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# SAMENA TRENDS

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BUILDING DIGITAL ECONOMIES



VIVA's Analytics Transformation

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Nokia: Building Critical Communications Networks for Aviation...

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## Interview

Eng. Ahmed El Beheiry  
Managing Director and CEO  
Telecom Egypt

THIS MONTH

# DATA ANALYTICS & MONETIZATION



Durban 10-13 September



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## INTERVIEW



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A satellite with large blue solar panels is shown in space, with a red laser beam pointing towards the Earth's horizon. The Earth is visible at the bottom of the frame, showing green land and blue oceans.

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## Data Analytics & Monetization

As Industry, we have fully realized the value of data and analytics, and the changes the use of data has brought forth in how Operators introduce and improve upon existing business functions - including but not limited to sales and customer care functions. Thus transformation due to the use of data is now an established reality.

However, making measurable, beneficial impact on businesses as well as on the human, in general, using data effectively and efficiently does remain a challenge. Not many organizations have so far achieved major financial impact or can claim to have realized significant progress. Why is that so? The answer lies in seeking and being able to achieve the right balance between the organizational priorities toward adapting to change, willingness for and speed of digital transformation, policy support, overall organizational and market culture, and an effective data strategy, which should be human-centric while exploiting a myriad of data analytics and data motif analysis technologies that exist out there.

While the current focus (and visible impact) of data analytics appears to be centered on distribution, services, financial services, and other such areas where it is relatively simpler to conduct data analyses, the scope of data analytics has to expand to more advanced and more meaningful real-time analysis and predictions. The scale of competition and necessity of growth and larger impact, especially with respect to sector-wide endeavors toward harnessing ICTs to achieve global sustainability agenda, require that focus on data and use of analytics technologies be accelerated. Starting with revenue prospects, the ultimate goal is to capitalize on data, which has already become clichéd as the "new oil". So it is becoming evident how the new digital global economy will be functioning in the emerging future, most optimistically so, in the 5G era.

As we work aggressively toward mastering use cases for 5G, it is essential to realize that data analytics will be fundamental to 5G proliferation, and especially in view of what network slicing will make possible for us. Interestingly also is the fact that data analytics would be integral to resolving network congestions, telecom equipment faults, network traffic issues, among many other challenges. Notably, 5G's potential to create a sustainable digital society, speed up connections, allowing implementation and easier use of virtual reality and augmented reality, providing improved connectivity and low-latency based communications, and to accelerate deployment of enterprise-centric technologies, including of IoT products, to name a few, will only be made possible with strong data analytics capabilities and will be complemented by effective data monetization strategies. Such monetization from data, which can happen either through direct monetization strategies, which majorly revolve around sharing data that already exists in one form or another, or by transforming data into useful insights and predictable patterns, may help dramatically improve not only service provisioning but may altogether transform how communication needs of the human user are catered for.

Granted that the the focus for Operators now is not only on optimizing costs of service delivery but also on delivering elevated, new digital customer experience through new products an digital services, while also revamping their central role toward societal transformation and creating new possibilities in public-private initiatives, it is essential that efforts to strategize data use and monetization be sped up. The long-term sustainability of our Industry will have effective and meaningful use of data and its protection at its foundation. 📍



**Bocar A. BA**  
Chief Executive Officer & Board  
Member  
SAMENA Telecommunications  
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**Eng. Ahmed El Beheiry**  
 Managing Director and CEO  
 Telecom Egypt



**Q. How is Telecom Egypt contributing to the development of fiber networks infrastructure in the country?**

**A.** For the past several years, Telecom Egypt has directed its investments to fiber networks rather than traditional copper networks. Telecom Egypt has also deployed an extensive multi-service access network rollout plan to transform its legacy access copper network to a modern access network fully backhauled with fiber. As the fiber footprint is extended, multiple services and applications are being delivered over this access network including residential and enterprise services as well as emerging opportunities such as Wi-Fi backhauling and small cell front haul.

The virtually unlimited bandwidth and capacity of fiber provides the platform for convergence. Fiber backhauling guarantees excellent service quality to meet the data revolution and growth in customers' demand. Telecom Egypt has 18,000 km of fiber deployed on the access network that connect 52% of the total households as of end of 2017 and we plan to reach 72% by end of 2018.

In addition to deploying FTTH in green field areas and new closed compounds side-by-side to massive rollout of fiber transmission paths that serve core networks & business extensions all over Egypt, Telecom Egypt had deployed around 35k FTTH links in 59 urban community projects till end of 2017 and plans to reach to 85K FTTH link by end of 2018.

**Q. What will 5G enable in the hands of people, businesses, and society as a whole, and what are the opportunities you foresee with 5G?**

**A.** Definitely, 5G networks will be very beneficial in the consumer mobile space, but we see the real market opportunity and evolution with the introduction of 5G networks when it comes to the enormous capabilities of IoT and ICT ecosystem. 5G is expected to play a major role in growing the industrial digitalization and creating massive scale services & business applications.

**Q. Telecom Egypt has launched its own mobile network "We" last September, What are your expectations in terms of market share and what will you focus on in the future?**

**A.** There is a lot of potential in the Egyptian market, in our view. The potential lies mainly in the expected growth of the data ecosystem. Although the penetration rate of mobile SIMs is already

above 100%, mobile data penetration is still around 30% only. In addition, Egypt's population has a yearly growth rate of around 3%, with close to 50% of the population below 25 years old. A relatively young generation that demand constant connectivity, collaboration & creativity. We believe we are ideally positioned as a total telecom provider to meet those needs and aim for a 12-15% market share over the next five years, supported by our unique positioning in mobile data across the different customer segments.

The Egyptian market is behind others in diversifying its activity away from the traditional telecom business and towards ICT services. This is one of our key priorities in the coming few years as we are looking to provide fully integrated business solutions, managed services, cloud computing, as well as expand our data centers' presence, develop our Big Data and IoT capabilities and explore other mobile enabled services such as mobile banking.

**Q. How far did WE reach in the digital transformation, and what would you like to achieve through it? And What are the main challenges and opportunities for e-payment services?**

**A.** Telecom Egypt in the recent years has achieved considerable progress in its digital transformation. Telecom Egypt significantly enhanced the company's customer relationship management, core billing systems, digital customer support, automated provisioning for customer transactions, and support service for the deaf and mute to meet the needs of both businesses and customers.

Considering fully streamlining internal processes and lowering the costs of ongoing operations, we integrated different internal portals and created a unified knowledge base, all under the umbrella of digitizing Telecom Egypt in all dimensions. We would like to exceed the expectations of "WE" valued customers, respond rapidly to changing conditions and generate new revenue streams through introducing differentiated services such as IOT, clouding, big data analytic, and creating

new channels such as mobile apps and Omni-channels.

E- Payment, mobile money and e-wallets are very important and fast-growing services worldwide. There is a huge opportunity to develop these in Egypt, as until now there were several constraints to their development – such as bill commodities, transfers and payment of fees – and only a few services were authorized.

**I believe SAMENA Telecommunications Council is a pioneering experience to bring together all interested in the Telecom & ICT industry to open a constructive dialogue to develop the industry in the Middle East and to highlight the challenges it faces**

We believe the government is interested in expanding e-payment usage, especially seeing the high share of the population that remains unbanked, at around two-thirds. Offering e-payment services and leveraging the reach of telecom operators can help change the landscape in this regard, and the potential is very large.

The increased use of e-payments will present significant opportunities, especially to smaller companies. E-payment optimizes their business operations and frees people from having to safeguard large amounts of cash. When it comes to mobile payments, telecoms operators and suppliers play a major role in future growth due to wearables and smartphones, branded mobile wallets, and secure next generation networks and technologies. However, Egypt has two main challenges related to the service: promoting acceptance among smaller merchants through regulations and initiatives to reduce cash usage, and building customer loyalty through trusted services and data privacy.

**Q. You have called on international cooperation on some of the most prevailing and tough challenges. Please shed some light on this in view of your leadership in SAMENA Council.**

**A.** I believe SAMENA Telecommunications Council is a pioneering experience to bring together all interested in the Telecom & ICT industry to open a constructive dialogue to develop the industry in the Middle East and to highlight the challenges it faces, providing better work climate in the markets of the states which are members in SAMENA and which represent the interests of more than 85 telecommunications operators and service providers in the region.

SAMENA Council's last summit in early May 2018, Building the Digital Economy of the Middle East, contributed a lot to shedding light on a number of challenges, most important are the preparations made by the region countries to operate 5G services, cloud computing activities and data analysis, discussing all matters related to quantum-computing capability and the path for AI and an utterly new generation of digital experiences.

Data Analytics has become a key component of the professional management of investment companies and major economic institutions, which requires playing an important role by ICT companies in providing all the requirements of the application of the method of analyzing Big Data in the market.

In the recent Leaders' Summit, SAMENA Council was able to put forward a good discussion of the process of developing and organizing the system of governance in order to enhance the evolving visions and dynamic advantages of the telecommunications sector in the region and contribute to meeting its needs and achieving sustainable development objectives, as the communications sector, generally in the Middle East, and in Egypt and Arab Region in particular, has a lot of growth opportunities, but needs a professional management that maximizes the return of the available resources. 📍



## SAMENA COUNCIL ACTIVITY

# SAMENA Council at GSR2018 Shared Perspectives on New Regulatory Frontiers and together with Other Representatives of the Private Sector Identified Measures to Strengthen the Industry in ITU-D in Geneva, Switzerland

SAMENA Telecommunications Council, represented by its CEO Bocar A. BA and Chief Economist Imme Philbeck, attended the 18th Global Symposium for Regulators (GSR18), which took place on July 10-12, 2018 in Geneva, Switzerland. As the chairman to the Private Sector Chief Regulatory Officer's Meeting ("CRO") and the Industry Advisory Group on Development Issues ("IAGDI") Meeting, Mr. BA moderated the discussion of the industry to identify and define priority areas for the work of the private sector groups. Mr. BA also shared perspectives of its members regarding new regulatory frontiers. Under the chairmanship of Mr. BA, the IAGDI meeting called for action on facilitating access to connectivity for everyone in a sustainable manner and identified the adoption of a multi-stakeholder engagement approach, the harnessing of the power of new technologies, and the establishment of an effective cross-sector collaboration –and cooperation framework to enable new business models, as key steps towards achieving this goal. The group further stressed the importance of addressing the areas of (1) ubiquitous infrastructure deployment, (2) the drive up of broadband adoption and usage rates; and (3) the creation of an environment where innovation can flourish as key actions to facilitating access to connectivity for everyone. For each area, the group further identified a number of calls for actions that industry in collaboration with regulators and governments are encouraged to adopt and act upon to ensure the advancement of sustainable development. The meeting of the private sector CRO, designed to facilitate discussion and information sharing on emerging digital technologies driving digital transformation, was held in conjunction with

the first meeting of the IAGDI. The IAGDI was established by Resolution 71 at the World Telecommunication Development Conference (WTDC-17) as a partnership platform for industry leaders on overall development issues of ICTs which can contribute to achieving the sustainable development goals (SDGs). During the Industry Leaders' Track, a number of SAMENA Council Members provided their perspective on the key sectors and new technologies such as e.g. blockchain that will disrupt or transform today's economy alongside the key technological and regulatory enablers that need to be in place to allow transformation for all stakeholders. In relation to investment opportunities by the private sector, it was proposed that banks should consider developing new approaches to small and local start-up financing, given that such ventures often cannot meet or provide to standard criteria such as long-term revenue and business plans. In line with the theme of this year's GSR "New Regulatory Frontiers", Mr. BA highlighted the importance of regional cooperation as pertains to cross-border data management and data privacy during

one of the panel sessions organized during the conference. In relation to regulation of artificial intelligence and its underlying algorithms, he stressed that while overall standards that provide guidance for the development of AI-embedded technologies might make sense, we cannot regulate the code itself. In his closing statement as chair of the CRO/IAGDI meeting, Mr. BA underlined that digital network infrastructures, including the Internet are at the heart of the digital economy, as they carry the digital revolution and enable the scaling of digital technologies that can contribute to addressing some of humanity's most pressing challenges. He emphasized that to ensure that everyone benefits from the digital revolution, everyone must be connected and be able to use the Internet and the services that run on it. In this regard, Mr. BA stressed that while the private sector has a paramount role in overcoming the Internet access and adoption barriers, the public sector needs to ensure that the right enabling environment is created and incentives are set for the private sector to invest and connect everyone, also in underserved areas.



## MEMBERS NEWS



In the presence of the STC group CEO Nasser AL Nasser, STC celebrated the signing of the mega agreement with its strategic partners Huawei, Ericsson, and Nokia. This deal considered as a major progress in regards to the strategic partnership with the three global companies. "It will lead to a new step of investments for future projects" Al-Nasser Said. He Added: "It is a very important for the strategic partnership and will take STC to the next level of investment in the future projects". The agreements includes major projects from different sectors, i.e the expansion of Aljawal network 2018, cloud computing project, IT & cyber security projects, in addition to several projects for STC subsidiaries: (STC Specialized, VIVA Kuwait, and Viva Bahrain).

## STC Inks a Deal with Three Vendors to Expand Networks



## STC Becomes the First Saudi Entity to be Admitted Membership to the Forum of Incident Response and Security Teams

STC announced today that it has been admitted to the Forum of Incident Response and Security Teams (FIRST) after successfully completing the requirements to join this prestigious and world-renowned non-profit organization. Membership requires an endorsement from at least two existing FIRST members as well as an audit by one of them to verify and validate compliance. This milestone was achieved prior to the 30th annual conference being held in Kuala Lumpur, Malaysia. STC is the first entity from the Kingdom of Saudi Arabia to meet the requirements and now joins a handful of other GCC entities and a global constellation of government agencies, telecommunications providers, security vendors, international technology firms and more. "It is our honor to welcome STC Group as the first Saudi member to the Forum. As a global community of technologists that respond to security incidents, we are excited to work with STC

Group to understand better the cyber security challenges organizations in Saudi Arabia face. We look forward to collaborating and learning with STC Group, and hopefully, through them, welcoming more members from Saudi Arabia to the Forum" commented Thomas Schreck, Chair, FIRST "Becoming a member of FIRST demonstrates STC's commitment to be a global cyber security partner to our clients, partners and beyond" commented Mr. Yasser Alswailem – General Manger of Cyber Security for STC Group. "Our commitment is to operate at a world class level when it comes to Cyber Security and this is just one step of many" added Mr. Alswailem. STC will leverage its new standing to exchange technical information, tools, methodologies, processes and best practices with other FIRST members. STC hopes to support the creation and expansion of Incident Response teams in the Kingdom of Saudi Arabia across all sectors.



## Batelco Group Announces 2018 Half-Year Financial Results

Batelco, the regional telecommunications group with operations across 14 countries, announced its financial results for the second quarter of 2018, the three month period ended 30 June 2018 (Q2) and for the first six months of 2018 (H1). Following on from the promising start to the year reported in Q1 2018, the results for the second quarter show strong improvement compared to Q2 of 2017. Q2 Net Profit attributable to equity holders of the company of BD15.7M, up 45% from BD10.8M in 2017 and H1 Net Profit attributable to equity holders of the company of BD28.8M, an increase of 51% over BD19.0M in 2017. Q2 Operating Profit of BD20.2M, up by 29% from BD15.7M in 2017 and H1 Operating Profit of BD40.5M, an increase of 35% from BD29.9M in 2017. Q2 EBITDA of BD36.4M, up by 15% from BD31.7M in 2017 and H1 EBITDA of BD73.0M, an increase of 14% from BD64.0M in 2017. Q2 Revenues of BD100.5M, growth of 10% from BD91.4M in 2017 and H1 Revenues of BD200.0M, an increase of 10% from BD181.1M in 2017. Q2 EPS of 9.4 fils compared to 6.5 fils in Q2 2017, an increase of 45% and H1 EPS of 17.3 fils compared to 11.4 fils in 2017, a 51% increase. The Board of Directors approved an interim cash dividend of 10 fils per share or 10% of paid up capital. Batelco announced net profits attributable to equity holders of the company for the first six months of 2018 of BD28.8M (US\$76.4M) up from BD19.0M (US\$50.4M) for the corresponding period in 2017, an increase of 51%. Similarly, net profit attributable to equity holders of the company for Q2 2018 was reported at BD15.7M (US\$41.6M), a 45% increase from BD10.8M (US\$28.6M) for the corresponding period of 2017. Operating profit for the quarter is up by 29% to BD20.2 (US\$53.6M) from BD15.7 (US\$41.6M) in Q2 2017; while year-on-year operating profits increased by 35% from BD29.9M (US\$79.3M) in H1 2017 to BD40.5M (US\$107.4M) in H1 2018. For the six-month period, EBITDA increased



14% over the corresponding period of 2017 from BD64.0M (US\$169.8M) to BD73.0M (US\$193.6M) and EBITDA margin of 36%. EBITDA for the second quarter of 2018 stands at BD36.4M (US\$96.6M) compared to BD31.7M (US\$84.1M) in Q2 2017, representing an increase of 15%. In line with the first quarter of 2018, revenues for the second quarter have increased by 10% over Q2 2017 from BD91.4M (US\$242.4M) to BD100.5M (US\$266.6M). Revenues for the first six months of 2018 were BD200.0M (US\$530.5M) an increase of 10% when compared to BD181.1M (US\$480.4M) revenues for the first six months of 2017. Revenues have been positively bolstered by strong performance at Batelco Bahrain and Umniah Jordan. In Bahrain, revenues were boosted by improvements in mobile and broadband services and in Umniah revenues were up in all revenue streams with notable growth in digital services and fixed broadband (Fixed LTE). The Group's balance sheet continues to be strong with total assets of BD913.2M (US\$2,422.3M) as of 30 June 2018 compared to BD932.5M (US\$2,473.5M) as of 31 December 2017. Net assets as of 30 June 2018 stand at BD501.1M (US\$1,329.2M) compared to BD502.5M (US\$1,332.9M) as of 31

December 2017. The Group's cash and bank balances are a substantial BD152.6M (US\$404.8M). Total Equity attributable to equity holders of the company is BD460.7M (US\$1,222.0M) compared to BD461.9M (US\$1,225.2M) as of 31 December 2017. Earnings per share (EPS) are 9.4 fils for the second quarter compared to 6.5 fils in Q2 2017 resulting in half year EPS of 17.3 fils compared to 11.4 fils for half year 2017. The Board of Directors approved an interim cash dividend for shareholders of 10 fils per share or 10% of paid up capital for the six month period. Batelco Chairman, Shaikh Abdulla bin Khalifa Al Khalifa, who announced the Half Year 2018 financial results following the meeting of the Board of Directors on July 19th at Batelco's Hamala Headquarters, said that he was very pleased to report the pleasing set of financial results. "We got off to very good start to the year and similar to the first quarter there has been double digit improvement year-on-year. Across our group of operations, our strategic plans are having a positive impact and our teams continue to work diligently to ensure that the needs of each location, with their specific requirements, are met."

## Batelco Continuously Upgrading Communications for Kingdom of Bahrain

As part of its ongoing strategy to ensure its services are of the highest international standards, Batelco, the leading digital solutions provider in the Kingdom of Bahrain is in the process of enhancing its mobile networks in a major upgrade that will elevate communication standards. The upgrade supports Batelco's efforts as the Kingdom's leading integrator of digital solutions. The company continues to invest millions annually in upgrading and building new infrastructure, with the aim of providing the best and most advanced networks and highest quality of

communication solutions in Bahrain. "We are committed to placing customers and innovation at the top of our priorities as the Kingdom's most advanced digital network. We will continue to provide innovative ways for our customers to connect, work and live better and as a result benefit from more convenience carrying out the transactions that have become part of their daily lives," said Batelco A/General Manager Networks Rashid Mohamed. Batelco is working to enhance its mobile network system to provide faster mobile Broadband connections, superior quality,

and new features in order to meet the growing demand for increasingly powerful mobile services. The upgrades will take place over the coming months in collaboration with Ericsson, a world leading telecommunications technology provider. All work will be carried out during off peak hours to ensure minimal impact to service levels for customers. Since its inception, Batelco has embedded innovation as part of its strategy and has been connecting people and places via the latest telecommunications services, to provide a first class customer experience.

## Batelco to Launch ME's First IoT Accelerator

Batelco Bahrain, has launched Brinc Batelco IoT Hub. It is the first Internet of Things (IoT) hardware accelerator in the Middle East region. IOT Hub provides program and services designed for IoT hardware start-ups and entrepreneurs. The Hub offers unprecedented opportunity to access mentorship. The company announced in 2017 that it had partnered with Brinc Mena to launch the Brinc-Batelco IOT Hub. Minister of Transportation and Telecommunications Kamal bin Ahmed Mohammed was present during the opening of IoT Hub. The Batelco chairman Shaikh Abdulla bin Khalifa Al Khalifa said: Batelco believes in the importance of enhancing the growth of technology and particularly digitization, as it's in line with the efforts of developing this field within the Kingdom. These objectives will in turn support the growth of the economy and strengthen the Kingdom's position as the leading regional technology hub. He further added that: Encouraging innovation within the ICT sector is one of the most important factors contributing to the continued growth of the Kingdom's economy. We are very pleased to present Brinc Batelco IoT Hub which will help entrepreneurs achieve their goals in developing and launching innovative products and services. Batelco Bahrain CEO Mohamed Bubashait said: Encouraging innovation in the ICT industry is very important for the continued growth of Bahrain's



economy. We are therefore very pleased to be on board in providing this excellent IOT Hub. Brinc Chief Development Officer and Head of Brinc Mena, Yasin Aboudaoud said: We are confident that the new Hub will be a birthing ground not only for local talent, but also talented entrepreneurs from across the Middle East who yearn to revolutionize the ICT industry by building innovative IoT hardware products for the global consumer market. Moreover, Brinc was established in Hong Kong in 2014 with offices in Shenzhen and Guangzhou. A collective driving force behind one team, Brinc bridges the gap between software, hardware and services.

## Batelco Expands its Cloud Connect Solutions with Azure Microsoft Express Route Service

Batelco, the leading digital solutions provider in the Kingdom, is now an official Microsoft Azure ExpressRoute partner. In collaboration with Microsoft ExpressRoute, Batelco now offers customers' access to Microsoft Cloud Services over Batelco's robust global network consisting of 26+ PoPs around the globe. The opportunity has enabled Batelco to launch a private

network cable that allows dedicated connection to be established between customers' IT environments and Azure datacentres. With this Layer 3 solution via Batelco's well-connected network and extensive global reach, customers can now experience a pre-integrated private network to some of the world's leading Cloud providers. Using Microsoft Azure

ExpressRoute as a solution to meet the growing data communication demands regionally and globally, Batelco can collaborate with its customers to offer them an enriched connectivity experience in terms of lower latency and higher security with improved network performance and reliability. In line with this partnership, Batelco Chief Global Business Officer Adel

Al Daylami commented, "The Cloud is a key driver of business performance and is as good as the network that it runs on. With this new Cloud Connect Solution, Batelco is helping our customers' Cloud applications to excel by converging the Cloud and network onto one platform to make the most of the extraordinary possibilities

that the Cloud has to offer." "Keeping Batelco's vision of digitalization in mind, the essence of this service offering is to meet one of the many facets of today's ever-growing demands for both regional and global data communication so that we ensure tomorrow's business growth," Mr. Al Daylami added. Batelco recognizes

the importance of cloud services for customers and aims to provide reliable solutions to support business needs. Batelco's state-of-the-art owned and operated, resilient IP/MPLS network spans the globe, connecting through network-to-network interface (NNI) arrangements with major world partners.



