable development and economic growth of Kuwait and the region. The event took place against a backdrop of rising IPv6 deployment worldwide. A recent Google industry report shows that more than 25 per cent of all Internet-connected networks advertise IPv6 connectivity around the globe. Chris Buckridge, External Relations Manager at the RIPE NCC said: "IPv6 provides much-needed capacity to support the rising demand for connectivity and the massive quantities of data that we are churning out. We have been keen towards launching and implementing a series of specific trainings, capacity building and training initiatives that are in line with our aspirations to promote the widespread adoption and deployment of IPv6 in Kuwait and the rest of the Middle East region, serving

the overall development process. We are honored to cooperate and coordinate with the CITRA in order to engage all stakeholders in capacity building as Kuwait steps forward on the path of digital transformation." RIPE NCC continues to play an active role in the move to promote sustainable development and economic growth, particularly through its integrated services and initiatives that encourages the exchange of experiences with network operators to help them cope with rapid transformation and meet the needs of the future via a series of interactive and training workshops, conferences, meetings and meetings. (April 27, 2019) intelligentcio.com

Memmott, the Deputy Chief of Mission in the U.S. Embassy in Kuwait, confirmed the need to cooperate to overcome cybercrimes through the exchange of information and coordination on best practices in this area. Memmott's speech came at the start of the "Best Practices in Cyber Investigations" workshop organized by the U.S. Embassy in Kuwait, In cooperation with The Communication and Information Technology Regulatory Authority (CITRA), where he praised CITRA's efforts in partnering with the U.S. Department of Justice through the Office of Overseas Prosecutorial Development Assistance and Training, explaining that cyberspace creates constant challenges to the investigations due to its rapid growth in a larger scope and its vulnerability to malware. He stated that the social-networking platforms provide unprecedented opportunities for the free exchange of ideas, which is good, but not many users understand how vulnerable they are to deception through extensive influence in this space makes the role of prosecutors and the Ministry of Interior involved in their security – Critical Cybersecurity. He added that the harmful use of technology cannot be stopped without having clear consequences; stressing the need for a reliable system capable of imposing a penalty against fraud, hacking into information systems and data theft. He noted that the lack of boundaries in cyberspace poses a challenge for police and prosecutors to investigate cybercrime incidents involving suspects and victims, and crime may even extend to several states. Memmott mentioned that the three-day workshop provides an opportunity to share experiences in addressing said challenges, and provides ideas on how to overcome the obstacles of cyber investigations; indicating that it's not possible to discuss the challenges of cybercrimes without acknowledging the use of Social Media to hold a fundraiser to endorse "Terrorist Activities." Islamic State of Iraq and Syria (ISIS) showed the possibility to collect donations via social media rather than a meeting face to face; Sympathetic donors can avoid dangerous encounters. Everyone is invited to take advantage of the workshop to improve their readiness in addressing national security threats that face our state by such criminals. The Vice President of CITRA, Mr. Khalid Al-Kandari, mentioned in a similar speech that the workshop presents the best practices and methods in investigations, the collection of cybercrime evidence, and the ways to improve and strengthen international, regional and national cooperation in the exchange of information to face technical crimes in various forms. Al-Kandari added that the workshop is aimed at prosecutors in Kuwait, Ministry of Interior's Cybersecurity investigators, relevant departments in the Ministry of Defense, the National Guard, CITRA, and other government entities. Furthermore, he mentioned that the number of participants in this workshop exceeded 70, from Kuwait, the GCC, Yemen, and including trainers from the U.S. Department of Justice and the U.S. Department of Homeland Security. (April 14, 2019) citra.gov.kw

Kuwait is partaking in the World Summit on the Information Society (WSIS) in line with the approach to swap experience with other nations on best avenues for coping with the dramatic communication and information technologies. The summit, ongoing since its onset on April 8, is an opportunity to get acquainted with solutions for tackling issues related to cyber security, optimum benefits from internet services for government tasks, education and information as well as for the private sector, said Hassan Al-Mehaimeed, member of the Kuwaiti delegation, in remarks to KUNA. Al-Mehaimeed has indicated that Kuwait is seeking to study closely other nations' applications of the top-notch telecommunication technology, G5. Meanwhile, Farah Al-Humaidi, member of the Kuwaiti delegation, affirmed that the delegation is studying experience of the other countries in overhauling the communication and information sectors. The summit, co organized by 30 UN affiliated agencies, is a platform for the participants to examine latest and state of art technological and digital applications. (April 9, 2019) citra.gov.kw

The Communication and Information Technology Regulatory Authority (CITRA) confirmed that the second version of the Arab Internet Security Competition "Threat Hunter", which is being organized in April, highlights the risks of cybersecurity and how to detect them. The competition, organized in cooperation with the Arab Regional Cybersecurity Center and the International Telecommunication Union (ITU), qualifies and motivates young people to compete and reach the world, CITRA said in a press release on Tuesday. CITRA explained that the competition is working on preparing a future generation of specialists in the field of information security. The competition will be in four stages, starting with the registration stage during the current month and then the qualifying stage - the second - in the month of May next. The third stage will be held in August, and the second stage will compete for the first of the three categories to compete with other countries and represent the Kuwaiti team at the regional level. The fourth phase will be in September, and the winners from all Arab countries will compete to win the top three positions. The competition achieved its objectives in its first edition last year with the active participation of seven countries including Kuwait, Oman, Qatar, Palestine, Egypt, Tunisia and Libya.

(April 4, 2019) citra.gov.kw

Nepal

Nepal Telecommunications Authority (NTA) and Nepal Rastra Bank (NRB) have signed an understanding, promising cooperation and coordination necessary for development and regulation of mobile financial services. NRB Governor Dr Chiranjibi Nepal and NTA Acting Chairman Purushottam Khanal signed on the paper on behalf of their respective sides, said NTA Spokesperson Min Prasad Aryal. The document mentions the role and works of both organizations in order to make the development and regulation of mobile financial services more reliable and effective. It also mentions the areas of collaboration and strategies for expected development. Moreover, a joint coordination committee has been formed to realize the commitments.

(April 21, 2019) setopati.net

Ncell, Nepal's second largest mobile operator by subscribers, is set to be awarded spectrum in the 900MHz and 2100MHz bands. The frequencies were included in a stop-start spectrum sale which was launched by the Nepal Telecommunications Authority (NTA) on 19 December 2018. The process sought to sell off blocks of 'residual' spectrum not currently in use. Frequencies up for grabs included: 2×3MHz in the 900MHz band; 2×16MHz in the 1800MHz band; and 2×10MHz/2×15MHz in the 2100MHz band (depending on an operator's current spectrum holdings). The website claims that only Ncell has lodged a bid for the spectrum in these bands. In contrast, both Nepal Telecom and Ncell have bid for the 1800MHz frequency allowance, and the outcome has yet to be decided by the regulator. Once assigned, all licenses will be valid for a period of 25 years. (April 3, 2019) NepaliTelecom.com

Oman

Oman Telecomm congress was held under the auspices of His Excellency Dr. Hamed bin Salim Al Rawahi, the Telecommunications Regulatory Authority (TRA) Executive President, Oman Telecom Congress 2019, at Hormuz Grand Hotel. The event was sponsored by TRA and organized in corporation with Huawei Oman. Present at the Congress were government partners, a number of telecom services providers and representatives from academia. The Congress reviewed the latest communication technologies that contribute to digital transformation and advance economic and social developments such as 5G, Artificial Intelligence, Internet of Things and Cloud Computing. It is noteworthy to mention that the TRA, in continuation of its efforts to enable modern technologies in the Sultanate, has recently approved a request from licensed companies to provide telecommunications services in the Sultanate to provide Internet of Things services. TRA has also formed a national team to set sensible national roadmap and create awareness on the potential use cases.

(April 16, 2019) tra.gov.om

Pakistan

Pakistan Telecommunication Authority (PTA) will issue show-cause notices to mobile companies if tariffs are increased without following a laid-down mechanism, said Chairman PTA Major Gen. (Retd) Amir Azeem Bajwa. While briefing the Senate Standing Committee on Information Technology and Telecommunication, which met with Rubina Khalid in the chair, Bajwa said that tariffs are being increased through a proper mechanism and discussions and that recently no tariffs have been increased. He further said that consumer gets air time of Rs 60 on a card of Rs 100. He assured the committee that show-cause notices would be issued to mobile operators if any of them have increased tariffs and violated the mechanism. The committee observed that there was news that mobile companies have raised tariffs compared to the previous prices after the restoration of taxes by the Supreme Court. Screenshots of PTA website indicating tariff increases are being shown on social media. The committee also observed that thousands of mobile phones are being smuggled with same IMEI numbers. Rubina Khalid said that there are factories of rumors which need to be eliminated, as many rumors surfaced about polio campaign as well. The committee also reviewed the import duty on mobile phones. The committee was informed that it relates to the Federal Board of Revenue. Thousands of mobile phones are being smuggled through same IMEI numbers. The committee sought written response on the matter from concerned authorities in the next meeting. The Ministry also briefed the committee on Public Sector Development Program (PSDP) projects for the next fiscal year 2019-20, while saying that a total of 23 schemes are proposed out of which 8 are ongoing schemes and 15 are new schemes. A total demand of Rs 16,475 million has been made against these schemes with Rs 9,814 million for new schemes and Rs 6,661 million for ongoing schemes.