## du Second-Quarter Net Profit up 1.3% as Fixed-Line Revenue Rises



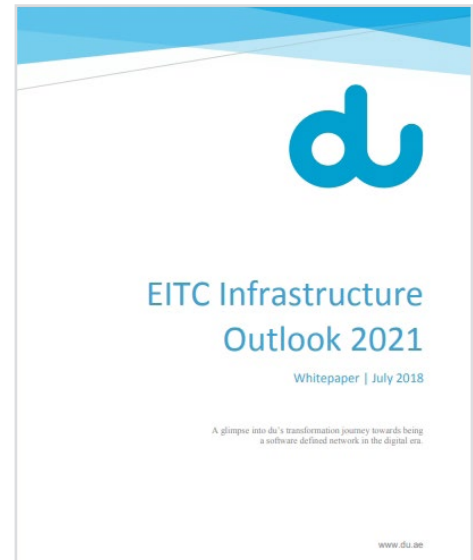
du reported a 1.3 percent increase in second-quarter net profit on Thursday, as fixed-line revenues rose. The Dubai-based operator made a net profit after royalty of Dh453 million in the three months to June, slightly up from Dh447m in the same period last year, it said in a statement on Thursday. EFG-Hermes forecast it would earn a quarterly profit of Dh429m. Total revenues grew 2.9 per cent to Dh3.35 billion but mobile revenues slid 1.6 per cent to Dh1.82bn while fixed-line revenue jumped 9.4 per cent to Dh583m. "Top-line growth was supported by a solid performance in our fixed line business," Osman Sultan, Du's chief executive, said in the statement. "Mobile revenues, although impacted by seasonality with Ramadan and Eid being observed in the second quarter of the year, were stable." Omar Maher, head of telecom sector research at EFG Hermes said the second-quarter figures were more or less what was expected, with no major surprises "except maybe Ebitda margin, which came in a bit stronger, as we expected the margin to be softer due to the seasonality impact of Ramadan". "I believe it is normal to see muted net profit growth considering: it is a mature market, growth is naturally slow; the UAE economy is slowing down; and competition is toughening up," he added. He said for the full year, the main growth driver will remain data and ICT, and, from a macro perspective, the Expo 2020. "Increasing visitors could help improve consumption a bit. In the longer run,

the digitization of the economy and increasing adoption of data across various applications will help ensure stable growth for telecom operators," Mr. Maher said. He said 2018 was likely to be a bit of an "uninspiring" year; the economy is slowing down and "we're seeing evidence in other sectors, eg real estate, and this will affect the telecom sector and Du sooner or later". But in the longer run, beyond 2018, he said the fundamentals of the UAE telecom sector remain the healthiest in GCC/Mena and said his firm's 2018 net profit estimate for Du is Du1.8bn. Regarding du's restructuring program, he said it was too early to see the benefits yet. "This is a longer-term exercise that will take time and investments before we actually start seeing its impact on the numbers." Mr. Maher said. The company said in May it would roll out this year a limited service of 5G, the ultra-high speed mobile broadband that is set to revolutionize the internet, ahead of a wider launch next year. The announcement followed the UAE's largest telecoms firm Etisalat's plans to roll out 5G commercial fixed devices and services this coming September. Du said its board of directors proposed a dividend payment of 13 fils per share, subject to shareholder approval at its general meeting. "Our company had a strong second quarter and a solid first half of the year in 2018, with growth across all our key indicators," said Mohamed Al Hussaini, chairman of Du. "Despite a maturing telecom market, we are pleased to deliver excellent growth in revenue and net profit." Du paid Dh527.5m in government royalty tax in the second quarter, according to a statement on the Dubai Financial Market. The firm's active mobile subscribers declined almost 4 per cent in the second quarter and is not expected to recover in the second half of 2018, Mr Sultan said. The company disconnected some mobile customers at an accelerated rate on the back of the UAE regulator's "My Number, My Identity" campaign. "I do not see this reversing," he said. "A lot of action is taken to stimulate usage but when it comes to pre-paid, and we have a bigger proportion of subscribers that are pre-paid, I do not foresee a reversal." Only 15 to 20 per cent of Du's mobile customer base is in the post-paid segment. However, the average revenue per subscriber continues to grow, he said, without providing figures.

## du Reveals Plans to Become ICT Service Provider

Du has revealed a white paper outlining its transformational journey towards becoming an ICT service provider by 2021 in collaboration with Cisco. In the white paper, the framework for the company's digital transformation in terms of technology adoption is mentioned. Furthermore, it describes how adopting a software-defined approach will help du deliver innovative services. It also ensure its longer-term success, in line with supporting the UAE Vision 2021 strategy. Saleem AlBlooshi, Chief Infrastructure Officer, EITC, said As du drives its transformation agenda to spur expansion into new growth areas, we have been working diligently towards bringing next generation technologies such as 5G, IoT, AI, and blockchain into our network. He further added that: We are collaborating with Cisco to map out how we will power a new breed of solutions and services for our customers over the coming five years. We are excited about the opportunities this will bring to the UAE's ICT ecosystem. du's key strategic pillars in bringing change include a seamless customer experience

across channels, innovative services and solutions. As a leading technology provider, Cisco provides the foundation for digital transformation through its comprehensive product and services portfolio. AlBlooshi added: The ongoing transformation of our industry merges with the pace of technology innovation to create a data-driven economy and an environment where business models thrive in collaborative ecosystems. This makes it imperative for us to transform not only our technology infrastructure, but also the way we operate. We are excited about our transformational journey as outlined through our new whitepaper. Ali Amer, Managing Director, Global Service Provider Sales, Cisco Middle East and Africa, said: Continuously evolving digital technologies and digital user experiences are raising the bar for telecom service providers like du to transform themselves into ICT services providers. Service providers around the world are witnessing immense changes that are forcing them to adapt accordingly. As a technology leader, Cisco is collaborating with du to



evolve their offerings beyond traditional connectivity services. According to Cisco's survey of Middle East and Africa enterprise customers in 2017, five times as many visitors as the resident population visit Dubai during the six months of tourism season. Additionally, this creates a need for flexibility in usage of resources to serve the seasonality.

## du to Launch Voice over LTE Service in Fourth Quarter

du is set to launch its Voice over LTE (VoLTE) service in the fourth quarter of this year, allowing the operator to transmit voice calls over the existing fourth-generation cellular network. Currently, voice calls are carried over the carrier's 2G and 3G networks, while data is carried over 4G. Du had earlier told Gulf News that the service would be available in 2015. Marwan Bin Shakar, vice-president for telco infrastructure planning at du, told Gulf News that VoLTE service has been fully implemented on its network and the service is under the final assessment. "We are working towards obtaining all necessary approvals, internally and from TRA, to start offering the service to the customers," he said. Marwan said that there would be three main advantages of VoLTE – high-definition voice, better clarity and faster connection time. "A person can initiate a call within one second. Today, it is difficult to browse the internet when calling but with VoLTE, it is possible," he said. Meanwhile, he said that du has

already successfully tested VoWiFi (Voice over WiFi) and currently upgrading and modernizing its network to support this service. "This process may take another nine months since many network elements are needed in place. Once the network is ready, the service needs to go through full verification and assessment. Our target is to launch VoWiFi during 2019," he said. He added that both VoLTE and VoWiFi will work with the existing SIM card and will be a seamless change-over. Meanwhile, etisalat is already offering VoLTE in the UAE on certain smartphones since 2015. "VoLTE service is only offered for VoLTE certified capable devices, not all VoLTE supporting devices but only those who have passed the tests successfully and certified by etisalat and the manufacturer," an etisalat spokesperson said. He said that etisalat has auto provisioning for VoLTE capable devices (that has been tested and certified by etisalat) without the need of any SIM replacement or new SIM. The VoLTE-certified smartphone models from

etisalat are iPhones (6 to X), Samsung (S6, S6+, S8 and S8+), Sony (Xperia XZ, XZ1) Lenovo (Moto Z, Moto Z2 Play) and Nokia 8. The devices currently under testing are Apple Watch, Samsung (Note 8), Sony (XA2, XA2 Ultra, Xperia XZ Premium, Xperia XZ2, XZ2 Compact), Lenovo (Moto G6 Play, Moto G6+), Nokia (8 Sirocco) and HTC (U11+). Sanmeet Singh Kochhar, general manager for the Middle East at HMD Global, makers of Nokia smartphones, said that the customer can know whether the call is over VoLTE by checking for an icon next to the signal bar. "We have a dedicated team that works with telecom operators to test our devices. More than hundred use cases are tested on the network before approving it as a VoLTE-certified device. Our new smartphones are being tested by etisalat," he said. The etisalat spokesperson said that VoWiFi service is under TRA and authority approval after which the date of the launch will be decided.

## du Collaborates with Cisco to Drive Its Digital Transformation Journey

du, from Emirates Integrated Telecommunications Company (EITC), in collaboration with Cisco, has unveiled a white paper outlining its transformational journey towards becoming an 'ICT service provider' by 2021. Titled 'EITC Infrastructure Outlook 2021', the white paper sets the framework for the company's digital transformation in terms of technology adoption, transition to digital services, as well as customer centricity and uniformity of experience. It describes how adopting a software-defined approach will help du deliver innovative services, ensuring its longer-term success, in line with supporting the UAE Vision 2021 strategy. "As du drives its transformation agenda to spur expansion into new growth areas, we have been working diligently towards bringing next generation technologies such as 5G, IoT, AI, and blockchain into our network," said Saleem AlBlooshi, Chief Infrastructure Officer, EITC. "We are collaborating with Cisco to map out how we will power a new breed of solutions and services for our customers over the coming five years, and are excited about the opportunities this will bring to the UAE's ICT ecosystem." The Internet of Things (IoT) is shifting connectivity from end-user devices to machine-to-machine (M2M) connections. Cisco estimates that M2M modules will account for 51 percent of all networked devices in 2021, while 43

percent of all networked devices will be mobile-connected, of which smartphones will account for half. "The ongoing transformation of our industry merges with the pace of technology innovation to create a data-driven economy and an environment where business models thrive in collaborative ecosystems. This makes it imperative for us to transform not only our technology infrastructure, but also the way we operate so as to embrace the agility required by the new economic order. We are excited about our transformational journey as outlined through our new whitepaper," AlBlooshi added. Today, consumers expect great service experience and continuity in interaction across channels and platforms and a high degree of interactivity and personalization. Customer expectations are evolving at Internet speeds with continuous introductions of newer digital experiences and services from global OTT players. Always connected, and everywhere, digital consumption is expanding faster in newer dimensions of 'augmented' and 'virtual reality'. "Continuously evolving digital technologies and digital user experiences are raising the bar for telecom service providers like du to transform themselves into ICT services providers," said Ali Amer, Managing Director, Global Service Provider Sales, Cisco Middle East and Africa. "Service providers around the world are

witnessing immense changes that are forcing them to adapt accordingly. As a technology leader, Cisco is collaborating with du to evolve their offerings beyond traditional connectivity services to incorporate a wider gamut of digital lifestyle and enterprise offerings." "Global service providers are now redesigning for efficiency and making rapid adaptation to market shifts by leveraging technologies such as virtualization and software-defined everything. The landscape is no more about 'big eat small,' it has changed to 'fast eat slow,'" added Ali Amer. According to Cisco's survey of Middle East and Africa enterprise customers in 2017, five times as many visitors as the resident population visit Dubai during the six months of tourism season. This creates a need for flexibility in usage of resources to serve the seasonality. In its journey since it was established, du has strived to delight customers with simplicity and natural experiences across its three major customer categories: individual customers, business and government. Leveraging its fibre optic network infrastructure and high-speed wireless internet, du has launched a country-wide initiative called WiFi UAE to provide WiFi access to the public, in line with UAE Vision 2021, and is a strategic partner for Dubai government's Smart Dubai initiative to integrate technologies like ICT and IoT into its infrastructure.



## Etisalat's E-Marine Bags the Prestigious MARS Project to Connect Islands in East Africa

E-marine, the leading company in providing marine engineering and installation services for submarine cables in the region, bagged a contract from Huawei Marine Networks to install the 'Mauritius and Rodrigues Submarine Cable System' (MARS), which covers a distance of 700 km connecting two islands in the Indian Ocean. The MARS cable will help boost internet connectivity through the provision of high-speed, large capacity bandwidth between the two islands located off the coast of

East Africa. Omar Jassim Bin Kalban, Chief Executive Officer, E-marine said: "E-marine has worked on several local and international projects in the past providing an infrastructure that is robust and is able to meet the high capacity requirements of that country or region. We are committed to efficiently manage and implement these large-scale projects with innovative technologies and solutions. E-marine looks forward to work with Huawei Marine Networks on the MARS project which will

bring enhanced connectivity to the East African region." Mike Constable, Chief Executive of Huawei Marine said, "As a global provider of submarine network solutions, Huawei Marine is pleased to partner again with E-Marine to deploy our high-speed submarine cable infrastructure which will help facilitate further economic development in the region". E-marine has worked on several projects across the region and maintains more than 100,000 km of submarine cables.

## Etisalat Joins Leading Global Operators in Adopting GSMA's IoT Security Guidelines



Etisalat announced that it is adopting the GSMA's IoT security guidelines that outline best practices for the secure design, development and deployment of IoT services. These IoT Security Guidelines, backed by an IoT Security Assessment scheme, are targeted for IoT service providers, device manufacturers,

developers and mobile operators. They address typical cybersecurity and data privacy issues associated with IoT services and outline a step-by-step process to securely launch solutions to market. The GSMA IoT Security Guidelines:

- Include 85 detailed recommendations for the secure design, development and deployment of IoT services
- Cover networks as well as service and endpoint ecosystems
- Address security challenges, attack models and risk assessments
- Provide several worked examples

Globally AT&T, China Telecom, China Unicom, Deutsche Telekom, Etisalat, Orange, Telenor, Telefónica, Telia and Turkcell are the operators in agreement to adopt these practices that will set out a comprehensive security assessment scheme to help ensure IoT services are protected against IoT security risks. There will be a reach of 3.1 billion IoT connections by 2025, according to GSMA Intelligence.



## Sudatel and Nokia to Collaborate on Delivery of Ultra-Broadband Services in Sudan

Nokia and Sudatel are to trial Nokia 4.5G Pro, 4.9G and 5G mobile technologies along with Nokia's fixed fiber-to-the-home (FTTH) portfolio to enhance the mobile and residential broadband experience in Sudan. The collaboration will focus initially on the capital city of Khartoum. Under its 2020 Strategy, Sudatel is focused on transforming its fixed access and mobile service offerings. The company wants to enhance the subscriber experience on any device, in the home and on-the-move with high-speed delivery of voice, data and video and fixed and mobile packages, as well as e-government, e-health and other consumer and business services. Nokia and Sudatel will conduct several different use-case tests using Nokia fixed and mobile technologies in Nokia Laboratories in Espoo, Finland and Antwerp, Belgium. With an initial focus on enhancing mobile data services in Khartoum, the companies will evaluate how the 5G-ready AirScale radio access portfolio, can increase capacity and speeds today while providing a path to 5G in the future. In addition, Sudatel will leverage Nokia's passive optical networking (PON) fiber solutions to enhance the residential broadband experience. The companies will conduct a high-speed fixed technology trial in Khartoum, starting in July. Mr. Tarig Zain El Abdein, President and Chief Executive Officer, Sudatel Telecom Group, said: Sudatel is pleased to sign this strategic technology partnership with Nokia for the development of leading ultra-broadband services in Sudan and contribute to enhancing the Broadband Development Index. Bringing Nokia's technology



expertise and innovations to Sudan is very strategic for us in the execution of our vision of becoming the most admired ICT provider in Africa." Pierre Chaume, head of North & West Africa at Nokia, said: "We are able to offer a wide range of fixed and mobile technologies to meet our customers' business goals. Working together with Sudatel, we can leverage technologies that will support Sudatel's 2020 Strategy of becoming the most admired ICT provider in Africa, and enable them to deliver the services that meet the growing business and personal demands of their subscribers."



## Sudatel Participates in Global Telecoms Event in Rwanda

Sudatel is exhibiting at the GSMA's Mobile360 Africa summit which takes place this week in Kigali, Rwanda. Mobile360 will see leaders from major companies including Safaricom, Google and Ecobank gather to shine a spotlight on Africa's digital revolution, celebrate innovations, and harness the creative power of a changing environment. This is the first time Sudatel has participated in the Mobile360 Africa summit although it has twice exhibited at the GSMA's global event Mobile World Congress in Barcelona. Sudatel will be discussing its plans for the future at Mobile360 as well as explaining its pan-African offering.



## Telecom Egypt and Etisalat Misr Sign Two Agreements for National Roaming and Mobile Termination



Telecom Egypt and Etisalat Misr announced the signing of an amendment of the national roaming agreement sealed in June 2017. The amendment provides better financial and service quality terms availing improved commercial conditions for Telecom Egypt. The latter is a result of the development of the volume of Telecom Egypt's data traffic. The new agreement involves national roaming services on

Etisalat's network for Telecom Egypt voice and data traffic. The agreement ends in December 2022. The two companies also signed a letter of intent (LoI) for mobile termination rates, which included a preferential termination rate for Telecom Egypt. The LoI aims to put a framework for the interconnection rate between both operators and is considered the first arrangement on mobile interconnection

for Telecom Egypt. Ahmed El Beheiry, Managing Director and Chief Executive Officer, commented: "The signing of these agreements with Etisalat Misr is a crucial and beneficial step for Telecom Egypt as it enhances the company's profit margins as well as the quality of service provided to its mobile customers. The agreements are also a testament of the strong partnership developed with Etisalat Misr across several services including international voice services, national roaming, site sharing as well as the anticipated partnerships in access services. It is important to note that the signing of these agreements is a step in the company's strategic plan, which aims to improve the margin of mobile services through reducing the relative cost of national roaming and interconnection concurrently with the continuation of the roll-out of Telecom Egypt's own 4G network." Hazem Metwally, Chief Executive Officer of Etisalat Misr, commented: "We are pleased with the signing of the national roaming and mobile termination agreements with Telecom Egypt. Such agreements are mutually beneficial for both companies as well as their customers. Etisalat Misr has the best coverage and the most advanced technology in the Egyptian market, which enables it to provide the best quality service to its customers."

## Telecom Egypt and Liquid Telecom to Complete Pan-African Fiber Network



Telecom Egypt and Liquid Telecom have signed a new deal to fast track the roll out of full fiber telecommunications networks across North Africa, according to a company release. The Memorandum of Understanding will enable the completion of Liquid Telecom's pan-African network, which stretches across the continent. "Liquid Telecom will link its network from Sudan into Telecom Egypt's network via a new cross-border interconnection – bringing together a 60,000 km network that runs from Cape Town, through all the Southern, Central and Eastern African countries, and has now reached the border between Sudan and Egypt," the two companies said in a statement. The two companies are yet to provide details of the estimated cost of the project, or a completion date. "Completing our vision of building a single network running on land, all the way from Cape to Cairo is a historic moment for the company and for a more connected Africa," said Strive Masiyiwa, founder and executive chairman of Liquid Telecom's parent company Econet. Liquid Telecom's full fiber network covers Botswana, The Democratic Republic of Congo, Lesotho, South Africa, Zambia and Zimbabwe. It also has a presence in Rwanda, Kenya and Uganda, making it one of Africa's biggest connectivity specialists.

## Telecom Egypt and Orange Egypt Sign Three Agreements

Telecom Egypt and Orange Egypt have renewed the international telecom services agreement that the pair signed back in January 2015 for a further four years. In announcing the development, Telecom Egypt said that the new agreement will end in December 2022 and is expected to contribute EGP4 billion (USD223 million) to its top-line over the duration of the deal. Meanwhile, the two operators have also signed a new transmission services agreement, which is valid until December 2021; this agreement is expected to contribute EGP1.5 billion to Telecom Egypt's revenues. Rounding out a trio of freshly-linked deals, it was confirmed that Telecom Egypt and Orange Egypt had also put pen to paper on a binding letter of agreement for mobile termination rates (MTRs). It was noted that this agreement formalizes the framework for interconnection between both operators and represented 'a major step for Telecom Egypt towards finalizing all mobile termination agreements'. Ahmed El Beheiry, Telecom Egypt's CEO and Managing Director, was cited as saying: 'The signing of these agreements with Orange Egypt supports our long-term relationship with the company as a

strategic partner. Our model of long-term agreements with the domestic MNOs in the field of transmission and international telecom services aims to secure our revenue stream from these segments, while providing the MNOs with competitive

offers commercially and technically that meet their needs. The mobile termination agreement is also an important milestone, which provides visibility on mobile termination rates and improves our gross margin for this segment.





## VIVA Kuwait Launches 'VoLTE Plus'



VIVA, Kuwait launched Voice over Long Term Evolution Plus 'VoLTE Plus' technology for users of iPhone 8, iPhone 8 Plus, and iPhone X and iOS 11.3 or higher (both caller and receiver). VIVA is first telecom operator in the region to offer this new service to its customers. Through VoLTE, VIVA's customers will be able to experience combined voice and internet traffic seamlessly and simultaneously on LTE network. This allows customers conduct high-quality calls and video calls with no buffering and less background noise and enjoy unbeatable voice clarity experience. VIVA aims to provide its customers with an integrated and complete voice and data solution as well as the latest in the world of technology. Mr. Abdulrazaq Bader Al-Essa, Corporate Communications Director at VIVA, commented: "We are always proactive at VIVA, providing unique and unrivaled services and products to our customers. We have pledged to enrich their lives through our innovative strategy and vision not only as a technology leader, but also as a truly customer-centric company." Starting today, iPhone customers on VIVA can make wideband, high-quality phone calls using Voice over LTE (VoLTE). Please see [www.viva.com.kw](http://www.viva.com.kw) for more details. It's noteworthy to mention that VIVA was the first telecom company in the state of Kuwait to launch Voice LTE on June 2015 for Samsung users.