(April 29, 2019) propakistani.pk

Pakistan Telecommunication Authority (PTA) has notified "Regulations for Technical Implementation of Mobile Banking (Amendment), 2019". The regulations allow telecom operators, Authorized Financial Institutions (AFIs) and Third Party Service Provider (TPSP) to enter into interconnecting agreements to extend telecommunication services and systems to facilitate each other in the provision of Technical Services for mobile banking. The regulations states that, "pursuant to policy directive of the federal government i.e. Ministry of Information Technology and Telecom on Technical Implementation of Mobile Banking including Mobile Money Transfers, and Remittance, PTA, in exercise of powers conferred under clause (O) of sub-section (2) of section 5 of Pakistan Telecommunication (Re-organization) Act, 1996, the Authority hereby makes the following regulations, namely:- 'These regulations shall be called the "Regulations for, Technical Implementation of Mobile Banking (Amendment), 2019" and shall come into force 'from the date of gazette notification'. Amendment in regulation 5 of S.R.O 391(1)12016:- In regulation 5 of Regulations for Technical Implementation of Mobile Banking at page 1389 of S.R.O 397(1)120l6 of 2.016, new clause (xxvii) shall be inserted after Clause (xxvi) of sub-regulation (2) of regulation 5 and be read as follows: (xxvii) "Telecom operators, AFI(s) and TPSP (s) shall enter into interconnects agreements as per the terms and conditions set out in SLAs to extend telecommunication services and systems to facilitate each other in the provision of Technical Services for mobile banking!'. Amendment in regulation 8 of S.R.O 397(l)12016;-: In regulation 8 of Regulations for Technical Implementation of Mobile Banking 2016 at page 1390 of S.R.O 397(1)12016 of 2016, sub-regulation (2) of regulation 8 shall be substituted and read as follows; "Telecom operator(s), AFI(s) and TPSP(s) shall enter into interconnects agreements as per the terms and conditions set out in SLA to extend 'telecommunication services and systems to facilitate each other in the provision of technical services for mobile banking'. (April 28, 2019) phoneworld.com.pk

Prime Minister chaired a meeting on digitalization of the government processes and how the latest IT solutions such as blockchain could help ensuring efficiency, transparency, eliminating red-tapism and improving overall service delivery in line with the vision of the Government. A team of Pakistani IT experts from UAE, invited by Special Assistant to Prime Minister, briefed the Prime Minister on way forward in digitalization of various government processes. The discussion encompassed transparency & efficiency in government processes using emerging technologies like blockchain. From among the proposed use-cases, the briefing focused on a next generation trade platform for Pakistan that will usher Pakistan into the next era of trade efficiency with its trade partners. The Prime Minister in his remarks said that digitalization is critical to ensuring efficiency and transparency in conduct of official businesses. IT solution will help addressing some of the major issues that have hampered steady growth of economy in past. The digitalization will also create much needed synergies among the government organizations for ensuring friction-less service delivery and improving ease of doing business in the country.
(April 18, 2019) telecoalert.com

Saudi Arabia

The Saudi Communications and Information Technology Commission (CITC) has granted Riyadh-based Integrated Telecoms Company (ITC) a facilities-based fixed telecoms services license, the state news agency reported. The company offers its services predominantly to the corporate segment and also provides wholesale internet bandwidth to other ISPs. Abdul Aziz Al-Ruwais, Governor of the CITC, said that the license award aims to increase the competitiveness in the provision of telecoms services (voice and data) in the Kingdom, while also increasing broadband penetration in order to achieve the objectives of the National Transition Program 2020 and the Vision 2030 project.
(April 5, 2019) telegeography.com

Saudi Arabian fixed line and broadband operator Etihad Atheeb Telecom (GO Telecom) has received the approval of the Capital Market Authority (CMA) to reduce its capital by 25.81% from SAR472.5 million (USD126 million) to SAR350.53 million. The telecom operator said in a bourse statement that its share capital will be reduced from 47.3 million shares to 35.05 million shares, pending the approval of the extraordinary general meeting and other competent authorities. GO's board of directors recommended the capital cut in March 2019 in order to offset accumulated losses. (April 3, 2019) telegeography.com

Turkey

BTK President Ömer Abdullah Karagözoğlu attended the International Congress of Istanbul Smart Grids and Cities, ICSG Istanbul 2019, which is the global meeting point of the leaders of the energy sector. Ömer Abdullah Karagözoğlu, Head of Information Technology and Communication Authority, said that the basic philosophy of technology is transformation. He emphasized the importance of smart cities. Karagözoğlu, who gave examples from the countries in the smart city, said, as for our country; Smart city applications have recorded a rapid momentum as of years. Digital technologies, mobile, internet, communication infrastructure, data, cloud etc. local governments quickly adapt to these developments and began to sign successful examples. As Information and Communication Technologies Authority, we have been one of the most important agenda items in the cities that are on the way to becoming smart. In this context, our SOME teams know how to react by training against possible cyber-attacks and the bad consequences, and they work 24/7 to avoid the big turmoil, to keep the flow of the usual city life. That is why our efforts to create serious cyber security strategies for cities have accelerated. Security measures are constantly being updated and audited. President Karagözoğlu mentioned the changes that occurred with the emergence of 5G. The emergence of 5G technology triggers innovation in the vertical sectors which use the communication technology infrastructure. As you know, we, as an institution, direct our efforts to move to 5G together with the world with the highest possible local and national opportunities. I would like to express my belief that 5G technology will make significant contributions to many issues in order to solve the problems that arise with the management of the resources and the increase of the city population. (April 26, 2019) btk.gov.tr

The National Technologies Summit was organized by TBD and hosted by the Information and Communication Technologies Authority. Ömer Fatih Sayan, Deputy Minister Information and Communication Technologies, Authority President Omar Abdullah Karagozoglu, Turkey Informatics Association Chairman Rahmi Aktepe and many industry representatives attended the event. (April 16, 2019) btk.gov.tr

United Arab Emirates

The Telecommunications Regulatory Authority (TRA) has issued the Telecom Equipment Registration Certificate required for the full rollout of Pundi X's world-leading, blockchain-based POS technology across the Emirates, also paving the way for wider adoption of XPOS in the UAE, Middle East and North Africa. Approval for the XPOS came by way of the TRA certification to Digital Force Pro Information Technologies (DFP), and Ebooc Fintech & Loyalty Labs, the first Emirati fintech and loyalty company in Dubai. "Our XPOS becomes the first blockchain-based point-of-sale smart device to receive a Telecom Equipment Registration Certificate in the UAE. More importantly it opens the doors to larger XPOS shipments to Dubai for deployment with Ebooc," said Zac Cheah, Co-Founder and Chief Executive Officer of Pundi X. With the TRA certification, Ebooc will begin porting NexGen technology on XPOS to implement NexGen blockchain-based POS payment solution across several sectors. "In particular, this rollout will see the implementation of XPOS across several industries – retail, consumer, industries, banking and finance etc. across the city, in turn allowing people to pay all related utility bills, school fees, and their daily needs through the state-of the art blockchain Point of Sales equipment in the fastest, easiest and most secure fashion, using multiple digital currencies and assets," said Abdalla Al Shamsi, CEO of DFP and Co-Founder of Ebooc Fintech & Loyalty Labs. In Dubai, Pundi X and Ebooc will be deploying its XPOS and XPASS cards make blockchain-based payment transactions available to everyone in the city. XPOS makes it possible for any store to top up and accept Blockchain-based currencies while XPASS is the physical wallet that can be topped up with its digital currency and tapped at the XPOS terminals for transactions that happen instantly. "Custom-designed Pundi X POS devices, created by Ebooc Fintech & Loyalty Labs for the exclusive use and branding by UAE private and public sector entities will support the drive of Government of Dubai's drive to implement blockchain and usher in several benefits like cost and time savings etc.," added Sunil Malhotra, Managing Director of Bchain Consultants and Co-Founder of Ebooc Fintech & Loyalty Labs. "Beyond that we will be bringing together various service providers under one NexGen platform to deliver differentiated customer experience, smart and secure financial transactions with innovative features, seamless integration, loyalty solutions, enhanced security and greater convenience to governments, businesses and consumers in Dubai and the region," added Malhotra. "Today, with the TRA's approval of XPOS, the Dubai government establishes its leadership as the first global capital to afford citizens the option to make essential payments on a digital currency, over the secure blockchain," said Cheah, who also sees how the adoption of blockchain-based payments in the government sphere is "A major development for the technology." "To bring blockchain-based payments to the most advanced economy in the Middle East, its technology capital, and a great cultural melting pot, marks an historic moment for the real-world application of blockchain. Dubai's vision of wielding technological innovation in delivering the best services to citizens has been established as a global model for other to imbibe," added Cheah. (April 29, 2019) zawya.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Angola

The President of Angola, Joao Lourenco, has signed an order to relaunch the tender for the country's fourth mobile network operating license, following the cancellation of the contest, which had ostensibly been won by domestic start-up Telstar before the President stepped in and annulled the result on the grounds of non-compliance with application procedures. The 'Unified Global' license permits fixed and mobile voice/data/TV services. The Ministries of Finance, ICT and the Economy have established a working group to relaunch the tender. According to the Minister of Telecoms and IT, Jose Carvalho da Rocha, meanwhile, the 45% stake up for grabs in government-owned Angola Telecom has been valued at around USD500 million. Quoted by Mercado, the minister noted that the price represents real estate assets alongside telecoms infrastructure and holdings in companies in the telecoms and other sectors including banking. Angola Telecom holds the country's third Unified Global license, although it is yet to launch mobile services in competition with Angola's existing two cellcos Unitel and Movicel. The 45% stake in the fixed line operator has been earmarked for sale by the end of this year. (April 29, 2019) telegeography.com