## Zain Bahrain, Swiss-Bel Residences Juffair Sign Enterprise Deal

Zain Bahrain has announced a new enterprise partnership with Swiss-Bel Residences Juffair to provide a full connectivity solution for hotel operations as well as facilities with high-speed internet. The partnership was signed at Zain Tower in Seef District between Yazan Zaytoon, Zain Bahrain Enterprise sales manager and Bartlomiej Mart, Swiss-Bel Residences Juffair hotel manager. "Zain Bahrain is happy to be broadening their partnership with Swiss-Bel Residences. Such a collaboration goes further to demonstrate a sincere commitment in delivering a total communications solution to customers and providing industry-leading customer service," said Shaikh Abdulla, Shaikh Abdulla Al Khalifa, Zain Bahrain director of corporate communications and investor relations. "Zain Bahrain is pleased to be the enterprise solutions partner of Swiss-Bel Residences allowing us to empower the hotel and its residences with higher



speed and secure backbone network and share the best levels of service with our customers," added Zaytoon. "We are happy to be able to offer our tenants, a seamless high-speed internet access through Zain Bahrain outstanding network and customer service. This agreement also affirms our commitment to utilizing

and delivering the highest quality services available in the market," said Mart. Swiss-Bel Residences Juffair is an upper midscale hotel apartments complex featuring 129 well-appointed two and three-bedroom serviced units each equipped with fabulous facilities including a full-fledged kitchen, expected to open by Q4 2018.



## Cisco Helps Orange Romania Complete 5G FWA Trial

Orange and its vendor partners have published details of its 5G fixed wireless access (FWA) trial in Romania. The trial, which is the first in Europe, was announced back in February and started operations at the beginning of June. The multi-vendor environment was always intended to run for just a month, to demonstrate how 5G can complement existing fiber deployments to deliver high-quality and high-speed bandwidth services. Speaking at an event yesterday, Yves Martin, CMO of Orange Romania, said they had registered 15 “real” customers in the city of Floresti to test set-up and operation, as well as applications that included gaming, video streaming and remote working. “Some customers tell us it’s even better than fiber, especially in terms of multiple connections,” he said. Fifteen might not be many, but it was enough for Orange and its partners Cisco and Samsung to sample customer reaction to 5G FWA and to experiment with the network architecture in a reasonably controlled environment. “This was a test that brings us closer to the future,” said Liudmila Climoc, CEO of Orange Romania (translated), “an opportunity to better understand how the technology performs in real-world use, the challenges that may arise in the implementation of new technologies and the benefits it can bring our residential or business customers.” Samsung supplied a virtualized RAN, 5G radio access units and multiple indoor and outdoor 5G routers (CPE), plus 5G radio frequency planning services. Cisco supplied its Ultra Gateway Platform with 5G virtual packet core on top of NFV Infrastructure, deployed with Control and User Plane Separation (CUPS) for better throughput and flexibility. It also provided its Meraki Z3 home WiFi routers. Samsung and Cisco have been partnering since 2017 on 5G interoperability tests. A fibre backend connected to the Orange data center. “We

wanted to test the technology maturity in a real-life environment with real customers,” said Ștefan Slavnicu, CTO, Orange Romania, speaking at yesterday’s event. “There were some challenges with the installation, such as re-thinking the transport solution. We had the fiber experience over a wireless solution, with very good installation speed. 5G FWA service coverage was even higher than we had computed in simulations.” Orange Romania had access to the 26GHz mmWave band for the trial period, and used Massive MIMO and beamforming from the access points. The telco says it was able to achieve coverage beyond 1km at 1Gbit/s speed for a single user in real live conditions. Measurements in these conditions also show aggregated cell downlink throughputs of 3Gbit/s with four simultaneous users, although the system capacity is significantly higher. “Thanks to this first successful test of 5G FWA in the 26GHz band, Orange has been able to verify several use cases enabled by

this technology,” said Arnaud Vamparys, SVP, Radio Networks and Microwaves, at Orange. “We can now better understand the way in which this technology works in real usage environments in order to complement wireline solutions. This is a major step in driving forward the development of 5G in Europe and Africa.” “With 5G we have the opportunity to help service providers like Orange broaden their portfolios to deliver new levels of connected experiences for consumers, businesses and governments,” said Yvette Kanouff, Senior Vice President and General Manager, Service Provider Business, Cisco. “Our work with Samsung and Orange on this project is a great example of how we are enabling an innovation eco-system to test and deliver a broad range of 5G services that will offer the communities in Romania faster connections to more devices and applications that make their lives better.”



## Cisco Networking Academy Helps Narrow the IT Skills Gap in the Middle East

Cisco in the Middle East celebrated several accomplishments of the Cisco Networking Academy®, its IT skills and career-building program available to learning institutions and individuals worldwide. As recognition of its contribution to narrowing the IT skills gap in the region, Cisco Networking Academy was honored with two coveted industry awards - 'Network Training Provider of the year' at the Network World Middle East Awards 2018 and 'Training Provider of the year' at the Channel Middle East Awards. With over 520 active academies across 14 countries in the Middle East, more than 55,000 active students, close to 1,200 instructors and an average female student participation of 28%, Cisco Networking Academy has been helping fill the regional demand for skilled ICT professionals for over 20 years. "As many Middle East countries accelerate their digitization initiatives and continue to drive economic diversification efforts, there is a growing need for skilled, tech-savvy people. Cisco is committed to support the innovation, talent and entrepreneurship ecosystem in the Middle East and contribute to the

knowledge economy," says David Meads, Vice President - Middle East & Africa, at Cisco. "The skills gap, particularly in the ICT field, continues to be a top government priority and this is where Cisco Networking Academy is making a significant impact by developing local talent. We work closely with local schools, universities and government organizations. The education Cisco Networking Academy has the power to change people's lives, elevate careers, and transform communities. We have trained over 295,000 students in the Middle East over the last 20 years," Mr. Meads added. Cisco Networking Academy is the company's longest-running and largest corporate social responsibility program. It provides a broad and deep IT curriculum for students of all backgrounds, teaching the hands-on technical and business skills they need to succeed. Additionally, with many industries experiencing a shortage of IT talent, Cisco Networking Academy seeks to give students the skills most in demand worldwide and helps create a trained, diverse workforce for the digital economy. Since founding Cisco Networking Academy® in 1997,

Cisco has made \$2.6 billion in in-kind contributions of tools, resources, and support to students, schools, and instructors worldwide. Curriculum and training for the network's more than 22,000 instructors are provided free of charge to academy partners, which include high schools, colleges, universities, and other nonprofit community organizations. In line with Cisco's culture of innovation, Cisco Networking Academy remains dedicated to evolving the program curriculum to meet the ever-changing IT skills demand, including big data and analytics, cloud, cyber security, automation, machine learning, and artificial intelligence. "Cisco Networking Academy plays a crucial role in Cisco's commitment to positively impact over one billion people by 2025 through digitization. We are proud of what it has achieved both globally and here in the Middle East. For over 20 years, Cisco Networking Academy has inspired people to take on the trends, technologies, and challenges changing the world," Mr. Meads concluded.

## Cisco Named Key Players in Global IIoT

Industrial internet-of-things (IIoT) providers should see positive growth in their businesses along with accelerating demand. The global IIoT market is expected to grow from \$64 billion this year to \$91.4 billion by 2023, according to a new report by MarketsandMarkets, which expects a compound annual growth rate (CAGR) of 7.4 percent. Cisco, GE, Intel, Texas Instruments, Honeywell and IBM are among the key players in the IIoT market, the report says. Growth will be driven by SMBs increasingly adopting automated systems. Also, automation reduces production costs, thereby lessening expenses and increasing return on investment

of the overall process, according to MarketsandMarkets. The IIoT market for smart beacons is expected to grow at a significant rate between 2018 and 2023. Smart beacons are signal transmitters that are mostly battery powered and can be configured with the help of a mobile app. When Bluetooth-enabled devices, such as smartphones and tablets, come within the vicinity of a beacon, the signal turns on the application in these devices and triggers activities associated with the beacon signal. Governments in the United States, Germany, the United Kingdom, France and China have taken initiative to encourage manufacturers to increase

their investments for IIoT adoption. The manufacturing vertical is expected to hold the largest share of the IIoT market this year; however, agriculture is expected to grow at the highest CAGR through 2023. Asia Pacific, a major manufacturing hub, is expected to sport the highest CAGR through 2023; however, North America is expected to hold the largest share of the IIoT market this year, driven by initiatives by governments and large enterprises to encourage development and implementation, and investments in the research and development of IIoT solutions.



## DE-CIX Services Now Available at EMC HostCo in Munich

DE-CIX, the world's leading Internet Exchange operator, is expanding its presence in the Bavarian capital of Munich. DE-CIX services – such as DirectCLOUD, GlobePEER, GlobePEER Remote, and MetroVLAN – are now also available in the data center of EMC HostCo GmbH. This makes EMC HostCo's data center the third “DE-CIX enabled site” in Munich. With this step, DE-CIX is further pursuing its expansion strategy in the core market

of Germany. “Munich is home to a diverse and broad range of global players and SMEs, large companies and start-ups, which makes it a very important location for DE-CIX strategically. Strengthening our presence there through new partnerships – such as that with EMC HostCo – is therefore an absolute priority,” says Dr. Thomas King, Chief Innovation Officer at DE-CIX. “Our partnership with DE-CIX is a potent indicator of Munich's digital

heartbeat and a perfect complement to the strategy of our connectivity hub,” states Bernhard Huter, CEO at EMC HostCo. DE-CIX in Munich is one of its five locations in Germany (Dusseldorf, Hamburg, Berlin, and Frankfurt) and one of 13 locations worldwide. DE-CIX in Frankfurt is the world's largest Internet Exchange with over 6.4 Terabits data throughput per second.



## Eutelsat Partners with Intelsat and SES in U.S. C-Band Spectrum Proposal

### Satellite Leaders Combine Forces for U.S. C-band Spectrum Proposal



Agreement furthers the U.S.-specific proposal which would protect C-band video and data transmissions and support accelerated 5G rollout by mobile operators Luxembourg and Paris, 12 July 2018 – Leading global satellite operators Intelsat S.A. (NYSE: I), SES (Euronext Paris: SESG) and Eutelsat (Euronext Paris: ETL) announced today that they are aligned on a market-based proposal for the future use of the lower C-band spectrum in the U.S. Eutelsat has agreed to join the breakthrough proposal initiated by Intelsat, Intel and SES. The market-based proposal was developed in response to a proceeding initiated by the U.S. Federal Communications Commission (FCC). The proposal reflects the unique U.S. telecommunications environment and aims to protect the quality and reliability of the extensive services provided by satellite operators in the C-band spectrum to U.S. broadcasters, media, and data companies. The proposal establishes a commercial and technical framework that would enable terrestrial mobile operators to quickly access spectrum in the 3,700 to 4,200 MHz frequency band in the U.S., speeding the deployment of next-generation 5G services. C-band spectrum plays an essential role in the U.S. broadcasting ecosystem, delivering seamless distribution of video and audio programming

to more than 100 million U.S. households, and reliably providing critical data connectivity in rural areas and emergency situations, as well as services delivered to the U.S. government. The proposal specifies the use of a consortium, which is open to all satellite operators delivering services in the C-band downlink frequencies in any part of the lower 48 United States. The consortium will oversee the governance of the initiative, define and implement the methodology for spectrum clearance, and serve as the sole interface for market-based transactions with parties interested in deploying terrestrial mobile services in specific portions of the C-band. With Eutelsat joining the proposal, the three satellite operators will continue to work with customers, other stakeholders, and the FCC on the market-based proposal. The next phase of this effort will begin with the FCC's planned adoption of a Notice of Proposed Rulemaking on Thursday, July 12. Intelsat, SES and Eutelsat together represent a very substantial majority of the relevant satellite C-band spectrum in use in the U.S. “We are pleased to be joining this proposal which aims to create fair conditions for the shared use of C-band with mobile operators in the U.S. while protecting the quality of services provided to our customers over the long term,” said Rodolphe Belmer, CEO of Eutelsat. “By joining this collaborative process, we will be able to advance our interests and those of our clients and contribute to the momentum of the initiative.” In a joint statement, Intelsat CEO Stephen Spengler and SES President and CEO Steve Collar said: “We are pleased to have Eutelsat join Intelsat and SES in this endeavor, demonstrating that the industry is able to unite, collaborate and fully implement our market-driven proposal. Our solution is the only one which will maintain the high quality of the hundreds of incumbent services operating in the C-band today, protect the significant investments in space and ground infrastructure delivering these crucial services while also supporting the U.S. goal of accelerating the 5G era.”



## Facebook Wins Premier League Rights for South East Asia

In what could be a game-changer for not only the region but also far beyond, social media behemoth Facebook has sealed a US\$200 million rights deal to stream English Premier League matches in parts of Southeast Asia from 2019. The landmark deal will see all 380 league matches broadcast by the social media giant in Thailand, Vietnam, Cambodia and

Laos until 2022, according to The Times. Facebook outbid television networks beIN Sports and Fox Sports Asia, the report said. It follows Facebook's failure last year to acquire the rights to Indian Premier League (IPL) cricket, after being beaten by Star India's \$2.55 billion bid. The deal will represent a significant expansion on its sports broadcasting assets. Facebook

currently streams Major League Baseball, College Basketball and occasional Champions League football games in the US in a partnership with Fox Sports. This deal follows a recent English Premier League agreement with digital video player Amazon, which will be licensed to broadcast 20 live matches from the 2019/20 season.

## Facebook Scraps Connectivity Drone Project

Facebook abandoned development of its own internet-beaming drones for unconnected regions in favor of working with aerospace companies on similar airborne connectivity solutions. The company had been working on its Aquila project since 2014 and planned to use the high-altitude, solar-powered drones to provide internet connectivity in hard to reach areas – including underserved regions and areas affected by natural disasters. In a statement Facebook said its project made significant progress in both drone design, through its development center in the UK, and in perfecting the connectivity technology needed to run high-altitude systems. It also noted

progress with regulators on spectrum and aviation policy. However, with leading aerospace companies now investing in similar technologies, Facebook said it would instead collaborate on their projects. "It's been exciting to see leading companies in the aerospace industry start investing in this technology," the company stated. "Given these developments, we've decided not to design or build our own aircraft any longer and to close our facility." "Going forward, we'll continue to work with partners like Airbus on [high altitude pseudo satellite] HAPS connectivity generally, and on the other technologies needed to make this system work, like flight control computers and

high-density batteries." In addition to systems developed by aerospace giants, rival Alphabet is also developing airborne connectivity provision for underserved areas through its Project Loon, having previously scrapped a plan to use drones. Facebook announced the closure of the unit almost a year to the day it revealed details of its second test flight. At the time, it said details from the test would "continue the Aquila program's progress to help bring the world closer together through connectivity". It was not all smooth sailing, however: the project endured a torrid first test with significant damage caused when its original iteration crashed after 90 minutes due to a "structural failure".



## Google Takes African Startups under Its Wings



Silicon Valley giant Google is expanding its regional mentorship program for top early-stage technology startups in Africa, with the aim of helping them become commercially viable. The Launchpad Accelerator Africa program started off with six countries at its launch eight months ago – Kenya, Uganda, Tanzania, Ghana, Nigeria and South Africa. Beneficiary firms received \$10,000 each equity-free cash grants, and have so far raised more than \$7 million between them. Now Google has spread its wings to include technology startups in Rwanda, Zimbabwe, Cameroon, Botswana, Senegal, Ethiopia, Cote d'Ivoire, Egypt, Tunisia, Morocco and Algeria. At stake is \$3 million in funding, working space and access to expert advisers from Silicon Valley and Africa, over the next three years. Folagbade Olatunji-David, who heads startup success and services

at the Launchpad Accelerator Africa program said that in order to benefit, the startup must seek to find solutions to a need in its home city, country or Africa, and create value for its users. "These startups must be based in sub-Saharan Africa, their target must be the African market, and they need to have raised seed funding," said Mr. Olatunji-David.



## Huawei 2017 Sustainability Report: ICT Technologies as a Key Enabler of Global Sustainable Development

Huawei has released its 2017 Sustainability Report demonstrating the initiatives undertaken in the year across four areas: Bridging the Digital Divide; Supporting Network Stability and Security and Protecting Privacy; Promoting Environmental Protection; and Building a Healthy Ecosystem. Over the past year, Huawei has actively benchmarked its operations against the United Nations Sustainable Development Goals to achieve its strategic goals in sustainability. "At Huawei we wish to leverage our expertise to build a sustainable, fully connected, and intelligent world. We see a future where every person, home and organization enjoys the benefits of innovation and connection," said Huawei Chairman Dr. Howard Liang. "As we encourage more inclusive and sustainable global economic growth, we sincerely hope to contribute more to our world and the future." ICT technologies have become a key enabler of global sustainability. As part of Huawei's contribution to sustainable development, it continues to increase its R&D investment, innovate in ICT, and bring the fruits of this innovation to more people. In 2017, Huawei's innovative WTTx solution helped resolve last-mile access issues in both densely populated cities and sparsely populated rural areas. This solution

reduces connectivity costs by 75% and makes network roll-out 90% faster. The company also deployed RuralStar 2.0, a solution for rural networks, for 12 carriers in eight countries, including Thailand, Ghana, and Mexico. This solution helps increase network coverage in rural areas, allowing more people, especially those in under-developed regions, to access the online world. Huawei's Mobile Money solution enables carriers and banks to deliver innovative, reliable mobile banking services without adding too much to their asset base. It has been deployed in 19 countries and serves over 152 million users. This solution makes financial services simpler and more accessible, driving financial inclusion. "We actively benchmark our operations against best industry practices to keep ourselves up-to-date. We now intend to set more aggressive goals and pursue innovation in sustainability practices, as this can help improve the sustainability of the whole industry," said Kevin Tao, Board Member and Chairman of Huawei's Sustainable Development Committee, when discussing Huawei's future plans for sustainability. "The road to sustainability must be one of openness and growth for the whole ecosystem. Only in this way can businesses generate commercial value



sustainably and share success with other industry players," Tao said. The report by Huawei was prepared in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines. Huawei engaged Bureau Veritas, an external assurance provider, to verify the reliability, fairness, and transparency of the report.

## Huawei to Focus on R&D to Meet Growing Demand in UAE Markets

Huawei aims to continue its success in the UAE by focusing on Research and Development (R&D), among other things, according to Li Xiangyu, deputy chief of communications and public relations. According to Gulf News, Huawei is giving R&D a priority and allocating a considerable chunk of its revenues in that area. Nearly 80,000 employees were engaged in R&D, and they comprise 45 per cent of the workforce, according to the company's 2017 annual report. Huawei's R&D expenditure totalled CNY 89.7 billion which is nearly 14.9 per cent of the company's revenue. Huawei staff are working hard on

development since they are serving 170 countries, he said. In 2017, the company shipped 153 million smartphones, and its global brand awareness has increased to 86 percent. The number of consumers considering buying a Huawei device in markets outside China saw a year-on-year increase of 100 percent, which put Huawei among the top three global vendors in this category for the first time, according to the report. Commenting on the company's strategy in the UAE market, Li said it build on its good reputation and continue to gain the trust of its partners and the UAE's two carriers, Etisalat and Du. The

future also looks good for the enterprise markets, and the market is huge between the enterprise and consumer in the region, the spokesperson said. According to the 2017 annual report, the Europe, the Middle East and Africa (EMEA) region generated a 4.7 percent increase in revenues due to the accelerated pace of digital transformation among enterprises and a growing share of the smartphone market. Other regions such as Asia-Pacific and the Americas recorded a 10.3 percent increase and 10.9 percent decrease respectively.



## Huawei Sees Key Role for C-Band 100MHz/Operator in 5G Business Success

At the Fourth Annual Asia-Pacific Spectrum Management Conference Huawei said that the commercial success of 5G will depend on the availability of continuous large bandwidth (100 MHz per operator). In a conference keynote, Du Yeqing, Vice President of Huawei's 5G Product Line said: "C-band is the golden spectrum for 5G. It has been released or will be released for operators in countries worldwide. Continuous large bandwidth (100 MHz per operator) will be the cornerstone for 5G business success." Du Yeqing, Vice President of Huawei 5G Product Line, Delivered the Keynote Speech "C-Band 100MHz/Operator for 5G Business Success" He noted that continuous large bandwidth will improve both investment efficiency and user experience by 10 times and promote MBB to new heights, so users can enjoy high quality services anytime and anywhere. Du said that the current focus of 5G is to coordinate C-band spectrum planning, but that other key technologies and requirements must not be overlooked. For example, uplink-downlink decoupling can reduce the number of sites and associated costs by enabling

5G deployment on existing 2G/3G/4G spectrums and allow continuous coverage on C-band. On top of that, 5G networks require precise synchronization, reduced interference, less spectrum isolation, and higher spectral efficiency. Countries with insufficient C-band spectrum can allocate 100 MHz of continuous large bandwidth on TDD 2.6/2.3 GHz to each operator. This will improve investment efficiency, while helping to prepare for an evolution towards high bandwidth 5G. MBB underpinned by spectrum resources is a driving force for GDP growth. Huawei's 2018 Global Connectivity Index (GCI) indicates that countries prioritizing the construction of ICT infrastructure enjoy substantial economic benefits. It is estimated that by 2025, the digital economy will account for a market value of US \$6.4 trillion. Huawei was one of the organizers of this year's Asia-Pacific Spectrum Management Conference, which was hosted by Forum Global, the International Telecommunication Union (ITU), and the Asia-Pacific Telecommunity (APT), was held in Bangkok from July 17 to July 19. The purpose of annual conference is to

provide a forum for government regulators, telcos, telecoms equipment makers and other industry stakeholders to come together to discuss how to best promote spectrum allocation and formulate a clear set of industry policies. Topics discussed included how to expedite new LTE spectrum allocation in the Asia-Pacific region, and enable the continuous evolution of All Business Connected@LTE in the 5G era. Participants also exchanged views on how to ensure implementation of industry policies for wireless home broadband, rural networks, indoor digitalization, IoT, and the microwave industry. Stakeholders also called for practical 5G spectrum allocation plans and the selection of appropriate technology to maintain sustainable and effective growth of all mobile business in the Asia Pacific region. Mobile broadband (MBB) is booming whereas spectrum resources are growingly scarce. Huawei, as a world-class provider of ICT infrastructure and intelligent terminals is fully committed to maximizing spectral efficiency by pursuing new and innovative technologies. Such solutions aim to help Asia-Pacific operators in addressing capacity challenges, including SingleRAN Pro based 4T6S, Massive MIMO, site densification, and spectrum evolution. In addition, the introduction of Huawei CloudAIR 2.0 will support flexible demand-based spectrum allocation between GSM, UMTS, LTE, and 5G NR, and increase spectral efficiency. In terms of spectrum and technology selection and capacity requirements, Asia Pacific operators in Thailand, Sri Lanka, Myanmar, Malaysia, and Indonesia believe that spectrum combination (low frequency, intermediate frequency, and high frequency) is the correct response to 4G and 4.5G coverage/capacity/service layer requirements. This will effectively improve user experience and spur operators' growth. The solution should prove to be the prevailing method for deploying LTE networks and spectrums in the upcoming 5G era.