The President Joao Lourenco has cancelled the country's fourth mobile network operating license award to local start-up Telstar Telecomunicacoes for non-compliance with certain procedures in the tender. The would-be new entrant – majority-owned by General Manuel Joao Carneiro – was named as the winner of the 'Unified Global' concession (permitting mobile/fixed voice/data and TV services) on 12 April but the process was annulled by the presidential intervention on 18 April. President Lourenco has ordered the launch of a new call for tenders within a month, and called for greater transparency in the process, Reuters reported. A statement from the president's office confirmed that the cancellation of Telstar's award was due to 'non-compliance with the terms of the procedure, the requirements relating to the balance sheet and profit and loss statements, and the statement of overall turnover for the last three years'.
(April 24, 2019) telegeography.com

The tender for a fourth mobile network operator licensee has been completed, with local start-up Telstar Telecomunicacoes claiming the 'Unified Global' concession permitting mobile/fixed voice/data and TV services, ending a process which began in November 2017. The country's Ministry of Telecoms and IT (Ministerio das Telecom e Technologias de Informacao [MTTI]) confirmed the award to Telstar, majority-owned by General Manuel Joao Carneiro – linked with alternative fixed telephony firm Mundo Startel – after a total of 18 domestic and nine foreign companies had expressed interest, of which six acquired tender documents and three submitted bids. Only two applicants were invited to submit final technical/financial bids. Minister Jose Carvalho da Rocha stated that the new entrant must begin operations within twelve months, whilst it has 45 days to fulfil requirements for formal granting of the Unified Global license. Currently, Angola is served by two cellcos, Unitel and Movicel, whilst struggling fixed line operator Angola Telecom holds the third mobile license and is gearing up for a 4G LTE rollout. In November 2018 it was reported that South African multinational telecoms group MTN had lost interest in the Angolan fourth license tender, leaving Telstar – formed in January that year – as the frontrunner. Another big name connected with a potential bid in the tender was UK-based Vodafone Group, but although Vodafone subsidiary Vodacom has established its Vodacom Business Angola division, the group opted for a non-ownership-based partnership in the Angolan mobile sector, signing a cooperation deal with existing operator Movicel in March 2019.
(April 15, 2019) telegeography.com

Australia

The Australian Competition and Consumer Commission (ACCC) has concluded its inquiry into the regulation of transmission services and released its final report for the Domestic Transmission Capacity Service (DTCS) segment, often referred to as backhaul. In so doing, the regulator confirmed it has decided to extend the DTCS declaration for a further five years, while also revealing that it will vary the service description, consistent with a draft report it released in December 2018. In a press release regarding the matter, the ACCC argued that, while in many areas there are now four or more transmission providers, competition in the market for transmission services remained 'less developed in outer metropolitan and regional areas'. As such, it said that in deciding which routes to regulate, it had sought to focus on the long-term interests of end users, including whether declaration would promote competition. In line with the above, the ACCC report found that changes to

the industry since its last inquiry in 2014 warranted a variation to the service description to reflect the way that transmission services are currently being acquired. These include: the introduction of a separate service classification for mobile backhaul 'to reflect the unique supply and demand characteristics of mobile backhaul, particularly in regional and remote areas'; new distinct service categories for commonly acquired bandwidths; and the addition of online ordering and fault monitoring as basic service features. Furthermore, the ACCC noted that it had reviewed the competition criteria 'to better reflect and account for changes in industry structure since the last declaration inquiry'. Having assessed all routes and Exchange Service Areas (ESAs), the regulator said it had found an additional 137 metropolitan and 27 regional ESAs to be sufficiently competitive, confirming that these will be deregulated. With the DTCS declaration to be extended from 1 April 2019 to 31 March 2024, changes to the DTCS service description will come into effect on 1 January 2020, with this delay designed to provide stakeholders with time to make any necessary adjustments to their commercial arrangements. Looking ahead, meanwhile, the ACCC said it plans to review the pricing of the DTCS in the next Final Access Determination (FAD), with a discussion paper to be released in May 2019.
(April 2, 2019) telegeography.com

Bosnia and Herzegovina

The telecom's watchdog the Communications Regulatory Agency (Regulatorna agencija za komunikacije, RAK) has issued 4G spectrum licenses to the nation's trio of mobile network operators (MNOs): BH Telecom, Telekom Srpske (which operates under the m:tel banner), and HT Mostar (which offers services under the HT Eronet brand). The concessions are valid for 15 years and oblige the license holders to begin offering commercial 4G services within one month of the award. As previously reported by TeleGeography's CommsUpdate, the cellcos are also required to ensure the networks covers 90% of the country's territory within five years of the award. The RAK did not stipulate which spectrum band the allocated frequencies were in, stating simply that the 'assigned frequencies for 4G will allow coverage of rural areas with lower population density, and operators will be able to plan the development of networks more efficiently'. TeleGeography notes that a December 2017 decision from the RAK had identified the 1800MHz band for LTE use, alongside the 900MHz and 2100MHz ranges, which are currently used for 2G and 3G networks, respectively. (April 10, 2019) telegeography.com

Canada

The Minister of Innovation, Science and Economic Development, Navdeep Bains, yesterday (10 April 2019) announced the results of the country's 600MHz wireless spectrum license auction, which generated a total of CAD3.5 billion (USD2.6 billion) for the national Consolidated Revenue Fund. 70MHz of spectrum was divided into 10MHz blocks in each service area, including 30MHz set aside for regional providers in each area. In total, 104 of the 112 available licenses were allocated after 54 rounds of bidding beginning on 12 March and ending on 4 April. Rogers Communications dominated the bidding, agreeing to pay CAD1.7 billion for 52 licenses covering 35.2 million people. Telus was next in line, offering CAD931 million for twelve licenses covering a combined 19.8 million people, ahead of Freedom Mobile (owned by Shaw Communications), which committed to pay CAD492 million for eleven licenses covering 21.8 million people. The remaining bidders – in order of financial commitments – were as follows: Videotron (ten licenses, CAD255.8 million); Xplornet (four licenses, CAD35.8 million); Bragg Communications (Eastlink) (four licenses, CAD13.0 million); SaskTel (three licenses, CAD12.2 million); TBayTel (one license, CAD2.8 million); and Iris (Iristel) (seven licenses, CAD2.6 million). A major name absent from the list of winners was Bell Canada, which issued a statement explaining that it decided not to acquire 600MHz wireless spectrum because 'given the supply of other low-band spectrum that Bell already possesses, 600MHz is not required for Bell to deliver broadband 4G and 5G services.'
(April 11, 2019) telegeography.com

Chile

The Antitrust Tribunal (Tribunal de Defensa de la Libre Competencia, TDLC) has postponed hearings relating to two ongoing cases over spectrum allocations this week, pushing back resolutions until late May/early June. The court was due to hold a consultation with the Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) regarding changes to the spectrum holding caps on 22 April but has now delayed the hearing to 27 May, enabling stakeholders to submit opinions for consideration until 14 May. In June 2018 the Supreme Court rules that cellcos Entel, Movistar and Claro had engaged in anti-competitive practices by participating in the 700MHz band spectrum auction in 2014, bidding for airwaves that brought their total holdings above the 60MHz limit previously set by the same court back in 2009. Following the decision,

Subtel opted to revise the limitations on spectrum holdings, and submitted proposals to the TDLC for consideration in October 2018. Under the regulator's proposed system, frequencies would be sub-divided into four brackets: 'Low' – consisting of the sub-1GHz band; 'Middle-low' – comprising the 1GHz-3GHz ranges; 'Middle-high' – 3.4GHz-3.8GHz; and 'High' – 27.5GHz-28GHz. Operators would be permitted to hold a maximum of 50MHz across bands in the Low bracket, 60MHz in Middle-low, 80MHz for Middle-high and 200MHz in the High range. Separately, the TDLC was also due to hear a complaint from Movistar regarding Subtel's handling of the 3500MHz band on 22 April but has now delayed the hearing until 13 June. Subtel suspended use of the 3500MHz band by several operators in June 2018 after it found that the spectrum was not being used efficiently and to allow it to study the band's potential use for 5G technology. Claro and Entel – the companies worst affected by the order – challenged the decision and in October 2018 were allowed to continue using around half of their spectrum holdings in the 3500MHz band. Movistar has argued against the latter decision, however, claiming that it will grant the duo an advantage when 5G licenses are tendered.
(April 26, 2019) telegeography.com

Colombia

Colombia's National Spectrum Agency (Agencia Nacional de Espectro, ANE) has initiated a public consultation which will inform its planned 5G roadmap and help it to establish frequencies suitable for 5G use. The regulator notes that the bands under consideration for 5G are as follows:

- 614MHz-698MHz ('600MHz'), which is currently used for TV services, but has been authorized for mobile use following the country's analogue switchover, which will commence on 31 December 2019
- 698MHz-806MHz ('700MHz'), which has already been earmarked for distribution to mobile operators
- 3.3GHz-3.8GHz ('3.5GHz')
- Various millimeter wave (mmWave) bands, starting with 24.25GHz-27.5GHz.

(April 5, 2019) telegeography.com

Costa Rica

The telecommunications regulator Sutel has announced the activation of the first 23 sites in its 'Connected Public Spaces' initiative to bring Wi-Fi connectivity to digital divide areas throughout the country. The sites offer free Wi-Fi at speeds of up to 6Mbps and will be funded by resources from the National Telecommunications Fund (Fonatel). A total of 515 sites including parks, libraries, train stations, civic centers and public universities in 82 cantons will have hotspots installed, said Sutel. Local operators Telecable, Coopeguanacaste and a consortium made up of ICE, Racsa and PC Central have already been awarded contracts worth a total of around EUR 150 million. (April 6, 2019) telecompaper.com

Denmark

TCD won 14 of the 20 blocks in the 700, 900 and 2300 MHz frequency bands, representing 60MHZ out of the available 100 MHz. 3 Denmark acquired two 10 MHz blocks in the 700 and 900 MHz bands. Telia, bidding via its TT Network joint venture with Telenor, secured two 5 MHz blocks in the 700 MHz band and two 10 MHz blocks in the 900 MHz band. TDC says the acquisition of new licenses is an important step towards fulfilling its plan to deploy 5G across the country by the end of 2020. Allison Kirkby, CEO and CEO of TDC Group, said, "I am very pleased with the outcome of the auction. The allocated frequencies enable TDC to contribute to a Digital Denmark with a nationwide wireless network in top-class European. 5G will enable Denmark to expand its position as a global digital front runner, and we are on the way to launching a new and exciting chapter." "Several frequency blocks provide higher speed, longer range and stronger indoor coverage, which gives us a unique position to strengthen and develop the best coverage in Denmark. TDC has connected all over Denmark for almost 140 years, and the new licenses ensure that Danish consumers, companies and society enjoy new experiences, services and the many opportunities that 5G offers," she added. TDC spent NOK 1.6 billion, (€210 million) at the auction, while 3 Denmark paid around €68 million. TT Network spent €14 million on its 700 MHz assets – there were no upfront costs for 900 MHz spectrum but there is an obligation to meet certain coverage commitments. TDC also assumes coverage obligations under the auction rules, compelling the company to ensure stronger coverage in areas which are currently lacking.
(April 2, 2019) mobileeurope.co.uk

El Salvador

The Electricity and Telecommunications Superintendency (Superintendencia General de Electricidad y Telecom, SIGET) has extended the 1900MHz PCS license held by Telefonica Moviles El Salvador (Movistar) – despite the operator being subject to a takeover bid from America Movil (AM), the parent of domestic rival Claro. The new license will run for 20 years, commencing in February 2021, and comprises 2×15MHz blocks in the 1895MHz-1910MHz/1975MHz-1990MHz bands. The license renewal represents a significant boost for AM, which agreed a USD315 million takeover deal for Movistar in January this year. The takeover deal was presented to the Superintendency of Competition (Superintendencia de Competencia, SC) for evaluation in March. If the transaction receives regulatory approval, the license renewal will effectively double Claro's spectrum holdings in that band. TeleGeography notes that both cellcos currently operate 4G LTE networks using 1900MHz frequencies. (April 11, 2019) telegeography.com

France

The telecom regulator Arcep has published a draft decision for public consultation proposing to allow users to keep their fixed phone number when moving to a different area code. Alongside this reform, the document also recommends the introduction of a new category of numbers starting with 090, to enable trials on a new authentication mechanism in the fight against fraud caused by hijacked phone numbers. Under the system currently in place in mainland France, the first two digits of every number are allocated based on five main areas of the country, ranging from 01 to 05. In turn, these areas include more specific dialing codes or ZNE (Zones de Numerotation Elementaire), and fixed phone users can port their number only when remaining in the same geographical ZNE. The regulator plans to reform this system in a two-phase approach. As of 1 January 2020, the market will implement a preliminary change, enabling users to keep their number when they move to a different ZNE but remain within the same 01-05 main area code. From 01 January 2023, the restrictions will be lifted across all the current 412 ZNE dialing codes, enabling users to keep their number regardless of where they move. (April 27, 2019) telecompaper.com

The telecom regulator Arcep has published a draft decision on its project to create a so-called 'access ID card' enabled by an API, which will be installed in operators' boxes to collect data on the type of fixed access network used by the end-user (copper, cable, fiber) and the headline speed of the connection. The project is part of the regulator's efforts to measure the actual quality of service experienced by broadband users via a data-driven approach, as opposed to its previous method based on tests in a controlled environment. In its draft decision, Arcep is proposing to make the 'access ID card' a compulsory feature in operators' boxes used in the residential market for fixed broadband connections (copper, cable, fibre), as well as fixed 5G access in the future. The obligation will apply to broadband providers with at least 1 million customers and will be subject to a gradual roll-out over time. Once the regulator publishes its final decision, operators will have one year to equip the first boxes with the API, aiming to install it in 40 percent of their devices within 24 months and 95 percent within 28 months.
(April 24, 2019) telecompaper.com

Ghana

Mobile network operator (MNO) MTN Ghana is lining up to purchase the two remaining 2×5MHz blocks of spectrum lots in the 800MHz band that were left unallocated after Vodafone Ghana acquired its own block of 2×5MHz for USD30 million last December. 'MTN intends to acquire this remaining spectrum to enable it to continue to give its customers an increasingly better experience on the network,' MTN Corporate Services Executive Robert Kuzoe confirmed to Adom News in response to a questionnaire. The MNO was precluded from the National Communications Authority (NCA's) auction of three separate 2×5MHz spectrum lots in the 800MHz band at the end of last year, on the grounds that it had already acquired a 2×10MHz lot in the same band back in December 2015. While the NCA confirmed at the end of the 2018 spectrum auction that 'two companies submitted applications, with Vodafone emerging as the only successful applicant,' the regulator also indicated that other 800MHz spectrum holders would have the opportunity to buy the spectrum in case it was not allocated at the end of the process. MTN was one of those to enquire about the availability of the remaining spectrum and in January this year Robert Kuzoe submitted a formal application to purchase the two unallocated lots. Further, the cellco also confirmed that it recently acquired 2×15MHz in the 2600MHz band from Goldkey Telecoms, on the back of which it launched its 4G+ network with a stated download speed of up to 300Mbps – in a launch that came on the same day that rival MNO Vodafone Ghana launched its 4G services (some of which are already 4.5G-capable). Some have greeted the development coolly, however, noting that should the NCA license MTN for the additional 800MHz spectrum, it would 'defeat the whole purpose of creating a level playing field', as promised by NCA chief Joe Anokye in early 2018. Adom News quotes an unnamed source as saying that if MTN is able to get its hands on the remaining lots it would

have 2×20MHz in the 800MHz band and 2×15MHz in the 2600MHz – making Vodafone's 2×5MHz allocation 'relatively and completely insignificant in terms of speed and capacity' and putting it at a significant disadvantage.
(April 5, 2019), Adom News

Indonesia

A report from Antara News claims that Indonesia will look to tap into the potential of 5G technologies operating at 3.5GHz after the World Radiocommunication Conference (WRC) taking place in Egypt in October 2019. Directorate General of Resources and Equipment of Post and Information Technology (SDPPI) spokesman Ismail noted that the WRC is held every four years and amongst other things, is tasked with deciding a frequency band of a given technology. 'We are waiting for the WRC event,' he confirmed before going on to say that Indonesia's Ministry of Communications and Information Technology (MCIT, known locally as KemKominfo) plans to make use of the existing 3.5GHz middle band frequency used for satellites, and that will be consolidated into 5G networks. However, he pointed out that the commercialisation of fifth-generation services will be dependent on the nation's incumbent cellcos, noting that to date, Telkomsel, XL Axiata, Indosat Ooredoo and Hutchison 3 Indonesia (Tri) have only carried out a limited set of trials. Further, Qualcomm Indonesia Country Manager Shannedy Ong was quoted as saying that the main obstruction to the commercial application of 5G technology in Indonesia is lack of spectrum availability.(April 24, 2019) telegeography.com

The Ministry of Communications and Information Technology (MCIT), known locally as Kementerian Komunikasi dan Informatika (KemKominfo), has confirmed the successful completion of spectrum refarming of the 800MHz and 900MHz bands. With both of these radio frequency bands designated to be used for cellular telecommunications services, including 2G, 3G and 4G technologies, KemKominfo Head of Public Relations, Ferdinandus Setu, stated that the refarming process which began on 23 January 2019 was now over – two weeks behind its original deadline of 21 March 2019. 'The target date was pushed back two weeks from the original schedule because the number of base stations involved turned out to be double the original estimate. At the beginning of the refarming process it was estimated that there were 42,000 base stations that were affected, but in fact a total of 71,786 base stations were involved,' he said. Last year, KemKominfo oversaw the successful rearrangement of frequencies in the 2100MHz band, eventually taking 143 calendar days to reassign 67,464 base stations for the nation's cellcos to ensure a more efficient use of spectrum. (April 3, 2019) telegeography.com

Italy

The European Commission (EC) has promised Italy EUR573 million (USD643 million) to help fund a national broadband project. The scheme, which aims to bring fast internet access to more than 12.5 million people in 7,000 underserved Italian communities, with the EC providing 60% of the costs. The investment comes as part of EUR1.9 billion EC funding in Italy, which is dedicated to investments in broadband and digital services. Corina Cretu, Commissioner for Regional Policy, said: 'This EU-funded broadband project, which covers 20% of the Italian population, means unprecedented business opportunities, better public services and better quality of life for the Italian people.'
(April 5, 2019) telegeography.com