## Huawei Conducts Strategic Workshop with Bahrain's Ministry of Transportation and Telecommunications

Huawei, a leading global provider of ICT infrastructure and smart devices, conducted a workshop at the Ministry of Transportation and Telecommunications to discuss progress and future plans to accelerate the arrival of 5G in Bahrain. During the workshop, HE Eng. Kamal bin Ahmed Mohammed, Minister of Transportation and Telecommunications, discussed with Mr. An Jian, President of Carrier Network Business Group, Huawei ME, the current state of 5G readiness in the Kingdom, and ways to harness the new game-changing technology to diversify Bahrain's economy and achieve the goals of its Economic Vision 2030. The workshop held at MTT came on the heels of a series of workshops carried out in Bahrain this year. Last month, four workshops took place in the Kingdom to discuss challenges and opportunities in 5G wireless communications and 5G-related network evolution. Key industry leaders delivered keynote speeches and exchanged ideas on a number of the industry's most pressing challenges, including steps to make Bahrain more network ready for 5G, how to accelerate wireless communication to enable cloud-based wireless networks, and most promising 5G use cases that will help to accelerate achieving the goals of the Kingdom's national agenda

and vision. HE Eng. Kamal bin Ahmed Mohammed, Minister of Transportation and Telecommunications, said: "We are on the verge of welcoming 5G in the Kingdom, and the arrival and early adoption of this technology will position the Kingdom as a leading player in the region, and help us achieve the goals of our Economic Vision 2030. Our longstanding and valued partnership with Huawei has ensured that Bahrain continues to adopt the latest technologies and infrastructure to boost the Kingdom's efforts in digital transformation and in building knowledge-based economy." Mr. An Jian, President, Carrier Networks Business Group, Huawei Middle East, commented: "With the anticipated launch of 5G, it is essential for countries in the region to plan and deploy their 5G ready infrastructure to embrace the new technology that is set to disrupt the way we do business. At Huawei, we have been working tirelessly with our partners and local governments to make sure they are on track with 5G development, collaborating with them to nurture ICT talents, and working to build an open ecosystem that will bring digital to every person, home and organization for a fully connected, intelligent world." Huawei has long been a strategic partner in the Kingdom's ICT agenda. Other than

industrial collaboration, Huawei has also launched a number of initiatives to support ICT talent development, such as the Huawei Middle East ICT competition and the "Seeds for the Future program, as well as internships where students engage in training under the supervision of Huawei professional mentors, and taught courses in various ICT-focused domains. Huawei is currently leading the industry in preparing commercial solutions for 5G Fixed Wireless Assets (FWA). These assets will bring to consumers the first tangible impact of 5G by enabling Gbps downloading speeds on the go. FWA will let you experience the same quality internet whether sitting on their couch at home, camping in the desert, or walking along the corniche. For the first time, consumers will be able to count on high-speed, reliable internet, anytime, anywhere. At MWC 2018, Huawei announced it had manufactured the world's first 3GPP-compliant 5G chipset, and a full range of end-to-end (E2E) 3GPP-compliant 5G product solutions covering the core network, the bearer network, base station, and terminals. The featured products were the only available options within the industry to provide 5G E2E capabilities.

## Unicom Inks 5G Pact with Huawei

Chinese telecoms group China Unicom has signed a 5G strategic partnership agreement with domestic vendor Huawei, under which the duo intend to focus on: cooperation in end-to-end (E2E) 5G technical verification; cooperation with vertical industry partners; building the 5G ecosystem; and 5G service incubation and promotion. Alongside the signing of the agreement, the two firms published a whitepaper on 5G-oriented evolution of indoor coverage that explores how to build indoor 4G networks and ensure that they can be efficiently upgraded to 5G in the future. Speaking at the signing ceremony, Unicom's VP Shao Guanglu commented on the partnership: 'The next decade will witness 4G evolution to 5G. 5G technologies will usher in a fully-connected, intelligent world, in which there will be a faster and more extensive industrial revolution. China Unicom and Huawei will continue to deepen their cooperation in the 5G domain, focusing on 5G networking and business ecosystem construction to drive 5G



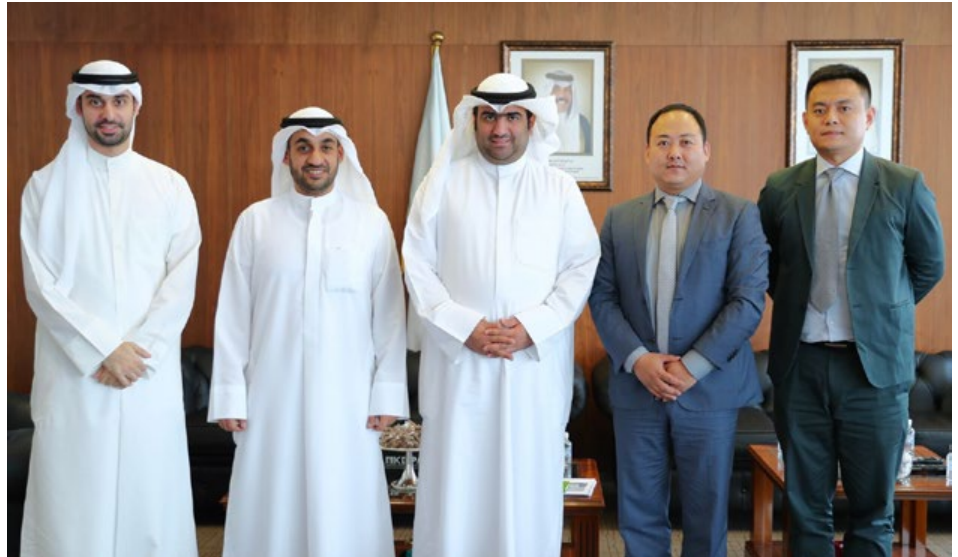
development and the prosperity of 5G ecosystems and create a better-connected 5G world.'

## China's Huawei Can Contribute to Kuwait's Development: Minister

Working with Chinese network and smart phone giant Huawei provides Kuwait with the opportunity to absorb some of the global tech firm's cutting-edge knowledge, Minister of Commerce and Industry Khaled Al-Roudhan said. Kuwait stands to gain from the success of the "tech powerhouse," where a productive partnership can help get youth-designed projects off the ground, Roudhan was cited as saying in a statement issued by the Commerce Ministry. After his talks with Li Xiangyu, Vice President of Public Affairs and Communications, Huawei Middle East, the Kuwaiti minister explained that working with the Chinese tech firm can help open the door to unprecedented projects in the country. On a business-friendly environment, which the ministry is working to put in place, Roudhan said it provides youngsters with opportunities

for employment, subsequently leading to a more diverse economy. With a fully integrated service center in

Kuwait, China-based Huawei is the largest telecommunications equipment manufacturer in the world.




## Nokia Open Innovation Challenge 2018 Seeks Startups with Disruptive Ideas to Shape the Future of Industrial Automation



**Nokia Open Innovation Challenge**  
Win up to \$175k in cash prizes  
Submission deadline:  
6 September 2018

In partnership with  Operated by **NOKIA** Bell Labs **NOKIA**

Nokia has officially launched the Nokia Open Innovation Challenge (NOIC), an annual global competition that seeks innovative technologies, products and solutions that can change the world. The focus of this year's competition is industrial automation and the industrial Internet of Things (IoT) domain, with prize money totaling \$175,000 available to winning companies. The winners will also be given access to Nokia Bell Labs research & development resources, as well as opportunities to grow their businesses through joint partnerships with Nokia. NOIC is administered by Nokia Bell Labs in partnership with NGP Capital. Now in its sixth year, the goal of NOIC is to connect the world through innovations that shape the future of human collaboration, communication, connection and control. Marcus Weldon, President of Nokia Bell

Labs and CTO of Nokia, said, "We're excited to open this year's NOIC with a focus on industrial automation. This is a tremendous opportunity for startups and entrepreneurs to work alongside Nokia Bell Labs researchers and others in Nokia to bring their ideas to life. Our team looks forward to working with competition winners to help create new technologies that will create unparalleled increases in efficiency through augmented intelligent devices, systems, platforms, and applications." Bo Ilsoe, Partner, NGP Capital, said, "We continue to champion this initiative by sponsoring it for the fifth year in a row. It's a great way for us as investors to meet the best new companies in each challenge category and for Nokia to find new external partners. I am looking forward to seeing the innovation this year's competitors bring." NOIC offers the opportunity for bright-minded startup companies to propose best-in-class products and solutions within Industrial IoT. Companies accepting the challenge can submit their ideas now through September 6, 2018. An international jury will then select the most advanced and innovative candidates to present their products or solutions at a final event to be held in early December at Nokia Bell Labs' headquarters in Murray Hill, New Jersey. This year's winners will join a growing list of companies with access to Nokia's resources to help grow their businesses. Last year's winners included smart clothing developer Continuum Technologies as well as Snaptivity, which enhances live sport fan experiences through AI-powered robotic cameras.

## Nokia, Tencent Team Up On 5G R&D



Nokia and Chinese Internet giant Tencent struck a partnership that will see them jointly research 5G applications aimed at various industry verticals. Under the agreement, the two companies will establish a lab in Shenzhen, China for the purposes of end-to-end testing. The lab will be equipped with Nokia's 5G-ready

Airscale RAN, its 5G core, multi-access edge computing (MEC) framework, as well as third party devices. Nokia and Tencent said they plan to focus on use cases for the transportation, finance, energy, intelligent manufacturing and entertainment sectors. "This collaboration with Tencent is an important step in showing webscale companies around the globe how they can leverage the end-to-end capabilities of Nokia's 5G Future X portfolio," said Marc Rouanne, president of mobile networks at Nokia, in a statement. Chinese Internet giant Tencent boasts more than 1 billion monthly active users of its WeChat and QQ social media apps. "Working with them we can deliver a network that will allow them to extend their service offer to deliver myriad applications and services with the high-reliability and availability to support ever-growing and changing customer demands," Rouanne said. "We are pleased to collaborate with Nokia to leverage the technologies, products and expertise of both our companies to fulfil the growing demands of a digital economy driven by 5G. Tencent and Nokia are fully committed to delivering richer, more diverse, multi-level services and applications for enterprises, and individual customers," added Zeng Yu, vice president at Tencent.

## Nokia, China Mobile Partner Up On New Lab to Research AI, Machine Learning

Nokia ended the week on a high note with Friday's news that it has signed a memorandum of understanding (MoU) with China Mobile to create a new lab. China Mobile and Nokia's lab will focus on the potential of artificial intelligence (AI) and machine learning to optimize future networks and enable the delivery of edge cloud and 5G services. The China Mobile news came on the heels of Nokia's announcement earlier this week that it had struck a MoU with Chinese social media giant Tencent to jointly test 5G platforms and services in China. The strategic

framework agreement for the MoU was signed at last month's Mobile World Congress Shanghai 2018. The agreement with Tencent included establishing an end-to-end 5G test environment in Shenzhen where the gear will include Nokia's AirScale Radio Access Network, 5G Core, MEC framework, and third-party devices. That agreement also included a provision to use AI and automation management to promote 5G standards and an open source ecosystem in support of new services. Nokia and China mobile will jointly establish the "AI+5G" lab in Hangzhou, China to

research radio resource management and traffic prediction using AI and machine learning in a 5G radio access network (RAN.) The two companies said that the collaboration would foster an open RAN ecosystem as they work with third parties on future "super-fast" 5G and edge cloud services. While Nokia isn't a member of the O-RAN Alliance that was announced at Mobile World Congress in Barcelona earlier this year, China Mobile is. Despite the lack of membership, Nokia has pledged to work with the O-RAN Alliance, which had its first meeting last week during MWC Shanghai 2018. The Hangzhou lab will use "Nokia 5G Future X" architecture including Nokia ReefShark-powered AirScale Cloud RAN and its AirFrame open edge server. China Mobile will lead solution definition and related open API interface standardization work while Nokia is responsible for verification and demo development. The China Mobile and Tencent MoUs position Nokia to become a player in the 5G and AI ecosystems in China. With 5G on the horizon, China Mobile currently has more than 902 million subscribers and one of the largest 4G networks in the world. The inroads that Nokia is making would seem to come at the expense of Huawei, which has been conducting its own 5G and AI labs and trials at home and abroad.



## DTAC Taps Nokia for 2300MHz TD-LTE Rollout

Thai cellco DTAC has enlisted Nokia to deploy what it claims is the country's first commercial TD-LTE network. The new platform – which utilizes 2300MHz spectrum – will be marketed under the

'TURBO' brand, and rolled out in the North-east, North and South of Thailand, including major provinces such as Khon Kaen, Chiang Mai, and Phuket. The Nokia AirScale platform will utilize a combination

of advanced techniques, namely tri-band carrier aggregation (3C), 256 QAM and 4x4 MIMO functionality, and pave the way for DTAC's future introduction of 5G technology.

## Globe Telecom Partners with Nuage Networks from Nokia to Bring Cloud-Native Business Services to the Philippines

Nokia announced that Globe Telecom of the Philippines has partnered with Nuage Networks from Nokia to provide a nationwide SD-WAN service to both large enterprise customers and SMBs. The Nuage Networks Virtualized Network Services (VNS) SD-WAN solution automates branch site connectivity to help Globe Telecom's customers create a single, secure cloud environment across multiple sites and access technologies. Having invested substantially to build out connectivity in the Philippines, Globe is leveraging on its enhanced network connectivity to deliver cloud-based business services across the country. Evolving from the IP-VPN services of the past, which often took months to deploy, the Nuage Networks VNS solution leverages any kind of network connectivity, including mobile. This makes it especially suited to challenging geographies such as the Philippines, an archipelago with over 7,100 islands. The Globe SD-WAN business service will enable enterprise customers to quickly and securely connect branch employees with central cloud-based applications and services, nationwide. Gil B. Genio, Chief Technology and Information Officer (CTIO), and Chief Strategy Officer (CSO) of Globe Telecom, said: "We are excited to partner with Nuage Networks to bring the first fully operationalized SD-WAN service to the Philippines. The policy-driven automation will simplify our

operations and enable us to cost-effectively expand our service footprint. The Globe SD-WAN service will enable our business customers to fully leverage the power of the cloud to connect with their customers and grow their businesses right across the country." Sunil Khandekar, founder and chief executive officer of Nuage Networks from Nokia, said: "Globe Telecom is leading in delivering cloud-native business services to the enterprise market in the Philippines. Our technology provides a flexible and open SD-WAN infrastructure that will serve as a foundation for Globe to deliver the business services that allow enterprises to move to the cloud with the agility and visibility they need."



**PCCW Global**

## PCCW Media Limited Delivers Live UHD HDR Coverage of World-Class Sports Events with Harmonic

Harmonic (NASDAQ: HLIT), the worldwide leader in video delivery technology and services, announced that PCCW Media Limited, the multimedia and entertainment subsidiary of PCCW Limited based in Hong Kong, is delivering 4K live coverage of world-class sports events using an UHD HDR solution from Harmonic. Now TV is relying on Harmonic's UHD HDR solution to deliver pristine video with superior bandwidth efficiency to viewers during one of the world's largest soccer competitions, taking place in Russia June 14 to July 15. "PCCW Media Limited is making television history in Hong Kong by broadcasting all 64 soccer matches in live UHD HDR,"

said Kevin Chu, Assistant Vice President of Broadcast Engineering at PCCW Media Limited. "We chose Harmonic as our technology provider based on its ability to provide an end-to-end solution and a crystal-clear UHD HDR high-resolution experience at the lowest possible bitrates. Having partnered with Harmonic for many years, we are excited to transport viewers to an entirely new immersive world during this year's soccer tournament and other premiere sports events in the future." Harmonic's ViBE® CP9000 contribution solution, Electra® platform for live UHD HDR video processing and RD9000 UHD HEVC contribution decoder provide

superior video quality, maximize bandwidth efficiency and simplify operations for PCCW Media Limited's partners. "This year's soccer tournament is action-packed and dynamic – the perfect environment for showcasing HDR," said Tony Berthaud, Vice President of Sales, APAC, at Harmonic. "Harmonic is at the forefront of UHD HDR technology and is proud to collaborate with our long-term customer PCCW Media Limited on this groundbreaking event, which leverages the latest innovations in contribution encoding, live media processing and HEVC decoding."



## Syniverse Launches Lab to Accelerate IoT and 5G Business Value Creation



Syniverse announced the launch of the Syniverse Innovation Lab, a new demonstration, development and testing center that brings together customers, partners and other leading technology players to trial new ways and business models to address the rapid digital transformation. Specifically, the Lab will drive next-generation services for the internet of things (IoT), 5G, blockchain and artificial intelligence. "Syniverse is committed to leading the industry into a new age of innovation, driven by technologies like IoT and 5G that will create new business value," said Dean Douglas, President and CEO, Syniverse. "To seize these new opportunities, the Syniverse Innovation Lab is a first-of-its-kind development and testing center where we can collaborate with our customers, partners and other industry players to develop, explore and make the most of the latest innovations." Initially, trials in the Syniverse Innovation Lab will focus on the areas of IoT and 5G and will then expand this to other important emerging

areas, such as blockchain. The recently launched Syniverse Secure Global Access is a critical network underpinning the Lab providing private, secure global connectivity that enables businesses to protect their mission-critical data in an age when emerging technologies like the IoT are exposed to greater levels of risk from the public internet. The Lab's IoT solutions concentrate on providing secure connectivity and driving new business value for both cellular and noncellular access. In this area, one of the first applications launched in the Lab over Syniverse Secure Global Access includes a smart parking lot that can identify vacant spaces by using noncellular connectivity featuring LoRa, a long-range, low-power wireless communication system. The markets for the IoT and 5G are predicted to skyrocket in the next few years. According to GSMA Intelligence, revenue from the IoT will reach \$1.1 trillion globally in 2025, up from \$166 billion in 2016, and applications, platforms, and services will account for the lion's share of the growth, such as connectivity management, device management, and application enablement platforms. At the same time, the number of 5G connections globally will grow to 1.2 billion by 2025, according to GSMA Intelligence, accounting for around 14 percent of total connections. "Businesses must transform to capitalize on digital transformation and need to unlock new business value by collaborating with other industry players to develop and test new technologies in a secure environment with global reach," said Mike O'Brien, Group Vice President, Corporate Development and Strategy. "The Syniverse Innovation Lab has been purpose built with the support of key partners to provide a real-life environment for everything from securing drone control systems to enabling seamless interworking between 5G and legacy technologies." Located at Syniverse's global headquarters in Tampa, Florida, the Lab is launching with a variety of state-of-the-art demonstrations, including Pepper®, the humanoid robot designed by SoftBank Robotics, which will greet visitors and offer information about the Lab.



## VIVA Bahrain Ties Up With Skiplino for New Digital Services

VIVA Bahrain has partnered with homegrown Skiplino Technologies to introduce the kingdom's first cloud-based queue management system by a telecom operator. A revolutionary online system which allows people to queue digitally through a mobile application, VIVA customers will now be able to book their appointments at any of the 19 VIVA retail outlets or via the VIVA self-care

app in just a few clicks anywhere, and at any time. This collaboration with Skiplino marks another significant step from VIVA Bahrain towards digital transformation and extending its support to the Economic Development Board's (EDB) initiatives to encourage the growth of local ecosystem as a key engine to foster grassroots innovation and entrepreneurship. "As the fastest-growing, most innovative

telecommunications operator in Bahrain, we recognise the need to support Bahrain's Economic vision 2030 and play an active role to support the scale-up of the Bahraini start-ups by empowering them with technological support and market visibility to help them succeed," VIVA Bahrain chief commercial officer Karim Tabbouche said. "Moreover, this is in line with our efforts to maintain an edge in innovation

by enhancing our customers' experience through a convenient, on-the-go digital offering that gives them greater control over their time and life," he said. "Skiplino was developed to eliminate the problem of queues and replaces it with efficient, real-time queue monitoring information for businesses to understand and respond to their customers' needs more efficiently," Skiplino Technologies chief executive Zaman Abdulhameed Zaman said. "With VIVA, the telecom operator with the widest network in Bahrain employing our indigenous queue management system, our robust platform continues

to demonstrate strong capabilities of catering to their customers' and retail network requirements." With the new online queue system extended to all VIVA outlets, service center and Mena Telecom branches, VIVA customers have the flexibility to book a queuing ticket at the store closest to them from the convenience of their mobile phones. The system when booking the customer appointment takes into account the customer's travel time and distance and any traffic delays and adjusts the appointment time accordingly to avoid making the customers wait at the outlet. For VIVA walk-in customers, the

cloud-based queue management system operates in the same manner, where customers can access the system and receive an SMS once their appointment is due. Recognized as the world's most intelligent queue management system, Skiplino has earned several global accolades including the Forbes Innovation Award 2017 and The World Summit Award 2016, and was named as one of the 100 start-ups by World Economic Forum and one of the top 20 start-ups in TNW Europe 2016.

## VIVA Bahrain-Sofitel in Major Partnership

VIVA Bahrain has entered into a long-term partnership with Sofitel Bahrain Zallaq Thalassa Sea and Spa. This is part of the telecom company's effort to equip Bahrain's key business industries with the latest technological solutions. Under this agreement, the hotel will be enjoying comprehensive telecom solutions from VIVA. Among the technological solutions to be offered by VIVA are dedicated Internet services covering the entire hotel's premises along with complete 4G LTE mobile services and solutions. VIVA will also be the Internet provider of choice for all hotel guests, and will offer Internet support to ease work flow and communication between all employees on hotel grounds. "We are keen to introduce our enterprise technology solutions to all sectors in Bahrain including hospitality, as we consider it a way to elevate the overall level of business competence and efficiency and take the country's digital capabilities to the next level," VIVA Bahrain chief executive Ulaiyan Al Wetaid said. "We see our partnership with Sofitel Bahrain Zallaq Thalassa Sea and Spa is very promising, and we're looking forward to seeing how our business solutions will streamline their daily operations and help them adapt to the world's digital developments," he said. "Keeping in line with Sofitel's vision to offer an exceptional experience, we are certain that in partnership with VIVA, we will be able to provide unparalleled and top quality Internet services to our guests and

ambassadors," Sofitel general manager Mehdi Hanayen said. "As an industry leader in offering magnifique guest experience, we are proud to partner with VIVA, a brand that shares the same values and we look forward to a successful partnership." VIVA's partnership with Sofitel Bahrain Zallaq Thalassa Sea and Spa adds to an extensive list of key players in the business sector that enjoy VIVA business services. This comes in line with the company's strategy to enable businesses and enterprises in Bahrain through ICT and transform the country into a leading digital hub.



## Viva Unveils First 5G Live Showcase in Bahrain

Viva Bahrain launched the first 5G live showcase in the kingdom. Kamal bin Ahmed Mohamed, Minister of Transportation and Telecommunications heralded a new era of ground breaking innovation that will see Bahrain become one of the first countries in the world to deploy 5G telecommunications technology. Speaking whilst attending the Viva 5G live showcase at City Center, the Minister said: "I would like to congratulate Viva Bahrain for helping position our

country firmly at the forefront of 5G deployment, placing us amongst only a handful of countries around the world to do so. This announcement simply underlines our position, under the leadership of HM King Hamad, as one of the region's most dynamic and forward-looking economies." "By becoming one of the first countries in the world to introduce 5G elements across our national network we are confirming our genuine commitment to accelerate

Bahrain's digitization and continuous effort to introduce the latest technologies to the people of Bahrain. "We have also put in place a solid infrastructure for the growth of the sector and are benchmarking ourselves against some of the global leaders in telecoms in order to achieve even more. We are in the middle of implementing our 4th National Telecommunications Plan and I am happy to see Viva taking the initiative by capitalizing on this

infrastructure and expanding its services to provide users with the latest technologies," he added. Abdulla Al Zmami, Viva Bahrain chairman said: "This step reconfirms our genuine commitment to accelerate Bahrain's digitization and continuous effort to introduce the latest technologies to the people of Bahrain. This links back to Viva's core vision in transforming Bahrain's telecommunications landscape and offer an unprecedented telecom experience to the community." Ulayyan Al Wetaid, Viva Bahrain CEO said: "As an industry first, this milestone reinforces Bahrain's leading digital position in the region and enhances Bahrain's readiness for next generation technologies in support of Bahrain's vision 2030." "The aim of the 5G live launch is to allow the public to get a feeling of what 5G technology brings to our lives," he added. Viva Bahrain have recently showcased the life-changing speeds and capabilities of Viva 5G for homes and businesses with a number of 5G-enabled devices available for public trial such as 4KUHD TV, Virtual Reality (VR) goggles. During a recent live 5G speed test, Viva Bahrain achieved unprecedented gigabit speeds reaching up to 1.5 Gbps using a commercial broadband router, opening doors to a new era of sophisticated technologies enabled by reliably fast

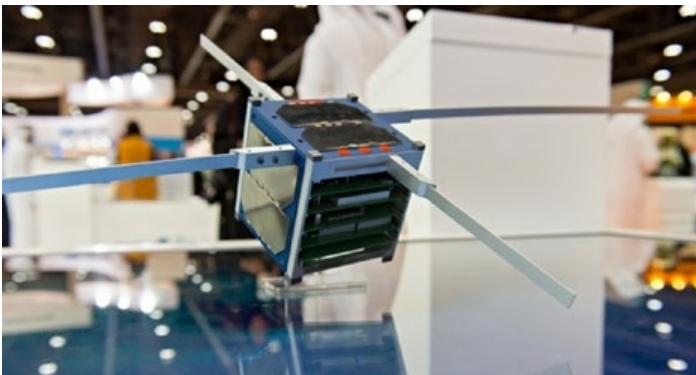
data speeds. 5G network is expected to make a quantum leap in future services and applications and will contribute in increasing the speed and performance of wireless networks. It will not only improve the connectivity between people and their phones or computers, but will also enable more sophisticated technologies such as IOT, Artificial Intelligence and robots.



## Yahsat Completes MYSAT-1 Engineering Model

UAE's Khalifa University of Science and Technology and Al Yah Satellite Communications Company (Yahsat) said that Yahsat Space Lab has completed the assembly, integration and verification (AIV) of the engineering model of MYSAT-1. MYSAT-1 is the first satellite to be developed at the lab by the students enrolled in the Space Systems and Technology Masters in Engineering Degree at Khalifa University. The 'engineering model' of MYSAT-1, an exact replica of the flight satellite model is built and rigorously tested for space environment conditions that envelop the actual conditions in space and launch. The engineering model and test results were presented to stakeholders at the Yahsat Space Lab in the presence of officials from Yahsat in addition to faculty and students of Khalifa University. The review board declared readiness for the production of the flight model. MYSAT-1 flight model is scheduled for shipment to Launch Service Provider and Nasa in September, in preparation for launch in Q4 from the Mid-Atlantic Regional Spaceport (MARS), on-board Cygnus OA-10 flight to International Space Station. Primarily an educational

mission, MYSAT-1's payload consists of a camera designed to take images of the UAE from space to demonstrate the process of remote sensing. The satellite will also test a novel lithium-ion battery designed and developed at Khalifa University. The Yahsat Space Lab was launched in 2017 at Masdar Institute in collaboration with Yahsat and Orbital ATK – now called Northrop Grumman Innovation Systems – to develop and advance technologies within the space sector in line with the UAE's advanced space ambitions. It is the first space systems lab in the UAE to be equipped with Assembly Integration and Verification (AIV) facilities that cater for nanosatellites "CubeSats" of up to 6U form factor, i.e., size of 10x20x30cm and mass of 12kg. Mona Al Muhairi, chief human capital officer at Yahsat said: "We are proud of the students remarkable achievement today, the completion of the MYSAT-1 engineering model marks a significant milestone for the Yahsat Space Lab. "Yahsat is a proud contributor towards the UAE space agenda, through empowering national cadet with educational programs qualifying them to play an active role in further strengthening the UAE's position in the space sector. The achievement today is the fruit of our partnership with Khalifa University and Northrop Grumman to create the regions first Masters in Engineering degree with a focus in space systems and technology." As part of the Master's Concentration in Space Systems and Technology, students work on related research projects while building small satellites. The Yahsat Space Lab offers Khalifa University students and faculty the facilities required to construct and test miniature satellites "CubeSats". The high-tech and specialized facilities serve as a platform for future research in space technologies, allowing entities like the UAE Space Agency to work with the faculty on collaborative projects.





## Yahsat CEO Wants in on the Mobile Internet-of-Things Market

Yahsat's recent acquisition of mobile satellite operator Thuraya gave the company a fleet of five satellite, a wealth of new C-, Ka-, Ku- and L-band resources, and the ability to reach new customers in Europe, Africa, the Middle East, South America, and Asia. According to this revealing interview with The Nation, Yahsat CEO Masood Sharif Mahmood's

post-acquisition strategy also includes an expansion into new applications in the Internet-of-Things space. "[Yahsat] will soon enter the mobility and internet of things (IOT) market driving increased growth for the business. Everything is sensed and metered and [whether consumers] choose telecoms service providers or satellite is not a big challenge.

What we're seeing is that, as the industry starts providing live solutions on the sensors – mobile solutions – then the adoption of this will be on a higher sort of scale...When we mix our old fleet and the new fleet our satellite broadband will cover 60 per cent of the populations of Africa and 95% of the population of Brazil."

## Yahsat's New Satellite to Service Mobility and Internet of Things, Driving Growth

Yahsat, the Mubadala Investment Company-owned satellite operator, anticipates higher growth from its satellite broadband business as it looks to enter the mobility and Internet of Things segments (IoT) as well as possibly compete with telecoms service providers, according to its chief executive. "Everything is sensed and metered and [whether consumers] choose telecoms service providers or satellite is not a big challenge. What we're seeing is that, as the industry starts providing live solutions on the sensors - mobile solutions - then the adoption of this will be on a higher sort of scale," Masood Sharif Mahmood told The National at the company's headquarters in Abu Dhabi. He was referring to live asset tracking through GPS, which is increasingly becoming merged with business analytics and artificial intelligence, particularly when it comes to cross-country, regional mobility, which can be better serviced by satellite over telecoms service providers. The operator, which launched its third satellite Al Yah 3 in January, is anticipating greater demand for satellite broadband services on the back of higher uptake in IoT-serviced industries such as oil and gas and on the growth of sustainable cities in the region. According to US-based International Data Corporation, the IoT market in the Middle East and Africa is set to grow 15 per cent in 2018 to reach \$6.99 billion in 2018 and \$12.62bn by 2021. The company's ongoing acquisition of a majority stake in fellow UAE satellite operator Thuraya was also considered as part of efforts to grow its mobility segment, added Mr. Mahmood. He declined to specify Yahsat's stake in the operator or the value of the transaction. Al

Yah 3, which completed orbital testing at the end of May, is expected to increase the operator's footprint in an additional 19 countries, including newer markets in Latin America and Brazil. The operator currently has two other satellites - Al Yah 1 and Al Yah 2, which provide government solutions, satellite TV and satellite broadband across the Middle East, Africa, central and south-west Asia, with its coverage penetrating remote access areas. "When we mix our old fleet and the new fleet our satellite broadband will cover 60 per cent of the populations of Africa and 95 per cent of the population of Brazil," said Mr. Mahmood. YahClick, as the operator's satellite broadband service is known, has grown to cover around 50,000 devices, he added. While this satellite broadband connectivity is available through retailers in the markets covered by Yahsat, often remote localities, it is also the third licensed operator for internet services in the UAE. While YahClick provides connectivity to the oil and gas industry as well as services requiring remote connectivity in the Emirates, Mr. Mahmood said it would be a while before it becomes competitive with telecoms service providers. "It's the equivalent of sending fiber into the sky and the satellites are 36,000km away, so really scarce resource capacity," he said. Yahsat, which specializes in coverage of unserved, digitally-remote areas, will eventually target providing connectivity to already served segments in cities as well. "The way technology is moving, we think that it will be able to compete in the served ring as well. That will be the future," said Mr. Mahmood. The firm also looks to draw in revenues from a planned roll-out

of WiFi services with regional carriers. YahSat has already trialed such a service on board Etihad aircraft. "We reached high speeds of up to 50 Mbps [megabits per second] versus the existing airline legacy systems that are around four or five Mbps, so we're talking about a 10 fold increase," said Mr. Mahmood, "We are continuing our development of this project with Etihad Airways and we are in early discussions with few other airline operators here," he added. The challenge moving forward, he noted, is to make such services affordable to consumers as well as encourage their take-up in the region, where on board WiFi is still viewed as a luxury and faces competition from legacy infrastructure such as in-flight entertainment. YahSat also sees opportunities in the developing world to provide affordable basic internet connectivity to bridge the digital divide, especially through partnerships with governments. Citing Free Basics, the affordable internet service launched by Facebook in less developed economies, Mr. Mahmood said should his company enter this segment, it would look at doing things differently. "Free Basics is a model that Facebook rolled out and it has not been successful for a variety of reasons," he said "If we price it in the right way and to the right target segment, then we will tie up with governments and bid for government connectivity programmes by offering an affordable price. We would [then] be able to subsidize part of that and offer it to the municipality so the end user doesn't get the burden and has a shared approach. But it has to make commercial sense," said Mr. Mahmood. "There are enough of those opportunities out there," he added. 📍



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VIVA



## ARTICLE

# VIVA's Analytics Transformation



**Andrew Hanna**  
Chief Commercial Officer  
Viva Kuwait



Data Analytics including artificial intelligence is the future of any organization that results focused. Since its inception in 2008, VIVA promised to be a customer-centric company that always reaches the aspirations of its customers by providing them innovation in products and services latest products and solutions using models that address their requirements.

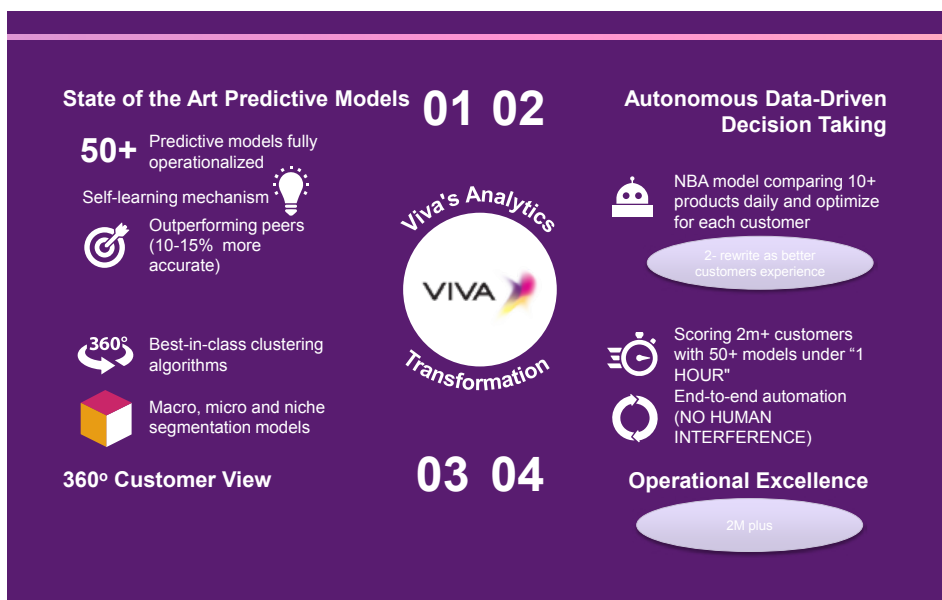
**One of the key pillars of our 2020 Corporate Strategy is to grow from a volume to a value leadership in core connectivity. This evolution to higher value management is necessary in a market entering maturity, making data analytics critical to long term sustainable competitiveness.**

## VIVA's Analytics Transformation

One of the key pillars of our 2020 Corporate Strategy is to grow from a volume to a value leadership in core connectivity. This evolution to higher value management is necessary in a market entering maturity, making data analytics critical to long term sustainable competitiveness. Data analytics is imperative for any commercial initiative from deployment of a holistic CLVM approach and digitization of customer experience to the best in practice loyalty program design and sales incentive programs.

VIVA has invested more and more in its core analytical capabilities over the past three years. Many initiatives are already in place, and many more are yet to come. Our top priority will remain to be boosting customer experience. Listed below are some recent initiatives that have already added value to VIVA and its valuable customers.





As each operator wants to better understand their customers, segmentation models have been a popular approach to gathering such insights. In VIVA, we have developed best-in-class clustering algorithms to produce multiple macro, micro and niche segmentations, while each serving as either value, behavior or need segmentation.

#### A) State of the art predictive models

We have built more than 50 predictive 'Machine Learning' algorithms to support marketing and sales in decision-making with effective forecasting. Our models outperform those of our peers and create accurate predictions. Furthermore, the models can proactively identify the root causes of any change in behavior such as churn and this allows us to serve our customer in the best way even before they ask for the service.

#### B) Autonomous data-driven decision taking

Our next best offer engine automatically collects predictions different products by taking likelihood into account. Our customers are getting the offers they need the most. This process is autonomous and requires no human involvement.

#### C) 360° customer view

As each operator wants to better understand their customers, segmentation models have been a popular approach to gathering such insights. In VIVA, we have developed best-in-class clustering algorithms to produce multiple macro, micro and niche segmentations, while each serving as either value, behavior or need segmentation. A master segmentation algorithm collects all the inputs and produces one unique segment per customer. Segmentation models are linked to predictive models, both benefiting

from and contributing to other artificial intelligence models creating a 360° customer view.

#### How do we use it? Where is it translating?

The analytical models deliver operational efficiency that is translated into a marketing, sales, and customer care roadmap, which is considered the guardian of the customer.

The data available makes us champions of change, innovation, and ahead of the game.

At this time, we are more patient in the outcome of these models, their impact

on our planning and marketing decisions. We are looking at the data to help us understand our customers.

#### What is next for VIVA

As we continue to understand and anticipate our customers' needs better and serve them better, customer experience analytics and CLVM strategy will remain a top priority. This includes voice of the customer, customer service optimization and usability analytics. Social media analytics and cognitive computing will be our next ambitions to get even higher customer satisfaction and will be the planning asset for any Marketing campaign. 📊



## REGIONAL NEWS

### UAE Tops Smart City Rankings in the Middle East

The United Arab Emirates has the smartest cities in the MENA region, as stated by a study by the McKinsey Global Institute, which examined the comprehensiveness of the technology base in 50 cities around the world. "Smart Cities: Digital Solutions for a More Livable Future" analyzed each city's layers of "smartness" in technology base, applications introduced and public adoption. The intention, the study's authors said, "is not to crown the world's smartest city but to show the full sweep of activity underway around the globe." A Smart City could score as many as 37 points. Abu Dhabi (18.4 points) and Dubai (17.3) were in the first two positions in the MENA region. This compares with New York (24.4) and San Francisco (20.9) in North America; Stockholm (24.0) and Amsterdam (22.3) in Europe; and Singapore (25.0) and Seoul (24.3) in the Asia-Pacific. The McKinsey Global Institute looked at the number of Smart City applications. This aspect of the study carried a maximum of 55 points across the applications centered on mobility, security, utilities, health care,

second (28.0). New York, Los Angeles and London were each credited with 34.5, Seoul 33 and Singapore 32.0 The study surveyed residents about the Smart applications implemented in the cities. Carrying a maximum of 30 points, it combined awareness, usage and satisfaction scores. Dubai attained 16.6 points, while Abu Dhabi scored 10.5. Internationally, Beijing scored 24.2 and San Francisco 20.7 Victoria Lee, the Transformational and Strategic Projects Lead in the UAE for Cisco, said: "The UAE has made digitization a national priority, fostering an ecosystem of innovation and culture of forward-thinking." "Our experience with Smart City projects globally is that the best approach is to define which major challenges a city wishes to address first and then create solutions to those challenges by fostering innovation and leveraging its ecosystem of organizations that can help – be it with smart transportation and roadways, smart lighting, municipality services, public safety or else," Lee said. Technology is a key part of the UAE Vision 2021, which

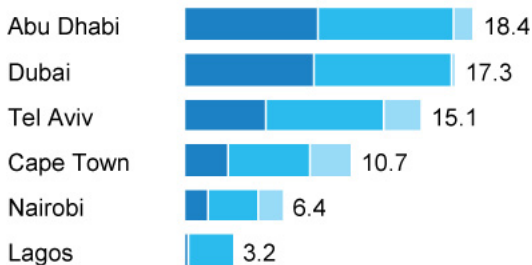
the growth of its economy. "It also plays a pivotal role in improving the livability and happiness experiences for citizens, residents and visitors. Furthermore, innovation and digital transformation is supporting the UAE's Smart City initiatives," du Plessis said. "Both Dubai and Abu Dhabi are at the forefront of providing smart mobile users with applications that enhance their everyday lives," she added, noting that Abu Dhabi and Dubai were deploying more than 5,000 WI-FI hotspots to offer free internet. "The country has also announced plans to develop 3D printing, which could have a significant impact on costs in the construction industry, while the government's autonomous transportation strategy is targeting 25% of all trips inside Dubai to be driverless by 2030," du Plessis said. Dubai's Road and Transport Authority has deployed sensors for its Smart Pedestrian Signals Project to allow safe pedestrian crossings and Smart Parking Project, which provides real-time parking information. The Dubai Electricity and Water Authority has been successful in installing more than 200,000 smart meters and grids and expects to install more than 1 million smart meters by 2020. With Expo 2020 Dubai, the emirate is investing heavily on smart transportation systems, by deploying traffic sensors, launching mobile traffic apps and looking at the introduction of driverless vehicles. Visitors are expected to be surprised with the level of automation and digitization, including tech-enabled volunteers, smart food ordering and crowd management, among others high-tech offerings. "Expo 2020 Dubai is using smart solutions to create one of the most efficient and engaging events in the world," du Plessis said. Lee said she has high hopes for Expo 2020, which she sees as a "unique opportunity for the Emirates to realize its vision of how a city of the future could look like." "Expo 2020 in many ways will function like a city as well: serving tens of thousands of people every day," she said.

Components of technology base



Strength of smart city technology base  
Maximum of 37 points

Middle East and Africa



SOURCE: McKinsey Global Institute survey and analysis, McKinsey.com/smartcity

economic development, housing and community. Dubai led in the MENA region with 30.5 points and Abu Dhabi was

47 countries, said making innovation a national priority has created an ecosystem of advancement in the UAE and is driving

## Minister of CIT Saudi Arabia Launches Program for Cybersecurity

Abdullah Al-Sawaha, Minister of CIT launched the Cybersecurity program for beginners (Cyber craft), that organized by STC, in the Presence of Nasser Al Nasser, STC Group CEO, and Abdulaziz Alruwais Governor of CITC. Al-Sawah valued STC initiative of launching such a program,

which seeks to build local and professional capabilities in cybersecurity based on best practices and global standards to lead the Kingdom to the ranks of developed countries in modern technical knowledge. "objectives of the programs are compatible with the increasing demand for specialists

in cybersecurity, as the services in the Kingdom witness an accelerating digital transformation in line with the Kingdom's vision 2030". He added. After the launching, Nasser Al Nasser confirmed that STC plays a pivotal role in the Kingdom's vision 2030 as an enabler for digital transformation in the public and private sector. He pointed out the (STC Solutions) work through this program to train Saudi Talents in Cybersecurity that witness huge demand, in addition it is one of the growth tracks at STC according to the strategic growth plan and the digital transformation. Omar Alnomany, STC Solutions CEO, mentioned that the initiative is the first of its kind because it focuses on the young people, as their training on Cybersecurity will give them the chance to determine their educational and vocational track and use their energies in the right place. (Cyber craft) program aims to train more than 150 students in Riyadh, Jeddah, and Khobar, in collaboration with two global leading companies in Cybersecurity learning. The students will go through summer training for a month, and they will have certified Certificates at the end of the training.



## Bangladesh Focuses on Technology

Prime Minister decision to emphasize information and communication technology, or ICT, 10 years ago was one of the most forward thinking steps taken by the current government. By predicting the widespread reach of technology, and focusing our resources in the ICT sector, Bangladesh has ensured its place in the future. And today, a decade later, that vision, aptly dubbed Digital Bangladesh, has become a reality. But the realization of this dream has not come about automatically; it has taken 10 years of governmental planning and people's efforts. Ease of access to the internet has improved drastically: As of April 2018, 150

million people in Bangladesh had access to the internet, which was a mere 20 million 10 years ago. And by focusing on massive ICT-related infrastructural improvements, the people have benefitted greatly. Not only have the installations of submarine cables improved the speed of the internet services being provided in conjunction with plans to set up 12 IT parks, the government has also provided training to the Bangladeshi youth, creating jobs and nurturing skills which have already made their mark on the global stage. In a recent study, of all outsourced online workers in the world, Bangladesh is now in second place with 16.8%. With a clear drive to train people

in various fields such as graphic design, web design and development, and digital marketing, the government has succeeded in creating a generation of highly-skilled workers making their mark on the global stage. But challenges lie ahead, the biggest of which is our education sector, which lags behind in providing the necessary training required to our youth. It is only through tapping into the potential that we can continue to make a mark, and achieve progressive sustainable development. The ICT sector has taken Bangladesh to new heights. We must work to ensure that it continues to be a source of development for our country.