Japan

Japan's leading mobile network operator (MNO) by subscribers NTT DOCOMO announced plans to cut some of its current mobile communications fees by up to 40%. The cellco says it will introduce the new plans in June which will separate out the cost of the handset from the communications fees. In March this year the Japanese government approved an amendment to the Telecommunications Business Law to lower fees for mobile services in the country following sustained criticism of MNOs charging higher rates than many other countries by using bundling to retain high data use charges in return for subsidized phones – a system that some suggest is overly complicated and allows them to keep fees artificially high. DOCOMO's two new plans will allow users to download up to 30GB of data for a fixed monthly fee of JPY5,980 (USD53.4), plus a charge of between JPY1,980 and JPY4,980 per month depending on the volume of data traffic used. The former plan represents a 40% cut on the MNO's current pricing structure for a similar service if the user signs up for data communications of up to 1GB for three or more lines. Typically, some 70% of all mobile contracts on the DOCOMO network are those for family discount plans which comprise three or more connections. NTT DOCOMO President and Chief Executive Officer Kazuhiro Yoshizawa confirmed the

carrier's effective compliance with the government directive, saying: 'We have made our service fees simpler after receiving comments that they have been complicated and difficult to understand, preventing customers from feeling the benefits of cost savings.'
(April 16, 2019) telegeography.com

An advisory panel to the Communications Minister approved the allocation of frequency bands for fifth-generation (5G) advanced wireless communications services to the four mobile carriers that made applications, namely: NTT DOCOMO, KDDI (au), Softbank Corp, and new fourth operator Rakuten Mobile, part of local e-commerce giant Rakuten. Announcing its decision, the Ministry of Internal Affairs and Communications (MIC) confirmed that the operators' applications all met the conditions of the allocation, although with the government wanting to see the industry to build out 5G infrastructure widely – from big metropolitan areas to rural regions – the ministry has attached a number of conditions to the awards. Importantly, the approvals include the stipulation that all four telcos launch 5G services using the new spectrum in every Japanese prefecture within two years, and effectively sub-divided Japan into 4,500 'blocks' (zones), requiring all four spectrum holders to set up base transceiver stations (BTS) in at least half of these within five years. Preliminary information suggests that NTT DOCOMO and KDDI have committed to reaching >90% coverage by that date, while Softbank and Rakuten Mobile have set more conservative targets of 64% and 56%, respectively. The MIC also published on the Ministry website its approvals relating to 5G BTS deployments for all four companies. Based on a report from the Radio Frequency Control Council, 5G frequency authorizations are as follows:
NTT DOCOMO: 3.6GHz-3.7GHz, 4.5GHz-4.6GHz and 27.4GHz-27.8GHz
KDDI: 3.7GHz-3.8GHz, 4.0GHz-4.1GHz and 27.8GHz-28.2GHz
Softbank: 3.9GHz-4.0GHz and 29.1GHz-29.5GHz
Rakuten Mobile: 3.8GHz-3.9GHz and 27.0GHz-27.4GHz.
The MIC's conditions will likely require the four MNOs to balance sizeable investment programmes against the need to remain profitable, and with new competition looming in the shape of Rakuten Mobile – which is set to kick off its fledgling 4G network this October, targeting 15 million subscribers in the medium-term – price competition is expected to intensify. All four firms aim to commercialize 5G services in 2020, with KDDI and Softbank penciling in launches in March and Rakuten in June 2020, and taken together the big four will invest JPY1.6 trillion (USD14.4 billion) in the five-year deployment phase, of which at least JPY795 billion is being spent by DOCOMO, JPY466 billion from KDDI, JPY206 billion (Softbank) and JPY194 billion (Rakuten). Some press agencies meanwhile note that the MIC's T&Cs conditions also include measures that effectively prevent carriers from using equipment supplied by Chinese vendors. The communications ministry, which last year implemented a de facto ban on using network equipment from the likes of Huawei Technologies and ZTE Corp, states that it has taken 'sufficient cybersecurity measures including responding to supply chain risk'.
(April 11, 2019) telegeography.com

Kenya

The Communications Authority of Kenya announces the future publication of a report on the quality of telecom, internet and digital services offered by operators in the Kenyan market. In the new report, apart from measuring the quality of voice and data services, the regulator also measures some other segments. According to Francis Wangusi Director of the Regulatory Agency, the project initiated early this year was spurred by the increasing complaints of users in various segments. The regulator indicates that its new grading system takes into account the customer experience allowing users to grade these service providers based on performances, network availability, service cost and customer support. Mobile units of the operator have been deployed in five key regions for data collection. The regulator also collects data on the services provided by the various domain registries that host thousands of websites and blogs in the country. This is aimed at bringing order in a sector where there are numerous complaints of traffic redirection and the proliferation of fake news websites.
(April 24, 2019) ecofinagency.com

The Netherlands

The Netherlands Authority for Consumers & Markets (ACM) has issued its final recommendation on the upcoming auctions of mobile frequencies in the 700MHz, 1400MHz, 2100MHz and 3.5GHz bands to the Ministry of Economic Affairs and Climate Policy. A key recommendation is to set maximum percentages ('caps') for the amount of frequencies that a single party can possess, to maintain effective competition, as follows:

- a cap of 40% on the total frequency possession
- a cap of 40% on possession of frequencies below 1GHz 'necessary to realize a nationwide network at reasonable costs'
- a cap of 40% on the frequencies to be auctioned in the 3.5GHz band 'necessary to be able to offer a full 5G [service]'.

ACM does not consider it necessary to reserve space for a possible new fourth mobile operator within the frequencies to be auctioned. Auctions in the 700MHz, 1400MHz and 2100MHz bands are scheduled for the end of 2019 or the beginning of 2020. A 3.5GHz band auction is expected ('if possible') at the end of 2021 or the beginning of 2022.

(April 12, 2019) telegeography.com

Nigeria

The Nigerian Civil Aviation Authority (NCAA) has threatened to dismantle over 7,000 telecoms masts and towers, after operators failed to obtain the statutory Aviation Height Clearance (AHC). In a statement, the authority claimed that without the requisite AHC, the masts and towers pose a threat to air navigation safety. A 30-day ultimatum has been given to Globacom and 'other defaulters' to adhere to regulations or face the 'mass decommissioning and demolition of all their masts and towers in Nigeria'. (April 25, 2019) telegeography.com

The Nigerian Communications Commission (NCC) has finally approved the transfer of Visafone's 800MHz spectrum license to MTN Nigeria, following a public inquiry into the transaction. In April 2015 MTN Group announced it was acquiring CDMA operator Visafone for ZAR3.4 billion (USD243 million) and the transaction was completed the following December. In September 2016, however, the NCC questioned whether Visafone's 800MHz spectrum license should be included in MTN's takeover, as it would increase the market leader's dominance. Shortly after, the regulator approved the transfer of 100% of Visafone's shares and subscriber base to MTN, although an application to transfer its spectrum license to the market leader was pending and a public inquiry into the matter was opened last year. MTN is expected to use the frequencies to expand its 4G LTE services across the country.

(April 12, 2019) bloomberg.com

The Nigerian Communications Commission (NCC), has expressed its preparedness to drive the process of attaining 70 per-cent broadband penetration in the next couple of years. Prof. Umar Danbatta, the Executive Vice Chairman of NCC in a statement on Sunday in Abuja, said that the commission would attain the 70 per cent if it was set as the new target by the Federal Government. The statement said he said this while delivering a goodwill message at an investment summit tagged "KADINVEST 4.0", organized by the Kaduna State Government. He said that he was optimistic about the commission's commitment toward taking the broadband penetration to the next level. "When I was appointed by President Muhammadu Buhari in 2015, broadband penetration was only 8.5 per cent. "It has now risen to 33%, an equivalent of 63 million Nigerians enjoying the services. "I am particularly thrilled to see that the rising trend has not only been sustained, but the NCC is now ready to take it to the next level," he said. According to him, Nigeria attained it 30 per cent broadband target in 2018 through measures and strategies put in place by the NCC under the present leadership, a development that has attracted industry-wide commendations. Danbatta also urged Fleek Network Ltd, the licensed Infraco for the North West to quickly mobilize to site with a view to deploying broadband infrastructure in the region. "At least, six infrastructure companies (Infracos) have been licensed by the NCC to drive the deployment of broadband infrastructure across the nation's six geopolitical zones. "Including Lagos State which is a zone on its own due to the sheer size of its market. "The license for the north central region which is the only zone remaining is presently being processed," he said.