## SCO, PTCL Sign Agreement to Provide Connectivity between China, Pakistan

Special Communication Organization (SCO) and Pakistan Telecommunication Company Limited (PTCL) have signed an agreement to provide connectivity between China and major international destinations transiting through Pakistan. The signing ceremony was held at Pak-China Friendship Centre during the inauguration of Pakistan-China Optical Fiber Cable (OFC) laid by SCO. Caretaker Prime Minister of Pakistan, SCO Director General, PTCL President and CEO, Chinese Ambassador to Pakistan, China Telecom Global Limited CEO and other dignitaries attended the prestigious ceremony. SCO's Pakistan-China OFC is 820-kilometre-long stretching from Rawalpindi to Khunjerab establishing new cross-border connectivity with China and is part of China Pakistan Economic Corridor (CPEC) project led by Government of Pakistan and China. SCO Director Pak-China OFC and PTCL Chief Business Services Officer signed the agreement between SCO and PTCL. As part of this agreement, SCO shall provide capacities on its OFC network between Pak-China Khunjerab border and Rawalpindi, whereas PTCL shall provide connectivity from Rawalpindi to major international destinations through Karachi and Gwadar using its long-haul network infrastructure and PTCL submarine cable network. The fiber optic cable connects Rawalpindi with Khunjerab at a height of 4,700 meters, making it the highest fiber cable project globally. The cable will be

further extended to Gwadar which will fully connect both China and Pakistan. This is amongst the only information and communication technology (ICT) project under the China-Pakistan Economic Corridor (CPEC) and is part of the early harvest program. The projects total cost is projected at \$44 million and 85 per cent of the loan has been provided by Exim Bank of China at a discounted rate. The engineering, procurement and construction (EPC) have been carried out by Huawei and the owner of this project is SCO. The fiber optic pipeline project commenced in March 2016 and concluded in June this year. The cable extends over a distance of 820 km and has 26 microwave transmission nodes from Rawalpindi to Karimabad and 171

km of aerial fiber cable from Karimabad to Khunjerab as a back-up. It will provide direct connectivity between Pakistan, Middle Asia and East Asia and reduce the possibility of disruption to international traffic. Also, the cable would have multiple international links with the new Gwadar landing station to decrease dis connectivity problems. On the occasion, Dr Daniel Ritz said, "PTCL has been connecting the nation since 1947 and we are glad to be part of this important initiative creating a positive regional impact. With the signing of Pakistan-China Optical Fiber Cable agreement, PTCL will contribute further to the economic development and prosperity of Pakistan."



## Digital Inclusion Moves Bangladesh up in UN e-Government Ranking

Bangladesh has ranked up to 115th in the latest E-Government Development Survey, thanks to its progress in the Information and Communication Technology sector over the last six years. Access to Information (a2i) program published the index at a press conference today. United Nations Department of Economic and Social Affairs (UNDESA) evaluates the ranking every two years. Out of 193 countries, Bangladesh

scored 0.4862 in the latest survey. The country has advanced 35 steps since the 2012 survey. Bangladesh ranked 124th, 148th and 150th in the surveys done in 2016, 2014 and 2012 respectively. While it stayed behind after Sri Lanka (94), India (96) and Maldives (97) within the region, it fared better than Nepal (117), Bhutan (126), Pakistan (148) and Afghanistan (177). In the press conference, the government

expressed its satisfactions with the consecutive improvement and also with discomfort that the ranking could be much smarter. "We are now in the highest position in all the indexes, however our improvement might not be reflected in all the studies," said Mustafa Jabbar, minister for Telecom and ICT. In the latest index, Denmark secured top position. Australia was placed second.

## Oman among Top Arab Nations in Digital Government

Accelerating digital transformation strategies, investing in new wireless and fixed network infrastructure, and embracing emerging technologies such as AI and IoT are among the top priorities for African telecom operators for the year ahead. This is according to global telecom, media and technology news and events company, TMT Finance. "Like many telecom operators globally, the major African operators are having to juggle several pressing priorities. It is well documented that traditional voice and messaging service revenues are decreasing, while pressure to plough big capex spend into new network infrastructure is weighing on balance sheets," says Ben Nice, Managing Editor and Events Director at TMT Finance. "Furthermore, what a core telco business model looks like is up for debate, and those at the helm must make crucial decisions on where to place their bets in terms of future earnings and relevant technologies, while also asses how to undergo hugely complex digital transformation projects." Topics such as network infrastructure business models, B2B and B2C convergence, M&A, digital transformation and partnerships, are among the key topics to be debated at TMT Finance Africa 2018, a leadership conference gathering Africa's key telecom, media and technology senior executives, regulators, private equity firms, investment

banks and advisers. CxOs from Orange, Econet Wireless, IHS Towers and Millicom will join the Future Africa Telco Panel – Leadership strategies for regional growth, which will open the conference. Other Leadership Panel Debates, Visionary Keynote Speeches and Breakout Sessions on topics such as Broadband Leadership, M&A, Enterprise Cloud and Datacenters, Digital Africa, Mobile Payments and Fintech, Regulation and Spectrum, Media and Content and Powering Africa's Mobile Towers, will all also feature at the event. Over 70 speakers will be announced for

TMT Finance Africa 2018, with other companies already confirmed, including: Liquid Telecom, Dark Fiber Africa, IFC World Bank, Standard Bank, Helios Investment Partners, The Carlyle Group, Letshego, Citi, Credit Suisse, Tata Communications Transformation Services (TCTS), Intelsat, Rack Centre, Uber, Jumia, Energy Vision, Investec Asset Management, Ethos Private Equity, Econet Media, RIngier Africa, Nokia, Huawei Global Finance, Rand Merchant Bank, Nedbank, East Africa Data Centre, WorldRemit, TLCom Capital and many more.

Table 4.1. Top 10 Member States with the highest commitment to cybersecurity

Country	GCI Score	Legal	Technical	Organizational	Capacity Building	Cooperation
Singapore	0.92	0.95	0.96	0.88	0.97	0.87
USA	0.91	1	0.96	0.92	1	0.73
Malaysia	0.89	0.87	0.96	0.77	1	0.87
Oman	0.87	0.98	0.82	0.85	0.95	0.75
Estonia	0.84	0.99	0.82	0.85	0.94	0.64
Mauritius	0.82	0.85	0.96	0.74	0.91	0.70
Australia	0.82	0.94	0.96	0.86	0.94	0.44
Georgia	0.81	0.91	0.77	0.82	0.90	0.70
France	0.81	0.94	0.96	0.60	1	0.61
Canada	0.81	0.94	0.93	0.71	0.82	0.70

Source: ITU, GCI Report 2017

## Wateen and SES Networks Partnered to Offer Cellular Services in Pakistan

Wateen Telecom and SES Networks partnered to deliver cellular backhaul services to telecom network operators in Pakistan. Wateen and SES Networks Partnered to Offer Cellular Services in Pakistan The agreement will offer Wateen with access to high-powered C-band capacity on SES's NSS-12 satellite at the prime orbital location of 57 degrees East. Moreover, the satellite capacity, coupled with Wateen's strong system integration capabilities, will provide a high-quality cellular backhaul service. Furthermore,

Wateen Telecom will support both 2G and 3G backhaul services on this network. CEO at Wateen Telecom, Rizwan Tiwana said: This marks the beginning of an exciting new partnership with SES Networks, and a continuation of our commitment to offer the best service quality. Imran Malik, Vice President Fixed Data, Asia-Pacific at SES Networks said: We are pleased that Wateen Telecom recognizes the benefits of SES Networks' seamless network and other capabilities, tapping into our high-powered satellite to bring reliable and

high-quality cellular backhaul services to mobile network operators. We look forward to building a strong strategic partnership with Wateen Telecom. Furthermore, Wateen Telecom customers can depend on it for reliable and enhanced voice and data signals. Moreover, the signals will deliver to remote mountainous areas delivered via SES Networks' high-performance connectivity. Additionally, the mountainous areas includes north and inaccessible southern regions of the country.



## Saudi Arabia, Pakistan to Work Closely in IT Sector

Pakistan's Ambassador to the Kingdom Khan Hasham Bin Saddique met with Haitham A. Al-Ohali, Vice Minister of Communications and Information Technology, at his office in Riyadh. They discussed relations between the two countries. The talks especially focused bilateral cooperation in the fields of communication and information technology. The Ambassador highlighted the potential for cooperation in the IT field as Pakistan has been making rapid progress under China-Pakistan Economic Corridor and Saudi Arabia is implementing its Vision 2030 focusing on its main themes of digitization and artificial intelligence. Haitham, while agreeing to the Ambassador's assessment, stressed the need for the two countries to identify and work closely on possible avenues of cooperation in the field of IT and digitization. He also talked about the various ICT initiatives under way in the Kingdom. They also discussed cooperation at multilateral forums.



## Need of ICT in Health, Education Stressed in Nepal

Stakeholders have stressed that government bodies and agencies concerned need to bring clear plans, policy and programmes to implement information and communication technologies in health, education and governance sectors. While interacting on a research paper 'Status and Implementation of Action Lines of WSIS beyond 2017' presented by EICT Nepal Pvt Ltd in the capital today, stakeholders put forward their suggestions. The research paper was presented at a program titled 'Multi Stakeholder Workshop on ICT for SDG in Health, Education and Governance' and supported by Nepal Telecommunications Authority. The World Summit on Information Society is the UN organization

which aims to bridge the gap between rich and poor countries by spreading access to internet in developing countries. The research paper has compiled four target areas, out of 10 envisioned by the WSIS. It has suggested improving the teaching and learning process within four years by providing internet connectivity in all primary and secondary schools to aid the education sector. Similarly, it has proposed digitizing all records in health care units and hospitals in the country. In term of good governance, the research paper has suggested providing fully internet-based services to service seekers. The research forwarded seven different plans and programmes for education, nine for health

and 13 for good governance. Speaking at the program, NTA Chair Digambar Jha said internet service in Nepal is comparatively cheaper than other developing countries, which can help achieve the SDG goals. Joint Secretary of Ministry of Education, Science and Technology Baikuntha Aryal said computers were available in 90 per cent of community schools in the country and of them, 30 per cent had access to internet. Information and technology expert Manohar Prasad Bhattarai said internet connectivity in rural areas should be made available at cheaper rates than in urban areas. Bhattarai also stressed that the government should make clear rules and regulations regarding the same.

## Tunisie Telecom Upgrades IP Transit Port with Sparkle to 100G

The Tunisian incumbent operator says this is its main trunk to Europe and the upgrade responds to the fast growing demand of advanced IP services and digital content in the country. Sparkle – the international services arm of the TIM group – operates the Sicily Hub, which is connected to all cable landing stations in Sicily and is

served by Seabone, Sparkle's Tier 1-grade global IP transit service. Tunisie Telecom said the new 100GBps connectivity option responds to the increasing demand of digital content in North Africa. Tunisie Telecom – which has six million customers and offers the largest mobile coverage in the country – owns and operates a

nationwide fixed network infrastructure. The new port is Tunisie Telecom's main trunk to Europe. Sicily is closer to North Africa, the Mediterranean and the Middle East than any other European peering point, enabling Sparkle's hub to offer better latency and enhanced application performances to its customers.

## Pakistan to Have 100 Million Smartphones in Next Two Years

The advent of smartphone and wireless technologies in the country during last few years have led to creation of numerous innovative services and applications that are being used to ensure benefits for different kinds of users. This is smartphone through which spreading online information to people regarding education, technologies, agriculture and other domains have become simple and fast. The mobile broadband like 3G and 4G are flourishing amid mobile broadband expansion. As per report of GSMA, by year 2020, a whopping 90 per cent of Pakistani population will have access to 3G networks while an impressive 80 per cent population will have access to 4G. Obviously, mobile broadband growth means flourishing of smartphone. The mobile broadband users growth in Pakistan is expected to touch 8 per cent mark in coming years as the country would have more than 100 million smartphones by 2020. The third-generation (3G) and 4G mobile phone users stand at around 56 million and continue to grow, creating a huge demand for smartphones, which is the top selling category across all major ecommerce platforms. Publicly available data shows mobile phone imports in terms of value and not in units, making it difficult to figure out category-wise imports. However, market sources say less than 20 per cent of Pakistan's monthly mobile phone imports comprises smartphones.

This equation though is likely to change in a couple of years. It merits mentioned that Pakistan's e-commerce market is still in its infancy and represents only 5 per cent of conventional retail trade. However, the overall size of this fast growing segment is growing, up by two-thirds from \$60 million as of 2014. When contacted, Khurram Bhatti, a telecom expert, having 20 years' experience told APP that evolution of smartphone has been fast and swift and playing a major role in different areas. He said hefty investments in sector by network operators resulted in a combined 3G/4G coverage in Pakistan reached more than 80 per cent of the Pakistani population. Khurram said today mobile apps and services are being designed and released in different parts of the world.

In Pakistan, farmers are being facilitated through smartphones apps to enable them get proper guidance swiftly on palm of their hands. The farmers are benefiting in a big way as the smartphones display agriculture related information to them within no time and are helpful from sowing to harvest of crops, local weather updates and crop marketing etc. The overarching benefits of ICT in agriculture are that it reduces transportation and bring about product traceability, disease and pest tracking, and storage. The best part of mobile applications is that majority of them are free and masses can benefit from their use. As mobile applications are getting interactive and beneficial day by day, more and more brands are realizing crucial need to have one.



## VEON to Take Full Control of Pakistan, Bangladesh Divisions

Russian-backed VEON has submitted an offer to take direct ownership of its Pakistan and Bangladesh mobile operating units currently held via the group's majority-owned Egypt-based subsidiary Global Telecom Holding (GTH). VEON, listed on the US NASDAQ and Euronext Amsterdam stock markets, said in a release that the plan is aimed at simplifying its group

structure and enhancing shareholder value, whilst increasing its operational focus on emerging markets, as this week it also announced a deal to divest its share in Italy's Wind Tre. VEON's USD2.55 billion offer to acquire Banglalink (Bangladesh) and Pakistani cellco Jazz (including Mobilink/Warid) from GTH was submitted on July 2 and is subject to approval of GTH

shareholders at an extraordinary general meeting and certain regulatory approvals. Completion of the transaction is expected in Q4 2018. VEON owns 57.7% of GTH and already consolidates the results of Jazz and Banglalink, plus another GTH subsidiary, Djezzy (Algeria), which will continue to be held via the Egyptian sub-division.

## Afghan Government Struggles to Establish Mobile Tax Monitoring System

Three years after having imposed a 10 percent levy on telecom services, the National Unity Government (NUG) has still not managed to implement the Real Time System to monitor the collection of the taxes. The NUG in 2015 imposed a new tax system on mobile phone users, whereby 10 percent of revenue generated has to be paid over to government. According to the Ministry of Communication and Information Technology (MoCIT), in the last three years \$11.8 billion USD has been generated from telecom taxes. "The responsibility for the establishment of the Real Time System was given to a few government departments which faced some delays. But since the responsibility has been handed over to us, no problems have occurred" MoCI minister Shahzad Gul Aryoubi said. However private telecommunication companies said government has failed to implement the

system in three years, but that they rolled out their system in just 14 days. They said government is refusing to use the system developed by a private company. "We are ready to show the minister that this system works, and they can develop it further in the future if they want. But now it works," Ali Askar Zada, an official from Etisalat telecommunication company said. TOLONews' findings show that billions of dollars have been collected in the last three years. But the only reporting system being used in the tax collection process is a paper based system. In this system, the telecom companies prepare a four-page report every 15 days and report to government. Then a team from the Ministry of Finance, MoCIT, Ministry of Economy and the Afghanistan Telecom Regulatory Authority (ATRA) assess the reports and then collect the taxes. Following sharp criticism about the lack of transparency

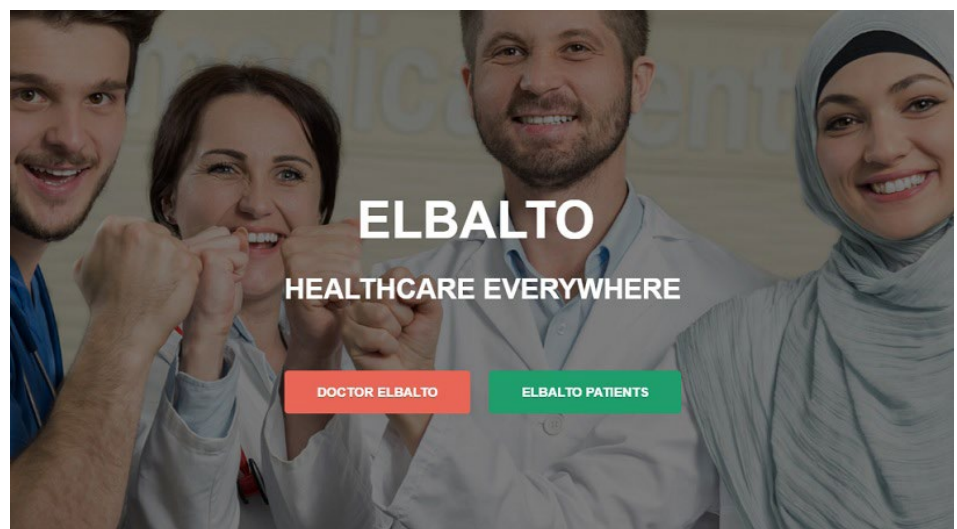
around the tax collection system, former finance minister Eklil Ahmad Hakimi on Wednesday said in an interview with TOLONews the implementation of the Real Time System has been delayed because telecommunication companies have not done enough to help government. "The telecom companies are the main obstacle for establishing a good system that enables us to collect every AFs of the tax," Hakimi said. The private companies now say that based on President Ashraf Ghani's decree, telecom tax collection is the duty of government and that the relevant department should collect the taxes in whatever way they can. "I think the advisors of the officials do not feed them the correct information and the officials make decisions based on the wrong information," Ali Askar Zada, an official from Etisalat said.

## Egyptian e-Health Startup ElBalto Launches Mobile Consultation Service

Egyptian startup ElBalto has launched a mobile application that provides users with easy, reliable, timely and affordable online video consultations via a network of customer-rated and licensed doctors. Video consultations offered on ElBalto will initially be available in the specializations of Psychiatry, Pediatrics, Nutrition and Gynecology, while the startup will also offer home visits in areas like Orthopedics and Cardiology. "Currently, Egypt is suffering from a significant imbalance in the health workforce distribution, with doctors concentrated in the big cities and urban settings," said co-founder and chief executive officer (CEO) Mahmoud Abdalla. "I was personally inspired when I became a father and had to go with my wife and newborn every other week for a doctor's appointment to get answers to very basic questions, or to follow up on treatment. We were both struggling with time, effort, cost and logistics, let alone the inconvenience if we work at the time or if the doctor cancels the appointment, which is sadly common."

Abdalla's solutions is the self-funded ElBalto, which will take a percentage on the fee of each consultation conducted through its platform. He said the startup does have expansion plans. "For the online video consultations, we are starting with Egypt in general. As for the home visits, a

service that will follow the launch, we will start with selected areas, including New Cairo, Zayed City, and October City, based on market research," he said. "We are also planning to expand the business to cover more specializations and more geographic areas inside and outside the country."



## SaaS on the Rise in Pakistan

The cloud has become one of the biggest paradigm shifts in the computer age building new rules for businesses and how people work. It's also transforming the way we communicate and share information, making it the core behind all the digital disruptions. Realizing the true potential of best cloud platforms that support business growth, organizations worldwide including industry leaders and emerging startups are taking their businesses to the next level. Every business in each industry globally has been influenced by the cloud, which is changing the service delivery methods and consumer behavior. Today, businesses require faster access to market, agility, innovation and performance, and with the cloud, they can create compelling applications with better end-user experiences, workflows, security and analytical capabilities to help increase revenues and reduce costs. As modern businesses and innovative IT technologies originate in the cloud, industry analysts predict that 1 over 50% of all enterprise data will be managed in the cloud and 80% of application operations will be resolved autonomously, thanks to the significant improvements of cloud technologies. The growing portfolio of Software-as-a-Service (SaaS) applications has enabled businesses to directly acquire solutions with little or no assistance from the IT department, eliminating the need for upfront capital and reducing the lag time from decision to value from months to days. Pakistan, as a market, has witnessed tremendous growth in its cloud transformation drive over the last few years. From financial institutions to ICT providers, educational institutions to blue chip companies, local businesses have come on board for faster innovation and business transformation through cloud applications. Oracle Cloud has played a key role in this journey, assisting top-notch Pakistani organizations to modernize their business processes and systems by simplifying and standardizing the performance of key business functions including human resources (HR), finance, and supply chain. Pakistan's emerging online marketplace Goto.com.pk successfully deployed Oracle Cloud to give a boost to its foothold in the

online shopping industry, help improve business efficiencies, streamline inventory management and provide an enhanced shopping experience to its customers. Sardar Bahadur Khan Women's University (SBKWU), a leading research and teaching institution in Balochistan, has started to transform its core financial processes with the deployment of Oracle Cloud, which can help provide employees with real-time access to critical information and help improve the efficiency and consistency of its planning and budgeting processes. Multinet Pakistan, one of the country's premier information and communication solutions provider, has selected Oracle Cloud Applications to help modernize its financial operations and to help completely automate the key processes in order to free up its staff from routine transactions and focus more on innovative data analysis to support more informed decision-making. The beauty of Pakistan's cloud journey is that it has helped organizations realize the importance of moving into an OPEX (operational expenditure) model from a CAPEX (capital expenditure) model. Many businesses have understood that it is not just about spending money on technology but a prime opportunity to rationalize their finance operations, which, in the long run, can have a much bigger impact on their bottom line than cutting IT costs. Deployment of modern cloud applications has also helped Chief Information Officers (CIO) become more strategic. Implementing cloud-based

applications provide companies with the opportunity to take a step back and reevaluate all of the existing controls, roles, and segregation of duties; meaning that C now have a lot of space for innovation and strategic business thinking. Organizations are increasingly adopting cloud-based management solutions. According to the recent 2IDC Vendor Spotlight survey, 50% of the users planning net-new IT operations analytics (ITOA) solutions want to move from on-premises to cloud service-delivered solutions. Public cloud-delivered system management revenue grew 46% in 2016. Strong growth of public cloud-based solutions is forecasted to continue through 2020 with revenue expected to grow to more than double 2016 levels. For Pakistani businesses, the reality is that technology-driven disruption is happening at a breakneck speed and businesses must sprint to keep up with fast-changing variables. Competitive pressures, the impact of disruptive technologies, and constantly increasing user expectations make the speed of delivery and quality of service top priorities. A new breed of comprehensive and automated system management solutions is needed to ensure these qualities in complex, high-scale, hybrid IT environments. While some Pakistani companies are ready to move completely to the cloud, most desire a systematic approach – moving applications, one-by-one, to the public cloud, while retaining some mission-critical workloads on-premises. 📌





# Nokia 5G Future X

Unleashing the  
potential of 5G

**NOKIA**

## ARTICLE

# Nokia: Building Critical Communications Networks for Aviation Industry

**Nokia is not only into advanced network infrastructure technologies supply business for telecoms operators and enterprises, but also for government entities to build critical communications networks. In aviation sector, Nokia critical communication solutions form the foundation for smart airports, deliver on the key ANSP requirements, and elevate broadband to the skies. Its solutions are designed to ensure safe, on-time and connected air travels.**

## Solution for airports to establish a smart, connected airport

Airports are like condensed cities, comprising a multitude of enterprises, concessions, retail shops, airlines, service companies, government agencies (air traffic control, customs and border control) and public safety organizations. Millions of passengers pass through them each year, and they are the workplace of thousands of employees.