(April 7, 2019) guardian.ng

Norway

The National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has announced the winning bidders in an auction for offshore spectrum in the 700MHz and 900MHz bands. With the frequency sale raising a total of NOK3.419 million (USD410,000), Equinor Energy emerged as the biggest spender, committing NOK1.265 million for a 2×10MHz block of spectrum in the 700MHz band and 2×5MHz at 900MHz, while Tampnet secured a 2×15MHz block in the 700MHz band at a cost of NOK1.200 million. Rounding out the companies to secure new spectrum, Telenor Maritime bagged a 2×10MHz block in the 900MHz band with a bid of NOK954,000. However, a 2×5MHz block in the 700MHz band and a 2×5MHz block in the 900MHz band

went unsold, and the Nkom has said it will decide at a later stage how it plans to allocate these. Notably, the sale process marked the first time that frequencies in the 700MHz band had been made available for offshore use. (April 11, 2019) telegeography.com

In line with previously announced plans, Norway's National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has published the detailed auction rules for its upcoming sale of spectrum in the 700MHz and 2100MHz bands. Furthermore, the regulator has also confirmed that the sale process itself will get underway on 3 June, with the deadline for applications from those looking to take part has been set as 9 May, with test auctions to then be held ahead of the start of the real auction. The watchdog revealed in July 2018 that it intends to make available a total of 2×30MHz in the 700MHz band and 2×15MHz in the 2100MHz band. (April 5, 2019) telegeography.com

The National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has called for Telenor Norge to provide greater clarity over its plan to move its entire customer base off its legacy copper infrastructure by 2023. In a press release the local telecoms regulator noted that, as part of its proposed copper switch-off plan announced in January 2019, Telenor Norge has said it does intend to repair faults on this infrastructure after 1 May. With the Nkom suggesting that the decision to not undertake any repair work could potentially affect some 80,000 fixed line customers across 365 municipalities, it has asked Telenor Norge to explain how it plans to assist customers in the event of line issues, so as to ensure that they are not left without a fixed voice connection. In January this year Telenor Norge revealed that it expects around 30,000 customers who are presently accessing services over its legacy copper network to be transferred to connections over newer technologies this year. At that date it also said that, as its network modernization process continues, it plans to take down unused telephone poles, remove copper lines and repurpose or decommission technical buildings.
(April 1, 2019) telegeography.com

Philippines

The Philippines' Department of ICT (DICT) has signed a partnership agreement with the United Nations Development Program (UNDP) aimed at fast-tracking the deployment of free Wi-Fi access in public places. Under the agreement, the UNDP will provide support for the government's Pipol Konek – Free Wi-Fi Internet Access in Public Places Project. The UNDP will conduct area-based network analysis of target sites, oversee monitoring of project impact, and continue to provide technical training to stakeholders involved in the rollout. The UNDP and the DICT will meanwhile jointly take charge of project oversight. The project participants plan to hold workshops and consultative meetings to address the challenges with the rollout and investigate potential solutions. The DICT sought the assistance of the UNDP in September last year to expedite the project and aid in the capacity-building initiatives of the companies involved in the rollout. A formal signing ceremony was held last week during the first project board meeting. "Today as we set to seal this meeting of minds, the Department is optimistic that our goals of providing free Internet access and promoting knowledge-building among our citizens will soon be realized," DICT Acting Secretary Eliseo M Rio Jr. said at the signing ceremony.
(April 1, 2019) telecomasia.net

Poland

The Office of Electronic Communications (Urzad Komunikacji Elektronicznej, UKE) says it hopes to be in a position to auction 3.6GHz-3.8GHz spectrum for future 5G services by the first half of next year. The regulator is hopeful that spectrum could be awarded by June or July 2020, though its previous spectrum auctions have not always gone to plan, with the sale of 800MHz and 2600MHz frequencies in 2014/15 having been hit with a number of delays.
(April 2, 2019) telegeography.com

Portugal

Portugal's National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has confirmed that it has reassigned the number range held by defunct MVNO Phone-ix to PT Portugal (MEO) and Vodafone Portugal. The number range in question has the '92' prefix. The regulator's press release notes: 'ANACOM understands that, given the concrete situation of the termination of the CTT [Phone-ix] service, this is the solution with the lowest impact for consumers and for companies operating in the market and, at the same time, better ensures the routing of communications to and from active numbers of the extinguished company, both nationally and internationally.' The MVNO, which was owned by CTT Correios de Portugal, the Portuguese post office, launched over the MEOnetwork in 2007 and ceased trading on 1 January 2019.
(April 20, 2019) telegeography.com

A trial led by Portuguese regulator, ANACOM, has successfully demonstrated a Licensed Shared Access (LSA) model within the 2.3 - 2.4GHz band. LSA allows spectrum that has been licensed to be used by more than one entity. In theory, this should increase the use of the radio spectrum by allowing 'shared access' at times when the primary licensee is not using its designated frequencies. This will become even more important as 5G rolls out. As spectrum-sharing becomes common, the Portuguese trial sought to investigate some of the new technological and regulatory solutions which will be required to support this. Specifications developed by ETSI's Technical Committee on Reconfigurable Radio were used in the pilot. Mobile and TV operators, industry and R&D centers participated in the proof-of-concept demonstrator. Currently, European journalists use the 2.3–2.4GHz frequency band with wireless cameras to film outdoor events. In France, the band is used for telemetry from aircraft and missiles to ground stations, and is also used to transmit signals between ground stations. "This is a very good example of collaboration between CEPT, ETSI and the European Commission," said Michael Gundlach, Chairman of the RRS working group 1 in ETSI. "The EC issued a mandate to work on this solution which ETSI answered, this triggered an ETSI document sent to CEPT which subsequently led to our specifications. The next step is to reach national adoption, several countries have already tested LSA and Portugal is the latest one." LSA could offer a significant advantage for carriers, as once it's implemented in their network, it could save costs and solve the issue of spectrum scarcity in the lower bands below 6 GHz.

(April 1, 2019) mobileeurope.co.uk

Russia

According to a review document seen by Vedomosti, the Russian Ministry of Defence considers it is 'too early' to transfer the 3.4GHz-3.8GHz spectrum band to cellular operators for commercial 5G service deployment. The review was in response to a draft 5G action plan recently sent by Russia's telecoms ministry to several other state departments including Defence. There is industry expectation that commercial 5G licensing may be implemented this year.

(April 2, 2019) telegeography.com

Sierra Leone

The Audit Service Sierra Leone (ASSL) has published a report highlighting a number of areas of concern regarding the telecommunications sector, including – amongst other things – the shortcomings of the regulatory structure of the segment, a lack of a level playing field for competition and potential corruption at state-owned Sierra Leone Telecommunications Company (Sierratel). The ASSL's investigation found that sector watchdog the National Telecommunications Commission (NATCOM) had not developed sufficient regulations to oversee the segment effectively and recommended the development of rules and guidelines covering the following areas: consumer protection, quality of service (QoS), competition, licensing, approvals and inspection of equipment, spectrum and universal services. Further, NATCOM should deliberate and approve all tariffs, charges and penalties levied on telcos, the ASSL noted, pointing out that international gateway charges were increased from USD0.065 per minute to USD0.09 per minute in April 2017 with no explanation for the hike. On competition, the ASSL found a number of cases where NATCOM had not treated providers equally, for example by allowing different terms and conditions for the payment of 4G license fees for different operators. Amongst other remedies, the ASSL recommended that NATCOM recover outstanding 4G license fees totaling USD2.93 million from Africell, USD1.30 million from QCell and USD5.2 million from Sierratel. Regarding Sierratel, the auditors noted that information covering two loans from Chinese and Indian banks valued at a combined total of USD46.1 million were unavailable, and recommended that the finance ministry ensure that the telco provide auditors with details of 'the loan agreements, what necessitated the loan, what it was used for and how much is currently outstanding'. Elsewhere, the ASSL found that two members of the company's IT department had point of sale (POS) terminals – used to top-up customer credit – in their name and could not account for revenue collected totaling SLL33.5 billion (USD3.8 million), equivalent to 24% of the total recharge value of all POS terminals between 1 January 2015 and 30 November 2018. Similarly, the auditors compared the POS recharge values with the amounts collected and banked and found that SLL19.5 billion (around 40% of the total recharge value) could not be accounted for. Discrepancies with recharge cards for CDMA services were also found. The ASSL noted that an earlier internal audit at Sierratel had conducted a stock count of the cards and found inconsistencies with the stock record, with the difference valued at around SLL280 million. There was no evidence of how the company resolved the discrepancy, however. The ASSL's own investigation found a difference worth around SLL398 million. Finally, the auditors noted that 50 vehicles, worth around SLL2.5 billion and listed amongst the company's assets in January 2019, were not present and recommended bringing the matter to the attention of the anti-corruption commission.