Airports looking to thrive in the years to come will need to address the dynamics of the following market drivers: passenger growth, competitive pressure, attracting vendors that passengers want, providing services that increase the traveler engagement and satisfaction and of course airport safety. To be successful as businesses, airports will thus have to focus on three major imperatives: improve passenger experience, increase operational efficiency and improve financial success.

Communication systems will play a pivotal role in meeting these airport business imperatives. Until now, airport operators have typically deployed multiple separate networks at different times, along with different infrastructure projects paid for from isolated budgets. The result is a plethora of siloed networks built with different technologies and managed by disparate network managers.



**Richard van Wijk**

Global Practice Lead – Aviation  
Nokia

**NOKIA**

**How Nokia's Smart Airport solution differs**  
Nokia's mission-critical converged solution efficiently address airport's imperatives to establish a mission-critical communication system foundation for a smart connected airport.

Nokia mission-critical airport solutions for safe, on-time and connected journey will provide the main capabilities described below:

- **Ultra Reliable:** The airport's network is no less an asset than the runways – it needs to be world class, service all traffic, be secure, operate 24 x 7 x 365, scalable and be able to generate revenue.
- **Security:** With the digital transformation of the airport, security becomes of utmost importance. Nokia solutions to secure operations, networks and endpoints in an automated way delivers on this task. Moreover, Nokia solutions bring additional situational awareness through mobile cameras and CCTV
- **Awareness:** In order to become more operationally efficient and allow for new business models, airports have to get better awareness of what's going on in their networks as well as automate tasks. Nokia provides exactly that insight as well as task automation
- **Financials:** Nokia carrier class technology has been used by Service Providers all over the globe for many years to generate revenue, airport operators have the same opportunity. Embracing multiservice technology will allow airports to collapse silo's and effectively reduce costs.
- **Efficiency:** Nokia solutions bring more efficiency in the way the airport operations communicate with each other
- **Green:** Reducing power consumption and hence carbon footprint is at the heart of every solution we bring. Moreover, our IOT solutions allow airports to further optimize on reducing their carbon footprint.

### **Solution for ANSPs to establish ground-ground mission-critical communications**

ANSPs (Air Navigation Service Providers) and related stakeholders can address their

mission-critical network services with Nokia's ground-ground communication solution. Nokia's solution encompasses an IP/MPLS-based mission-critical network including a managed service either for a domestic or international/regional network covering voice and data communication. The solution ensures that ANSP legacy services are supported and you are prepared for new requirements that are emerging from future Air Traffic management (ATM) concepts.

The need for communication at a domestic and international level for ATM business has become perceptible with the potential withdrawal of point-to-point connections from telecommunications providers, thereby creating a need for an IP-based network for new and emerging ATC applications.

The strategic vision of the International Civil Aviation Organization (ICAO) to achieve sustainable growth of the global civil aviation system that enables airspace users (including aircraft operators) to meet their operational needs with fewer constraints but without lowering safety levels has inevitably created the need for development of ATM networks. This vision requires the application of technology that will enable the transformation of ATM by supporting collaborative decision-making (CDM), dynamic airspace management, strategic conflict management and flexible use of airspace, among other considerations. CNS/ATM systems are crucial components of the transformation drive.

In addition, the primary users of ATM services (the airline industry) demand safe operations and are looking for ways to improve their efficiency. According to IATA, achieving the ICAO vision will result in a wide range of benefits such as safe operations, efficient use of resources, reduction in emissions and overall lowering of operational costs. ANSPs recognize that better communications, navigation and surveillance systems will undoubtedly increase the level of safety. The use of improved data and voice communications services as well as enhanced aeronautical information services combined with

precision navigation tools such as Global Navigation Satellite Systems (GNSS) solutions will significantly reduce the hazards the traditional solutions could not tackle. But this will certainly require a robust and efficient infrastructure to support the emergence of new applications and services.

Some key requirements for ANSPs includes the provision of a solution that meets ANSP safety standards, security and service continuity. It is crucial that operations are protected to the greatest possible degree using a platform with the highest possible resilience to failure and resistance to external interference. Equally important during migration for ANSPs is to ensure that there is a seamless transfer of legacy applications and services to the new operating environment.

Nokia has positioned itself strongly in the transport community with specific focus on the Aviation environment. Nokia works closely with Airport Authorities and ANSPs on long term partnerships by installing and maintaining the networking infrastructure and applications, enabling airport and ANSP operations in an efficient, secure and safe way.

Nokia's ground-ground ANSP communications network solution provides the required protection and resilience to support ATC safety, security

**Nokia has positioned itself strongly in the transport community with specific focus on the Aviation environment. Nokia works closely with Airport Authorities and ANSPs on long term partnerships by installing and maintaining the networking infrastructure and applications, enabling airport and ANSP operations in an efficient, secure and safe way.**

and service continuity requirements. The ground-ground solution is composed of an IP/MPLS network and managed services.

#### Uniqueness of Nokia approach

- Tailored technology and services
- Full turnkey end-to-end solution
- Multiple business models to match any market
- High Reliability and Security Hardened IP/MPLS Platform with highest integration of legacy interfaces/applications

#### Benefits:

- Substantial cost savings in provision of network infrastructure support services
- No need to recruit, contract or manage considerable numbers of network specialist staff
- Better exploitation of technology for business benefit

### Solution for in-flight broadband access

Nokia LTE air-to-ground (A2G) technology is well suited to provide broadband connectivity to continental aircraft flights. It has significant technology and cost advantages over existing and future satellite solutions. Nokia is the leader in A2G solutions with European wide commercial deployment to provide cost-effective in-flight broadband that offers the best possible services to airlines and their valued passengers. This use case describes how Nokia can help you to offer in-flight broadband access with our innovative LTE A2G solution.

Passenger traffic continues to rise annually, with significant competition among airlines to provide best-in-class in-flight services. Key among these is broadband connectivity. Today's flyers are increasingly accustomed to broadband connections anywhere, 24/7. They need to stay in touch with family and maintain critical business communications, and they want to access to entertainment in their free time. When they fly, they want broadband connectivity equal to what they experience from terrestrial networks and Wi-Fi hotspots. These expectations are increasing demand for fast, seamless

connectivity on an aircraft to the point where an airline's in-flight broadband capability has become a key competitive advantage.

Currently, most in-flight connectivity uses satellite backhaul, with vendors operating a satellite/ ground internet system. For short-haul and medium-haul continental flights, these systems tend to be bulky and expensive. Additionally, current capacity is limited and exhibits high latency, especially when serving a large number of continental aircraft in a limited geographic area.

#### How Nokia's approach differs

Nokia LTE A2G utilizes a ground-based cellular system to create a direct link between the aircraft and the ground for broadband IP connectivity without the delay hop via a satellite. With a highly efficient air interface and a flat IP network architecture, LTE is an ideal platform on which to deploy an A2G network. Passengers enjoy in-cabin high-speed internet services using Wi-Fi connectivity.

LTE A2G has several compelling advantages over existing systems:

- LTE A2G provides the best customer experience with outstanding performance. The LTE A2G solution outperforms existing L band and Ku band satellite solutions in bit rates per aircraft, with the additional benefit of much simpler, lighter and less-expensive aircraft equipment, especially compared to the Ku band equipment.
- LTE A2G uses a dense ground network where each site contributes to network capacity instead of a single satellite to share its capacity over a very large region.
- Unlike satellites, the flexible LTE A2G approach allows rolling out and expanding the network capacity exactly where it is needed by adapting the cell sizes or increasing the number of cells.
- LTE A2G also can provide multimedia services to passengers should airlines decide to offer that option.
- LTE A2G is based on fully standardized technology

- Lightweight of equipment (efficient airplane fuel usage) and reduced installation time to allow airplanes go quickly into service

**Nokia LTE air-to-ground (A2G) technology is well suited to provide broadband connectivity to continental aircraft flights. It has significant technology and cost advantages over existing and future satellite solutions.**

#### Benefits

- The A2G LTE solution offers cost-effective, optimized operations for airlines. A2G LTE is based on off-the-shelf technology with a wide, established ecosystem of components. It is less expensive to acquire, deploy and operate than satellite systems, with less downtime for maintenance and a relatively low weight (as compared to satellite) for more efficient fuel consumption.
- In addition to providing advanced passenger communications and entertainment services, airlines can upload and download essential real-time flight data via a broadband connection rather than through time-consuming static hard disk data transfers at ground stops.
- A2G LTE also can enhance maintenance by offering real-time problem identification; maintenance crews can minimize the time for diagnosis and go straight to fixing the issue.
- The LTE A2G solution can be expanded further toward a complementary channel for controller-to-pilot data link communication as well as a data channel for cabin crew to communicate with the airline's operational center or air traffic control. 📍



## SATELLITE NEWS

### Telstra Selects Gilat's Satellite-Based Backhaul Solution for Rural 4G Expansion

Australian multi-service provider Telstra has selected Gilat Satellite Networks' backhaul solution to expand its 4G mobile service throughout remote locations across Australia. In a press release confirming the development, Gilat claimed its satellite backhaul solution will enable a fast and smooth integration into Telstra's network, with its DVB-S2X Capricorn VSAT, a member of the SkyEdge II-c

platform, being a 'key part of Telstra's 4GX-lite Mobile Satellite Small Cell offering'. As a result of the deal Telstra expects to be able to extend service to new areas for the benefit of customers such as rural farmers, mining companies and local councils. Commenting on the matter, Oded Sheshinski, regional vice president for Asia-Pacific at Gilat, said: 'We are excited about the opportunity

to be working with one of the world's leading telecommunications service providers, and are pleased to deliver 4G cellular backhauling at true LTE speeds ... Telstra's selection further validates Gilat's vision that LTE cellular backhauling over satellite provides affordable, high quality broadband connectivity, and solidifies Gilat's technical and services leadership in this growing market.'

### Mu Space to Launch New LEO Satellite

Mu Space plans to launch a new satellite into Low Earth Orbit (LEO) in a significant strategic move. The company will collaborate with SSL, a Maxar Technologies company and provider of satellites and spacecraft systems, to develop concepts for communications and Earth observation satellites. SSL will help Mu Space with its

plans to launch a satellite into LEO in the early 2020s. The satellite will be used for Earth observation applications, including remote sensing, but could also be used for agricultural observation, national security operations, and satellite-enabled broadband applications using phased-array antennas. Mu Space aims to enable

Internet of Things (IOT) solutions via its LEO satellite, according to Mu Space Chief Executive Officer James Yenbamroong. This is "made possible with LEO satellites' lower launch costs, reduced power requirements, and a significantly reduced round-trip transmission delay."

### Bahrain Targets First Satellite Launch within Two Years

Bahrain is setting up a highly-qualified team so it could contribute to launching the country's first artificial satellite within two years, it was announced in a statement by the Bahrain News Agency. "The Kingdom is planning to optimize the use of space sciences within five years to serve national development and keep abreast of global strides", said Transportation and Telecommunications Minister, in charge of the National Space Science Agency (NSSA) Kamal bin Ahmed Mohammed. It is not yet clear whether the space agency is planning a satellite launch for military/science needs or to enable television transmission and communications, or if

the plan is for a satellite capable of both functions. Bahrain is well served by an extensive satellite coverage via Arabsat as well as Nilesat, the UAE's YahSat, and the Es'Hail crafts. Bahrain's space agency laid out its satellite plan in a call hosted on the Instagram Live account of the Bahrain News Agency. The program involves setting up a Bahrain Space Team of fresh engineering graduates to staff the project and a 2-year training scheme which will commence in October. "The agency has so far received up to 400 applications to be part of the team", said that the minister, expecting the number of candidates to increase as the deadline to apply will expire

on the 29th of July. During the Instagram Live broadcast which was followed by up to 4700 people, the minister expressed the hope that the first artificial satellite would be announced within the coming six months. The National Space Science Agency will cooperate with the University of Bahrain and Bahrain Polytechnic among other prominent academic institutions based in development countries. The NSSA Minister extended thanks to the Kingdom of Saudi Arabia, to which Bahrain is very closely aligned, and the United Arab Emirates for their support.

## Raytheon to Work on NOAA's Polar Satellite Ground System

NASA awarded Raytheon's Intelligence, Information, and Services business \$59 million for additional work on National Oceanic and Atmospheric Administration (NOAA)'s Joint Polar Satellite System Common Ground System project (JPSS CGS). The JPSS CGS was developed by NASA for NOAA, and collects and disseminates observations from polar-

orbiting weather satellites from the U.S., Europe, and Japan. The changes are necessary to launch the U.S.'s next polar satellite, JPSS-2, in 2021. The project recently completed the critical design review for the work and compatibility testing between the satellite and ground system will begin in early 2020. In addition to changes to the command and control

system and orbital dynamics system that will maneuver the JPSS-2 satellite in space, the contract also covers upgrades to the system's simulation and cybersecurity capabilities, as well as expansion of the system's wide area network and security incident response team. The new contract brings the total value of the project to just under \$2 billion.

## Inmarsat's SwiftBroadband Successful in RPA Trans-Atlantic Flight

Inmarsat Government has been boosted by the news that a General Atomics Aeronautical Systems (GA ASI) Remotely Piloted Aircraft (RPA) flight test has successfully used SwiftBroadband, Inmarsat's L-band service. GA ASI-owned MQ-9B SkyGuardian RPA flew from the company's Flight Test and Training Center in Grand Forks, North Dakota, U.S., to the United Kingdom's Royal Air Force (RAF) Fairford base in Gloucestershire, U.K. The flight test was the first trans-Atlantic flight of a Medium Altitude, Long Endurance (MALE) RPA. SwiftBroadband eliminated the need for forward deployed ground infrastructure for command and control as well as takeoff and landing operations, an option not commonly available for RPA operations.



## Intelsat: Satellite Operators Must Be Consulted on 5G Standards

Regulatory bodies must involve satellite operators in their 5G plans to fully maximize the potential of next generation mobile networks, according to industry experts. Speaking exclusively to Total Telecom at the ConnecTechAsia event in Singapore this week, Terry Bleakley, regional vice president for Asia Pacific at Intelsat said that satellite had a major role to play in the rollout of 5G, right across the world. "We see a huge opportunity with 5G. The thing that we have learnt from 3G, 4G and LTE is that we need to be a lot more involved on the standards side of things. We need to be more proactive on satellite and not end up having to work out after the fact how we are going to integrate satellite into the ecosystem. "We've been working with 3GPP. We have been trying to raise the profile of satellite through the

3GPP group, so that when they have their conversations about the need for multiple access technologies and the need to integrate that into 5G, they can specifically mention satellite as a technology that can help to make 5G be fully realized," he said. Bleakley says that satellite technology may be especially important in the early days of 5G, while network coverage is still patchy. "The challenges that 5G has with densification, with the speeds they are looking to hit, hybrid networks are certainly going to be a crucial thing in the future, and satellite is going to be a part of that. We believe that satellite can come out of its own shadow a little bit with 5G. "We are starting to get a lot of traction on that front. Satellite is starting to be mentioned in instances where it wasn't before, especially with the throughput of satellite

systems increasing now. "The thing to remember with 5G is that, depending on what spectrum they end up using for it, the distance you are going to get from your base station is going to be a lot less than with LTE. So that's why you need network densification – you need a lot more cell sites than you need for 4G and that's going to be a big cost. "Operators aren't going to be able to lay fiber everywhere that it is needed and certainly not right away, so satellite can be used in those areas as a gap filler in the early days of 5G."Over the longer term it is brilliantly suited to serve those hard to reach locations where it isn't viable to lay fiber. "Ultimately, we need fiber, we need wireless technology and we need satellite technology to help make 5G a reality," he said.

## Pakistan Launches Two Satellites

China launched the Long March 2C rocket, which was carrying two Pakistan remote sensing satellites into the orbit, from the Jiuquan Satellite Launch Centre. The PRSS-1 is China's first optical remote sensing satellite sold to Pakistan and the 17th satellite developed by the China Academy of Space Technology (CAST) for an overseas buyer. A scientific experiment satellite, PakTES-1A, developed by Pakistan, was sent into orbit via the same rocket. The Pakistan Remote Sensing Double Star will be mainly used in Pakistan for land resources survey, evaluation, dynamic monitoring and management, resource utilization, environmental disaster monitoring, agricultural survey, and urban construction. It will play a positive role in the development of Pakistan's economy and improve the lives of people. Alongside, it will also provide space remote sensing information services for the China-Pakistan Economic Corridor, which is flagship project of Belt and Road Initiative. The satellite, which has a designed life of seven years, is equipped with two panchromatic/multispectral cameras, with a resolution up to a meter and a coverage range of 60 km. Designers say the two cameras are among the best exported remote sensing cameras made by China. They can be used to monitor plant diseases and pests. The launch of the rockets marks yet another

space cooperation between China and Pakistan since the launch of PAKSAT-1R, a communication satellite, in August 2011. It is also the first international commercial launch for a Long March-2C rocket within nearly two decades after it carried Motorola's Iridium satellites into orbit in 1999. According to Xu Qin, Deputy Chief Designer of the Changjiu Rocket, with the continuous development of China's remote sensing satellite technology. In May 2016, China and Pakistan had signed a contract for the Pakistan Remote Sensing Double Star Project, and China took the whole star

export as an opportunity in the project. The use of remote sensing satellites independently developed by China has promoted the return of long-two-propane rockets to the international market. "Before the launch, our model team and the Pakistani side had conducted many communication and coordination, stepped down and batched the task requirements, and provided thoughtful and watchful service, which was highly praised by the Pakistani side", Guo Wu, Deputy Commander of the March 2 C rocket added.



## Bidding War Likely for Inmarsat Satellite Firm

Inmarsat, the UK satellites operator, was at the center of a possible two-way bidding battle after a French suitor expressed interest in making an offer only two weeks after an American bidder was rejected. Shares in the FTSE 250 company rose by 4 per cent yesterday afternoon valuing the company at £2.9 billion after Eutelsat, based in Paris, said that it was considering making an offer. Eutelsat, which operates 39 satellites for broadcasters, phone companies and internet service providers, said that it was "currently evaluating a

possible offer for Inmarsat". There could be no certainty that a bid would be made and there were no details on possible terms. Under share market rules, Eutelsat has until July 23 to make an offer or walk away for at least six months. Inmarsat, based in London, operates 13 satellites, has annual revenues of more than £1 billion and employs 1,700 people. This month it rejected a proposal from Echostar Corporation of Colorado because it "very significantly undervalued Inmarsat and its standalone prospects". But Echostar

appeared undeterred last week when it said it had gleaned a near 3 per cent holding in the company and a 10.4 per cent position in its convertible bonds. Analysts at Jefferies said they viewed an offer from Eutelsat to have only limited industrial logic, and Inmarsat's spectrum holding in the United States would have more appeal to Echostar. The US Company has until July 6 to make an offer or walk away. Eutelsat's shares dropped by 6 per cent to €16.53. Echostar's rose 0.4 per cent to \$45.35.

## Making IoT Work at the Edge with Satellite

The Internet of Things (IoT) is projected to be one of the biggest technology growth engines of all time. Forecasters estimate there will be up to 70 billion connected devices by 2020, far exceeding the number of broadband connections among human beings. It will be awesome. How often have you read a paragraph like that? Quite a few times, I suspect. Whatever the technology under discussion today, the numbers are big, the potential is unlimited and the writer seems to be breathing very hard. As a futurist recently reminded me, technology forecasts are generally worthless. Nobody knows how big or important the Internet of Things will be. Certainly, the potential is there. Properly implemented, IOT should be able to predict when machinery needs to be repaired and optimize production in factories. It should automate inventory management and monitor medical patients' vitals. Your city

may get smarter. So may your home and your car, and your phone will know what you want before you do. What forecasters forget is the terrible track record of complex technology implementations. According to a 2009 IDC report, 25 percent of IT projects fail outright. Another 20 to 25 percent provide no return on investment,

and the rest require major reworking by the time they are finished. More useful than forecasts are examples of what is actually being done in IoT, and in particular where satellite has a real chance to carving out a valuable niche.



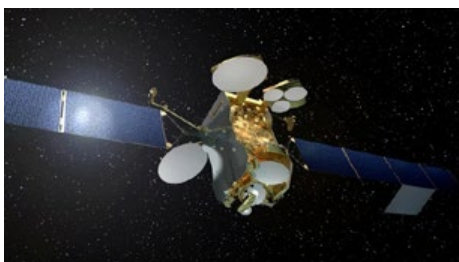
## Australian Startups Team Up for Satellite IOT Security Trials

Australian Internet of Things (IoT) startups Cog and Fleet have partnered to advance satellite-connected IOT device security. Fleet will use Cog's D4 Secure platform on trial projects globally. Cog's D4 Secure platform will be used during the trial to provide radio isolation, proactive kernel

protection, and a Virtual Private Network (VPN) tunnel for secure data transport. "We were drawn to Cog's D4 Secure platform because of its ability to use modularity to isolate critical functions on cutting-edge IOT devices like ours," said Fleet CEO Flavia Tata Nardini. Fleet's technology focuses

on satellite-enabled massive IOT devices for remote industrial agriculture, maritime logistics, mining and environmental applications, which traditionally operate in areas with no cellular or public Low-Power Wide-Area Network (LPWAN) coverage.