(April 11, 2019) telegeography.com

Somalia

Ministry of Post, Telecom and Technology is planning to establish the first national innovation center aimed at facilitating the creation of an ICT innovation ecosystem and marketplace for Somalia's digital products. Speaking at the old telephone exchange center of the former national telecom operator Abdi Ashur Hassan, noted the building, once reconstructed and equipped with the necessary facilities, will house the Somali National Innovation Center (SO NICE) to enable the youth access tools to innovate and market creative ideas online to enable them earn decent income. The Minister said the government was committed to facilitating the establishment of the innovation hubs in all federal states in a bid to transform the country into an information society and prepare citizens for a digital economy. "In the last two years we mainly emphasized on establishing legal and policy framework for the ICT sector. Once the law and policies are fully implemented, we hope competition will encourage innovation that will create jobs for the youth," said the Minister. This initiative is in line with the draft National ICT Policy and Strategy, which clearly stipulates the use of ICT in education, health, agriculture, business, etc due to their potential for job and economic development. The strategy also recommends the establishment of well resourced 'tech parks, tech/innovation hubs, co-working spaces and accelerators which provide business incubation, access to skills and low cost ICT services to small businesses to support digital entrepreneurship and economic growth in Somalia. Finally the Minister called on all government institutions, private sector and development partners to make their ICT-related initiatives in line with the ICT Policy and Strategy so that they serve common purpose. (April 29, 2019) allafrica.com

The Ministry of Posts, Telecommunications and Technology (MPTT) has launched a consultation on the draft National ICT Policy and Strategy, which provides the framework needed to leverage the benefits of ICT to support the social and economic development of the country. The five-year policy outlines the development and enhancement of ICT across Somalia over the period 2019-2024 and aims to promote transformation, growth, inclusiveness, sustainability, innovation and partnerships in the mainstream economy, while recommending institutional and regulatory frameworks in order to achieve its intended goals. Stakeholders have been given until 31 May 2019 to submit feedback on the guidelines, which were formulated with support from the ITU and the World Bank. Commenting on the policy, Minister for Posts, Telecommunications and Technology Abdi Ashur Hassan said: 'It is a comprehensive blueprint that will harmonize the country's ICT initiatives. It is therefore envisaged that all sectors of the economy and society at large will harness the power of ICT's for the development of our nation.' (April 24, 2019) telegeography.com

Sweden

Swedish cellco Tre Sweden has once again criticized plans for the distribution of spectrum for future 5G mobile services. The firm, which competes with larger rivals Telia, Tele2 and Telenor, as well as LTE-only provider Net1, says emphasis must be given to promoting market competition rather than maximizing revenues from the sale of frequencies. The operator is particularly critical of the high spectrum limits set by the Post and Telecom Agency (Post & Telestyrelsen, PTS), which it says enables larger cellcos to monopolies the spectrum while leaving little room for smaller players such as Tre. Haval van Drumpt, CEO of Tre Sweden, has written in a blog post: 'Several mobile operators, and also the Swedish Competition Authority, are either critical or doubtful as to whether the auction structure is really promoting competition. Weaker competition in the 5G market will lead to higher prices for Swedish mobile customers, poorer service development, and a negative impact on Swedish growth.' In December 2018 Telia, Tele2 and Telenor emerged with spectrum from PTS' auction of 700MHz frequencies, while Tre was left empty-handed. The smaller player had previously been critical of the auction format. The regulator opened a consultation into the award of 2.3GHz and 3.5GHz spectrum in February this year. (April 3. 2019) telegeography.com

Swedish communications regulator PTS said it has updated its broadband map by adding new functions and making it faster. Readers can now filter information to show developments within or outside of built-up areas, rather than all developments. The map itself has changed and become more like other cartographic services, with clearer switching between maps, according to PTS. (April 2. 2019) telecompaper.com

Tanzania

Tanzania plans to launch biometric SIM registration nationwide on 1 May, in a bid to improve security in the country, reports The East African. The exercise follows a pilot project in seven regions, namely Dodoma, Dar es Salaam, Coast, Singida, Tanga, Iringa and Zanzibar, launched by the Tanzania Communications Regulatory Authority (TCRA) in March 2018. The new system requires customers to provide their fingerprints, as well as proof of identity, to register their SIM card. 'The information obtained from registered SIM cards will be directly linked to a subscriber's national identification card ensuring there is no more misinformation or

forgery of the documents; no one can forge fingerprints,' commented Semu Mwakyanjala, acting corporate communication manager at the TCRA. In addition, the number of mobile phone lines an individual can own will be limited to one per network operator, unless permission for multiple ownership is received from the TCRA.
(April 29, 2019) telegeography.com

Uganda

The Uganda Communications Commission (UCC) has opened a public consultation into its planned review of the country's Telecommunications Licensing Framework. The current framework has been in place since 2006 and the regulator says industry and local market developments necessitate a review into the effectiveness of the legislation. The number of active fixed and mobile operators in Uganda has risen from just three in 2006 to 27 in 2019, the UCC says. The UCC says the objectives of the review are: to ease market entry and increase competition and consumer choice in the telecommunications sector; to enhance quality of service (QoS) provision; to promote innovation and investment; to increase broadband rollout; to increase local ownership in the sector and hence reduce capital flight; to reduce the cost of investment in ICT infrastructure by creating efficiencies in the use of scarce resources such as spectrum; to promote a seamless transition from the existing framework into the new framework. (April 9, 2019) telegeography.com

United Kingdom

The UK communications regulator, Ofcom, has launched a shotgun blast of three new consultations that cover how the fixed line broadband ISP and phone market will need to change as consumers are migrated from old analogue telephone services (PSTN) to new digital Voice-over-Internet-Protocol (VoIP) platforms. At present operators like Openreach (BT) tend to supply a copper phone line to consumers when ordered or will bundle it at the same time with a broadband service, although the latter is currently still considered to be somewhat of an optional extra (i.e. you get the phone service first and then broadband). However today most of us only take a landline for broadband (i.e. fewer and fewer people each year still make calls via their landline) and the roll-out of ultrafast Fiber-to-the-Premises (FTTP) based networks, which can only carry data and not analogue phone calls (i.e. optical fibers carry data in laser light, while older metallic lines use electrical signals), means that all of this is about to go through a fundamental change. Back in 2012 UK people made a total of 103 billion minutes of landline calls, which has fallen to just 54 billion in 2017. Over the same period mobile call minutes have increased from 132.1 billion to 148.6 billion. This gives a good indication of how the market has shifted and where it's going. In the future Openreach's approach, as well as that of other operators, will be reversed as they move from analogue to IP / VoIP based digital communications. In other words, broadband will become the primary service you buy and phone (voice calling) the optional extra. A lot of alternative fixed wireless and full fiber (FTTP) broadband ISPs already do this but the wider more established market is playing catch-up. The shift to all-IP style networks also creates new challenges, such as in terms of how you support vulnerable landline phone-only consumers (often elderly users), maintain access to emergency services (e.g. during power outages, since most IP based calling platforms will cease to function without battery backup) and ensure that it's possible to more effectively port (switch) phone numbers to all sorts of different IP based platforms. Ofcom already has a number of work programmes on-going to investigate various different aspects of this process (e.g. the proposed blockchain approach to number porting) and in keeping with that they've today launched three more consultations to cover some related aspects of the wider transition. As part of Ofcom's work to tackle nuisance and scam calls, we believe a common database of phone numbers is needed to enable phone companies to verify that Caller ID numbers are genuine. A common database could also help improve the process of letting people and businesses keep (or 'port') their number when they switch providers. We are inviting comments on our initial views by 6th June 2019. We intend to publish a summary of responses to this consultation and outline next steps in the summer. We are inviting views on how landline numbers should evolve to keep up with changes in how they are used – including whether area codes and their associated location information should be retained. We are also looking at whether certain phone numbers might continue to be used by people to make small payments. This consultation closes on 20th June 2019, and we plan to set out further policy proposals for this area later this year. Finally, we are seeking views on what the move to internet calls might mean for our regulation of 'interconnection' – the process of ensuring all calls made from one network to another are connected. The move may also have implications for how we regulate what phone companies charge each other for connecting calls between their networks. This consultation closes on 6th June 2019. Responses will inform our next review of interconnection and termination markets, which

we expect to consult on early in 2020. The 'future of telephone numbers' consultation is one of the more interesting aspects because VoIP style services do not need area codes to tell them where to send a call. One option that Ofcom may consider here is whether or not area codes could be scrapped, which might enable you to have a number that never changes no matter where you are or what service / network you use. Ensuring such numbers can be used on lots of different platforms is an extremely complicated problem, albeit an achievable one. On the other hand many older users tend to be opposed to the idea of losing geographic meaning from area codes and it could make filtering calls harder, while younger people find the whole idea more enticing. Chair of ITSPA, Eli Katz, said: "This consultation phase is a crucial step in shaping the future of our entire industry. We welcome the opportunity to engage and indeed are positive around the long-term benefits that Ofcom are looking to tackle. We also welcome Ofcom's acceptance that as we transition to an all-IP world, certain areas of regulation (Interconnection for example) may need a review to ensure the competitiveness of the UK telecoms sector is maintained. ITSPA welcome the concept of forming a central database of numbers. This has long been necessary to tackle some of the industry pains of the past decade, particularly nuisance calls and porting. We have been heavily involved in Ofcom's recent blockchain proof of concept, which is being looked into as a possible solution for number management and number portability. Whilst this is a positive step, we were concerned by Ofcom's position that they expect industry to lead in the wider development around the database concept. ITSPA remains of the belief that Ofcom must play some active role in its development. There have been too many industry false starts on number portability over the past 10 years for it not to require some Ofcom leadership. Beyond the blockchain proof of concept plan, we would urge the regulator to outline its expected outcome in terms of consumer porting experience to assist the industry in developing a more advanced platform and would be happy to support them in this project."(April 14, 2019).ispreview.co.uk

With Ofcom having previously published a statement on the future of landline services in February 2019, in which it set out what it said were some of the potential benefits to consumers as phone companies move their landline services to IP technology, the industry regulator has now launched three separate consultations related to the future use of telephone numbers, and the necessary working arrangements between networks. In short, the British telecoms regulator has said it is aiming to: promote competition between providers of phone services; promote confidence in phone numbers and services by tackling nuisance and scam calls and addressing pricing practices that lead to unexpected or unreasonable bills; and protect consumers from harm by making sure they continue to have access to important services. One of the consultations being undertaken relates to the future of interconnection and call termination, and in this Ofcom said it discusses 'the factors that may influence future regulation, and potential options for the future regulatory framework'. Meanwhile, in its 'Promoting trust in telephone numbers' consultation, the watchdog sets out its 'proposal for a key change in the way numbers are used by networks, which we believe is necessary to tackle nuisance and scam calls'. Finally, in the 'Future of telephone numbers' consultation Ofcom looks at 'how numbers might need to evolve so they continue to promote confidence in telephone services'.

(April 12, 2019) telegeography.com

The British telecom regulator OFCOM has launched a consultation on its 'initial views on regulatory measures for wholesale fixed telecoms markets from 2021' which it believes will, in combination with duct and pole access, help boost investment by promoting network-based competition. Having set out a broad strategy to support investment and competition in full-fiber services in July 2018, the regulator says the latest consultation aims to secure investment in fiber infrastructure from both fixed line incumbent BT and other alternative operators. To that end, OFCOM seeks to ensure that altnets have 'a fair opportunity to invest at low cost', and in saying this was critical to its strategy, it suggested this would mean giving such companies 'access to the same benefits BT has to re-use existing duct and pole infrastructure on equivalent terms'. OFCOM's consultation is open to submissions until 7 June 2019, and it has said that it plans to set out full details of its regulatory proposals in the fixed telecoms market, alongside its market analysis and SMP findings, in December 2019.

(April 2, 2019) telegeography.com

United States

The US received bids of close to $2 billion during the initial phase of its second auction of 5G spectrum, with almost all licenses on the block sold. In a statement, Federal Communications Commission representative Neil Grace said 99.8 per cent of licenses available in the 24GHz auction had been sold during the clock phase of the process, which closed after 91 rounds. The auction will now move into what is known as an assignment phase on 3 May, where bids will be accepted for specific frequency blocks. Auction proceeds are not expected to rise significantly in this second stage. Bids in the 24GHz sale of $1.98 billion are more than double the $702.6 million pledged in an earlier 28GHz auction. Winners for both are expected to be announced following the

close of the assignment phase. Commenting on the 24GHz sale, Scott Bergmann, SVP of regulatory affairs for CTIA, said the industry group is looking forward to similar proceedings to make more mid-band spectrum available, stating this is "critical to maintaining our global wireless leadership". A third auction of mmWave spectrum is set to begin in December.

(April 18, 2019) mobileworldlive.com

The US Federal Communications Commission (FCC) has initiated a consultation regarding its third planned sale of millimeter wave (mmWave) spectrum, 'Auction 103'. As per the consultation document, the watchdog seeks to auction off Upper Microwave Flexible Use Service (UMFUS) licenses in the Upper 37GHz (37.6GHz-38.6GHz), 39GHz (38.6GHz-40GHz) and 47GHz (47.2GHz-48.2GHz) bands. The FCC has proposed to use an 'ascending clock auction format' alongside a 'sealed bid assignment phase'. Submissions from interested parties are welcomed until 15 May. TeleGeography notes that the FCC completed its first sale of mmWave spectrum ('Auction 101') in January 2019, raising USD702.6 million via the auction of 28GHz spectrum. A second sale process ('Auction 102') commenced last month, with 24GHz frequencies on the auction block. The third mmWave auction was announced by FCC chairman Ajit Pai, at an event at the White House, alongside President Donald Trump. In a parallel announcement, Pai pledged to create the Rural Digital Opportunity Fund, which will inject USD20.4 billion into the development of high speed broadband networks in rural America over the next decade; the project seeks to close the digital divide and connect up to four million rural homes and small businesses.

(April 16, 2019) telegeography.com

US President Donald Trump (pictured) insisted the country must win the race to 5G, as regulator Federal Communications Commission (FCC) announced plans to hold a third mmWave auction and pledged to invest $20 billion for rural deployments of the technology. In a press conference held at the White House alongside FCC chairman Ajit Pai, Trump underlined the importance of 5G to the US, stating his administration was freeing up spectrum to encourage investment in the technology. "5G networks must be secured, they must be strong…they must also cover every community and they must be deployed as soon as possible," he said. Trump's comments were made in tandem with announcements made by the FCC and Pai designed to address the country's 5G ambitions. Pai unveiled plans to launch a new $20.4 billion subsidy program to support broadband deployments in rural regions. Over the next decade, he said the Rural Digital Opportunity Fund will distribute monies to help companies finance construction of new fiber infrastructure with the aim of connecting up to 4 million rural homes and laying a foundation for future 5G sites. Pai also announced a third mmWave auction, covering licences in the 37GHz; 39GHz; and 47GHz bands, will commence on 10 December. The proceeding will offer largest amount of spectrum (3,400MHz) ever auctioned at one time in the nation's history, following sales in the 24GHz and 28GHz bands held earlier in the year. He explained the moves form part of the FCC's so-called 5G Fast plan, to help the US beat China and other markets to the punch on the technology. But Commissioner Jessica Rosenworcel blasted the FCC's focus on mmWave spectrum as impractical for widespread deployments and isolating on the world stage. In an FCC meeting, she said the US is "increasingly alone in our mission to make mmWave the core of our domestic 5G approach". Without a "pivot to mid-band" frequencies favored elsewhere, she warned the US could lose its influence over the global supply chain: "This means less scale, higher cost, interoperability challenges and less security as other nations' technologies proliferate". Rosenworcel also sharply criticized the Trump administration's 5G policies, stating in a Twitter post its interventions have "done more harm than good". "From imposing tariffs on 5G equipment, to alienating allies on 5G security, to falling behind the rest of the world on critical mid-band spectrum, it has yet to offer a workable plan for US leadership."

(April 12, 2019) mobileworldlive.com

Zimbabwe

The government of Zimbabwe is set to assume legacy debts of more than USD380 million from state-owned incumbent fixed line operator TelOne. The debts stem from loans taken out by TelOne's predecessor, the Posts and Telecommunications Corporation (PTC), between 1992 and 1997, but the telco has been unable to meet the full payments since then. A report says that interest and arrears charges now total over USD206 million, while the main balance of the loans stands at USD177.5 million. Creditors include: Overseas Economic Co-operation Fund (OECF) JBIC III of Japan (USD152.4 million); BNP of France (USD36.2 million); Eksportfinans of Norway (USD13.8 million); Kreditanstalt Fur Wiederaufbau (KFW 11A) of Germany (USD12.6 million); Eximbank (Sumitomo II) of Japan (USD9.5 million); and Tunisia-based African Development Bank (USD8.9 million). TelOne managing director Chipo Mtasa said: 'We have been made aware that the Cabinet passed a resolution to waiver our legacy loans, and we are currently in the process of engaging the Ministry of Finance and Economic Development in terms of finalizing the transaction.' The government is

looking at a plan to merge TelOne with its mobile sister company NetOne and selling off a stake to a strategic investor, as well as offering shares to local investors. The state is expected to retain a 26% interest in the combined company. (April 11, 2019) The Zimbabwe Daily

The Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) has moved away from a fixed model for determining the various tariffs for telecommunications operators to a flexible model. The new model is meant to improve sustainability of the local telecoms firms' businesses by taking into account their need for viability and customers' need for affordable services. The tariff model has resulted in tariff adjustments by mobile telecoms operators in line with a general 23 percent increase in the cost of service provision across the telecoms sector. According to the sector regulator, the new tariff model takes into account the "cost of providing services, market trends, economic fundamentals and affordability"This means "that tariffs for telecommunication services have not been aligned to the movement in cost of service provision in 2018 as well as the new exchange rate regime that was pronounced by the new Monetary Policy," said Potraz. The new tariffs as a result of the change in pricing model came into effect on April 1, 2019. Zimbabwe's three mobile telecoms companies have since announced their new prices for voice tariffs, which are almost at the same level. Econet Wireless is now charging RTGS$0,2157 per minute, while Telecel is now charging $0,22 per minute and NetOne's new rates now stand at $0,2199 per minute. Potraz says it factored in changes in exchange rate, after the Reserve Bank of Zimbabwe established an inter-bank foreign currency market rate. The tariff model includes calculation of exchanging the US dollar pegged tariff to RTGS$ at a rate of US$1 to RTGS$2,5 in order to cushion operators against exchange losses. Tariff thresholds for mobile voice services were reviewed downwards in 2015 to US15 cents a minute from US23 cents. The thresholds were however reviewed upwards to US16 cents per minute to factor in the increase in the Universal Service Fund Levy that had been increased to 1,5 percent from 0,5 percent. Sources say telecoms firms had requested over 40 percent increase in tariffs which Potraz turned down. (April 6, 2019) herald.co.zw

25 YEARS OF SUDANESE EXCELLENCE

- 4G LTE Advanced Mobile Services. One of the most advanced in Africa and the first in Sudan.
- Fixed Broadband Connectivity offering FTTP, FTTC and FTTH solutions all over Sudan.
- 1 Million Active Subscribers in Africa. Sudan, Senegal and Mauritania
- 4000 KM Terrestrial Fiber Optic Network: Keeping Sudan interconnected with networks in Egypt, Ethiopia and Chad
- Six Submarine Landing Stations
- An Award Winning Tier IV Data Center
- 50 Million USD commitment to social and economic development in Africa.

EXCITED ABOUT THE FUTURE OF AFRICA? **WE ARE!**

With over 11 million active subscribers, Sudatel has successfully completed its Silver Jubilee while expanding our reach in Africa and anchoring our name in the hearts of our customers.

We look forward to delivering the telecommunication solutions of the future, along with state-of-the-art mobile convenience and security while proudly being a part of an aspiring African Future.

sudatel سودانتل®
A TELECOM GROUP

25 YEARS ANNIVERSARY