## Bambu Wireless Selects EUTELSAT 172B to Provide Connectivity Services Across the Philippines



Bambu Wireless, a Philippine Telecommunications Solutions Provider, has signed a multiyear contract with Eutelsat Communications (Euronext Paris: ETL) for capacity on the EUTELSAT 172B

satellite. Commercialised under the brand BambuSat, the capacity will be used for broadband, maritime, and government services across the Philippines' 6,000 inhabited islands. Bambu Wireless will leverage Ku-band capacity on EUTELSAT 172B to offer a wide range of connectivity solutions for education, healthcare, agriculture and logistics across the country's three island groups - Luzon, Visayas and Mindanao - that stretch over 1,850 kilometers. Simeon Sander III Dela Cruz, CEO of Bambu Wireless, said: "This agreement will allow us to benefit from

EUTELSAT 172B's exceptional coverage of the Pacific to overcome the significant connectivity challenges associated with the Philippine geography, bringing better Internet and VOIP services and ensuring communication needs are covered across the archipelago." Jean-Francois Fenech, CEO of Eutelsat Asia, added: "We are delighted to welcome our first Philippine customer, Bambu Wireless, on board EUTELSAT 172B, one of the region's youngest and most powerful satellites. We look forward to expanding our business opportunities in the region."

## AsiaSat, KBZ Team for OTT Video in Myanmar

Pan regional satellite operator AsiaSat and VSAT operator KBZ Gateway are joining forces to support over-the-top (OTT) video services in Myanmar. The companies will initially help support the free-to-air distribution of national TV channels, providing online video content via mobile and other connected devices, via satellite. The OTT via satellite video venture will help broadcasters and content providers reach their audiences instantly and cost effectively, the companies said. AsiaSat will provide satellite transponder space and teleport services for the venture, while KBZ will install, service and roll

out OTT set-top boxes in Myanmar. KBZ – which is a licensed VSAT operator in Myanmar – will also secure licenses for the content to be distributed on the OTT platform. “Continuous Innovation and excellence in service has been our motto from day one. This will help us bring OTT services to the remote regions of Myanmar and our customers will be able to enjoy content on any device via any platform of their choice,” said Virender Singh, chief technology officer and head of business, KBZ Gateway. “Our close partnership with AsiaSat has helped us achieve a superior service quality in the VSAT space and

we hope to bring even faster and better connectivity experience to remote and rural Myanmar.” AsiaSat’s chief commercial officer, Barrie Woolston added: “Innovation continues to push us forward, and we are keen to explore new and dynamic ways for people to enjoy services that otherwise could not be possible due to geographical restrictions. “We are excited to extend our partnership with KBZ beyond the traditional VSAT service to launch for Myanmar video service, and in the near future, deliver the service for wider communities across the Asia-Pacific.”

## ProSiebenSat.1 and Discovery Join Forces to Create German Hulu

ProSiebenSat.1 and Discovery join forces to build the leading German OTT platform by integrating their existing streaming venture 7TV, video-on-demand service maxdome and Eurosport Player in one place. Resembling Hulu set up by major broadcasters in the US, RTL, ARD and ZDF are invited to join the platform scheduled to launch in the first half of 2019. As a consequence of the joint platform, 7TV, maxdome and Eurosport Player will no longer be offered as individual stand-alone services, a ProSiebenSat.1 spokeswoman confirmed to Broadband TV News. The yet unnamed platform will comprise live-streams, a media library with local content as well as Hollywood productions and sports content. It will feature a free, advertising-funded service, a subscription-based advertising-free service and premium packages offering exclusive sports and movies. ProSiebenSat.1 and Discovery aim to create bespoke content and rapidly scale up and invest into the platform run by a team of more than 200 professionals. Whether the

approach to set up a central streaming platform for German broadcasters will receive regulatory approval, is uncertain, though, as previous attempts by RTL and ProSiebenSat.1 (project Amazonas) as well as ARD and ZDF (project Germany’s Gold) were blocked by the Federal Cartel Office. “All of us want to watch the entertainment we love whenever, wherever and on any device – so I am really excited that ProSiebenSat.1 and Discovery are joining forces to create the number one German streaming platform – our aim is 10 million users in the first two years and we are putting very significant resources and investment with urgency into this effort,” said Max Conze, CEO of ProSiebenSat.1. “I am inviting RTL and ARD/ZDF to join us, so we can have one German champion. This is just the start of the journey, now we roll up our sleeves.” David Zaslav, President and CEO of Discovery, said: “This is an exciting next step in our strategy of reaching more viewers on more screens as the global leader in real life entertainment and international sports.

Together with ProSiebenSat.1, we are building a world class streaming service to nourish superfans in one of our most important international markets while also creating a new model for the future for viewers to enjoy their favorite content.” The joint venture team in place is led by Alexandar Vassilev, former Google and YouTube executive. Conze will head the board of the joint venture. Jean Briac Perrette, President and CEO of Discovery Networks International, will represent Discovery on the board. Since October 2017, ProSiebenSat.1 and Discovery Communications have been offering joint content on 7TV, both as live-streams and through media libraries featuring content from their TV channels Sat.1, ProSieben, kabel eins, sixx, ProSieben Maxx, Sat.1 Gold, kabel eins doku, DMAX, TLC and Eurosport. WELT (formerly N24), N24 Doku and Sport1 have recently committed their content to the platform and will go live soon. 📺

## ARTICLE

## The New Oil for the Connected Age



### Dhanashree Bhat

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**Tech**  
**Mahindra**

In 2006, Clive Humby, the British mathematician who established Tesco's Club card loyalty program, is attributed to have coined one of today's most misused axioms around data – "Data is the new oil". Most people correlate Data with Oil, rather than looking at Humby's quote in entirety: "Data is the new oil. It's valuable, but if unrefined it cannot really be used. It has to be changed into gas, plastic, chemicals, etc to create a valuable entity that drives profitable activity; so must data be broken down, analyzed for it to have value."

**Business leaders today live in a heightened state of alert to the threats and opportunities arising from Digitization. The least common denominator of success will be the ability of an organization to organize and extract value from data.**

Treating data like oil – using it once then assuming its usefulness has been depleted and disposing of it – would certainly be a mistake. The internet and the data provided by Connected Ecosystems has the potential to break down the barriers to economic growth. The disparity created during the industrial revolution as people moved to towns and cities to find work no longer needs to exist, as essentially, the economy can be driven from our smart phones or wearables or connected devices. Our times are changing, and so must the way we manage and structure Digital Businesses or generate value from Data.

Business leaders today live in a heightened state of alert to the threats and opportunities arising from Digitization. The least common denominator of success will be the ability of an organization to organize and extract value from data. Exactly what was proposed by Humby, but with vastly different context than in 2006. The industry landscape today is going through an upheaval as digital ecosystems take shape. The ongoing digital revolution, which has been reducing frictional, transactional costs for years, has accelerated recently with tremendous increases in electronic data, the ubiquity of mobile interfaces, and the growing power of artificial intelligence. Together, these forces are reshaping customer expectations and creating the potential for virtually every sector with a distribution component to have its borders redrawn or redefined, at a more rapid pace than we have previously experienced.

As boundaries between industry sectors continue to blur, companies within traditional industry lines—will face off against companies and industries they never previously viewed as competitors. This new environment will play out by new rules, require different capabilities, and rely to an extraordinary extent upon data and the value that can be extracted from data. Not only for defending existing revenues, but also for attacking and capturing opportunities before others. McKinsey believe that by 2025, some \$60 trillion in annual revenue could be redistributed in the high tech, media, and telecom sector, where tech giants have built platforms on which entire ecosystems run. Not every company will succeed by orchestrating its own ecosystems. For many, joining existing ecosystems will be more effective.

Behind the scenes, the largest corporations have been building platforms to manage suppliers, connect to customers, and enable internal communication and data sharing. While many platforms are internal, the biggest and best known are more open: spanning e-commerce marketplaces, social networks, and digital-media platforms, connecting hundreds of millions of global users. Two headline making examples of such platforms are Airbnb and Uber. Their success is based on using digital technology to make accessible new sources of supply that were previously impossible (or at least uneconomic) to provide. Airbnb did not build or buy hotel rooms, it has brought people's spare rooms into the market. Uber, similarly, hasn't placed orders for new cars; it has brought onto the roads (and repurposed) cars that were underutilized previously. On the demand side, they have been able to remove information asymmetry, providing customers with more complete information and disaggregating aspects of products and services formerly combined due to artificial reasons.

Purifying supply and demand means giving customers what they always wanted but in new, more efficient ways.

This isn't where the disruptive sequence ends. Many of these new propositions, linking the digital and physical worlds, exploit ubiquitous connectivity and the abundance of data. In fact, many advances in B2B business models rely on things like remote monitoring and machine-to-machine communication to create new ways of delivering value by improving the connectivity of physical devices, layering social media on top of products and services, and extending those products and services through digital features, digital or automated distribution approaches, and new delivery and distribution models.

Companies like Amazon, Apple, Tencent, and Google are blurring traditional industry definitions by spanning product categories and customer segments using hyper-scale platforms that enjoy massive operating leverage from process automation, algorithms, and network effects created by the interactions of hundreds of millions, billions, or more users, customers, and devices. This operating leverage provides them an opportunity to upsell and cross-sell products and services without human intervention, and that in turn provides considerable financial advantages.

One of the key notions of digital business is that digital assets, capabilities and channels can allow us to create new scenarios where we can mine value. Customers now enjoy the conveniences of modern technology use with capabilities such as voice interactions and visual search. Engaging through technology then presents itself as an opportunity for businesses to use digital capabilities to leverage that customer convenience. Technology-driven options such as cryptocurrencies and blockchain technology and the rise of AI mean business engagement will be increasingly based on technology interactions at the machine level.

Referring back to Humby, data also needs to be collected and maintained in a usable and accessible format in order to achieve these economic benefits.

**Purifying supply and demand means giving customers what they always wanted but in new, more efficient ways. This isn't where the disruptive sequence ends. Many of these new propositions, linking the digital and physical worlds, exploit ubiquitous connectivity and the abundance of data.**

Currently, a staggeringly low 10% of all data is collected in a format that allows for easy analysis and sharing. The more data collected, the greater the complexity of the IT system needed to extract value and maintain proper protection. Merely collecting more and more data, without a clear use or data governance plan, results in more cost and liability than benefit. In addition, there's the risk factor of being exposed to unauthorized access or a hack and the cost of the servers to host the data, which increase by anywhere from 10%-60% if there are requirements that the data be localized within a specific jurisdiction. In summary, digital innovation is driving the move to business ecosystems by making it easy and quick to connect everything from organizations to things and providing the intelligence needed to manage resulting complexities. This sets the stage for innovation, creating opportunities to develop new business models, services, products and customer experiences. To leverage business ecosystems, organizations will need a paradigm shift in perspective, away from the traditional supply-demand economic perspective to an ecosystem perspective that sees the organization as a participant in a wider, more dynamic network of entities connected by the Data and the intelligence it holds about its customers and partners. 📊

For more information, and to explore how Tech Mahindra can help you drive value and insights from your data, please reach us at [connect@techmahindra.com](mailto:connect@techmahindra.com)

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## WHOLESALE NEWS

### BIPT Green Lights Wholesale Fiber Access Regulations

Belgian Institute for Postal services and Telecommunications (BIPT) has approved the proposed fixed market regulations in a bid to create competition and offer more choice in broadband and broadcasting. The news follows the green light given by European Commission (EC) which approved the plans back in May. At the time the EC gave its comments on the proposal of the Conference of Belgian telecom regulators (CRC) to impose regulations on Proximus and other regional cable operators. In its comments the EC criticized the CRC's definition of 'central access' markets and that it will not block the CRC's new proposal because it has demonstrated, through its joint dominance analysis, that there are competition problems. With this

approval, the BIPT said that the new rules will create more competition in the market and choice for internet and TV services. Under the new rules the dominant market players which includes Telenet, Brutele and Nethys as well as Proximus will have to open up their networks to other smaller players. In addition, the wholesale access prices will be reduced in some cases by up to 20%, starting this August. For Proximus in particular it must also provide wholesale access to its fiber-to-the-premises (FTTP) network. Speaking on the decision Orange said that it expects this to be of particular benefit to the B2B market. While at the same time both Proximus and cable operators must also guarantee a certain level to wholesale customers. The new

rules will also take into account the impact of various geographical areas, taking a lighter touch approach in areas that have at least three operators offering at least 30Mbps in services as well as areas lacking in broadband infrastructure. According to Telecompaper Belgian Telecom Minister Alexander de Croo praised the decision saying it would help bring down prices in the country. Croo recently advocated for the launch of a fourth mobile operator in the country to also bring prices down. Orange Belgium also welcomed the news saying that the new regulation would provide "more sustainable financial conditions over time".

### Telecom and Media Regulators Agree Wholesale Cable, Fiber Regulations

The CRC (a conference of telecommunications and media regulators, including BIPT, the CSA, the Medienrat and the VRM) has been given the green light from the EC on new regulations to open up cable and fiber access in Belgium. After analysis of the broadband and TV markets it was found that there was a lack of competition in these areas and that measures should be introduced to open up these networks, including lowering

wholesale tariffs, creating new access conditions and providing an incentive to invest in white spots. The CRC concluded that Proximus, Telenet, Brutele and Nethys have significant market power and that the networks of these operators must remain open to competitors requesting access. This measure is hoped to benefit those operators that do not have a fixed network and the CRC wants to foster the development of effective competition with

regards to broadband, internet and TV bundles. Allowing other operators to utilize the networks of the significant market players, such as Proximus, will encourage companies to compete by lowering prices, improving their service quality and/or launching new services. Beginning in August some wholesale prices will be reduced by as much as 20%. A list of the new decisions can be found on the BIPT website.

### NTC Orders Smart, Globe to Cut Interconnection Charges

The National Telecommunications Commission (NTC) in the Philippines has ordered Smart Communications and Globe Telecom to reduce interconnection charges for calls and text messages. Under the terms of NTC Memorandum

Circular 05-07-2018, dated July 19, 2018, the companies have been instructed to lower SMS interconnection charges from PHP0.15 to PHP0.05 per text (USD0.0024 to USD0.0008), and from PHP2.50 to PHP0.50 per minute for mobile phone calls.

The watchdog's order – part of a drive to reduce the cost of mobile services to end users – will become effective 15 days after publication in the official government gazette; the telcos will have a maximum 20 days in which to introduce the new rates.



## European Wholesalers Create Alliance to Accelerate Fiber Network Rollout

Some of Europe's most recognizable full fiber wholesale-only and open access operators recently met in Rome in presence of the Body of European Regulators for Electronic Communications (BEREC) chair, Johannes Gungl; and director general of FTTH Council Europe, Erzsebet Fitori. The group gathered to discuss the future of the telecommunications market and explore opportunities to accelerate the deployment and take-up of full fiber infrastructure across Europe. As might be expected, there was ample time dedicated during the meeting to the new European Electronic Communications Code (EECC), which is specifically addressed to wholesale only operators, providing them with a specific and lighter regulatory regime. The wholesale only model, providing access to multiple service providers without discrimination, is an ideal medium for the installation of very high capacity networks, as foreseen by the EECC, as well as a useful tool to facilitate the activation of services such as Internet of Things (IOT) and 5G. The new code encourages wholesale only operators by providing them with a specific, light regulatory regime as they naturally provide access to multiple telecom service providers without discrimination or abuses. The meeting ended with the creation of an alliance aimed at promoting the advantages of the wholesale only model to governments, regulators and financial investors, as well as promoting the awareness of these independent fiber networks to service providers and mobile operators. The alliance also believes it has a role in educating and informing the European consumer about what genuine very high capacity networks are and is challenging the misuse of the word 'fiber' in marketing broadband services that are delivered on legacy copper-based networks. Companies attending

the meeting which form the alliance are: CityFibre, from the UK; Deutsche Glasfaser from Germany; Open Fiber, from Italy; Gagnaveita Reykjavikur, from Iceland; and SIRO, from Ireland. Commenting on the meeting, Elisabetta Ripa, CEO of Open Fiber, stated: 'It has been a great pleasure for Open Fiber to host the meeting. The companies gathering in Rome have agreed to create an alliance to share best-practice and to promote the benefits and advantages of the full fiber wholesale-only, which deliver full fiber infrastructure far more efficiently than vertically integrated incumbent operators.' Sean Atkinson, CEO of SIRO added: 'The EU Digital Agenda is ambitious, and we believe that the new generation of non-incumbent 100 per cent fiber companies are best placed to help achieve its goals. We are delighted to be part of this new alliance and look forward to presenting a united voice on the importance of FTTH and FTTB is crucial at this important moment for European connectivity.' Greg Mesch, CEO

of CityFibre, said: 'Wholesale only has been at the heart of CityFibre's strategy from day one. It is the new generation of fiber infrastructure operators that are building FTTH faster, quicker and cheaper than incumbent legacy operators, and CityFibre welcomes collaboration with our alliance partners across Europe.' Agreed Uwe Nickl, CEO of Deutsche Glasfer: 'Sharing best practices to speed up deployment and take-up of pure FTTH networks is a crucial factor in achieving the European fiber goals. Together we can really move.' Erling Freyr Guomundsson, CEO of Reykjavik Fiber Network (Gagnaveita Reykjavikur), concluded: 'This new alliance will strengthen Reykjavik Fiber Network in its mission, driving better consumer experience for our customers and our wholesale allies' customers. We are certain that the wholesale open access business model can drive competition and increase the quality of connections.'



## ANACOM to Slash MTRs by 44%

Portugal's National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has confirmed that it will lower the mobile termination

rate (MTR) to EUR0.0042 (USD0.0049) per minute from 12 July 2018, representing a 44% reduction compared to the current price of EUR0.0075 per minute. The

watchdog has stated that the move 'alleviates distortions of competition that penalize the market, in particular smaller operators'.

## ComCom Seeks to Retain Power to Regulate National Roaming in NZ

The New Zealand Commerce Commission has released its preliminary view regarding national mobile roaming, noting that it seeks to retain the power to regulate the service, should it be required in the future. Under the Telecommunications Act, the Commission is required once every five years to consider the deregulation of certain services, including national mobile roaming. Telecommunications Commissioner Dr Stephen Gale

commented: 'National mobile roaming helped 2degrees deliver a nationwide service for its customers from day one, in advance of rolling out its own national network infrastructure. We believe the power to regulate remains an important competition safeguard, especially with 5G networks and potential new entrants on the horizon.' Submissions are welcome until 30 July, and the watchdog expects to make its final decision by 4 September

2018. TeleGeography notes that network operators are only required to make their networks available to access seekers who meet certain conditions, including having a network of at least 100 cell sites or having a network that covers at least 10% of the New Zealand population. National roaming regulation does not regulate wholesale access for MVNOs, however.

## TRAI Updates Interconnection Rules

The Telecom Regulatory Authority of India (TRAI) has issued an amendment to interconnection regulations, setting out guidelines and procedures regarding interconnection capacity. The Telecommunication Interconnection (Amendment) Regulations, 2018 states that a service provider may request additional ports at a point of interconnection (POI) if the expected utilization of the POI over a sixty-day period is likely to be more than 85%. Projected utilization of the capacity of the POI is to be determined based on the daily traffic during the busiest hour over the preceding sixty days. The provider can request sufficient ports to ensure that utilization of the capacity of the POI is reduced to less than 75% within sixty days of the request. Meanwhile, the amendment extended the timeframe for operators to provide additional ports to 42 days. Finally, every service provider will now be required to deliver to its interconnecting service providers a forecast of 'busy-hour' outgoing traffic for the following six months at each POI – the first are to be sent within sixty days of the amendment coming into force, and thereafter on April 1 and October 1 every

year. Interconnection became a major point of contention between incumbents and newcomer Reliance Jio Infocomm (Jio) following the latter's launch in 2016. The new entrant claimed that its entrenched rivals were not providing sufficient points of interconnection, leading to call failures, whilst the incumbents accused Jio of flooding their network with a 'tsunami' of traffic through its free offerings.



## Chile and Peru to Hold Talks on Eliminating Roaming

Chilean telecommunications regulator Subtel announced that the country's telecommunications undersecretary Pamela Gidi will meet its Peruvian counterparts next week to discuss the elimination of international roaming charges between the two countries. Earlier this month Gidi met with Silvana Myriam Giudici,

the newly-appointed president of Argentina's communications regulator Enacom, to give the final go ahead to abolish roaming between Chile and Argentina. The Chilean chamber of deputies has also approved a draft resolution asking the government to take the necessary steps to eliminate

## Mexico Launches Tender for 'Red Troncal' Wholesale Fiber-Optic Project

Mexican state-owned operator Telecomm has launched the tender for bids to develop the country's wholesale fiber-optic network (Red Troncal) after completing the public consultation stage. Telecomm was

awarded the concession to the fiber-optic backbone network of the Federal Electricity Commission (CFE) in 2015, and was tasked with drawing up a three-year investment and infrastructure development plan. In its

statement, Telecomm said the tender will be offered via a public-private partnership (PPP), with all interested parties needing to provide a MXN 80 million guarantee by October 10. [📄](#)



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## ARTICLE

## Weaponizing Dewey's Decimal System

Once a tool for librarians and their card catalogs, today, metadata has the potential to be both monetized and weaponized.



**Elad Yoran**

Executive Chairman  
KoolSpan



Newton's Third Law of Motion, stating that, "For every action, there is an equal and opposite reaction" can be used to describe today's focus on metadata. Social network operators, telecom carriers, and others are increasingly turning to metadata as they search for new and lucrative monetization opportunities in data analytics. However, at the same time, bad actors are innovating new ways to exploit and weaponize metadata. Analytics and Big Data are just beginning to bring into reach the potential to extract value from metadata - yet the struggle for competitive advantage and commercial gain is already at a fevered pitch.

**Analytics and Big Data are just beginning to bring into reach the potential to extract value from metadata - yet the struggle for competitive advantage and commercial gain is already at a fevered pitch.**

Metadata, or "data about data," is used to describe data, identify trends, administer algorithms and for scenario-modelling. Traditionally used in library card catalogs, today, it can be categorized as:

- Descriptive - describes a resource for discovery and identification;
- Structural - describes the types, versions, relationships and other characteristics of digital materials; and,
- Administrative - describes when and how something was created, file type and other technical information, along with who can access it.

Examples of metadata include users' IP addresses, Internet search history, when a user is online, for how long, the time between clicks and visit duration, among other things. These definitions may seem bland, but metadata has real-world ramifications. The National Security Agency's General Counsel, Stewart Baker, described metadata by saying, "metadata absolutely tells you everything about somebody's life. If you have enough metadata, you don't really need content." General Michael Hayden, former director of the NSA and CIA, put it even more bluntly when he said, "We kill people based on metadata."

Generally speaking, when networks sell data, what they are actually selling is targeting of a specific sub-segment of users on their platform. Social media and online networking services create psychographic profiles of users by linking profile information with activities, behaviors and other expressions that can then be used to psychologically influence them to absorb and trust sponsored content and/or to behave in certain ways. This is usually thought of in terms of influencing buying behaviors, but there is no reason why it can't also be applied to inciting extremism, recruiting terrorists, or even influencing elections, in addition to run-of-the-mill online fraud and digital theft. The rising popularity of cryptocurrencies and digital wallets present a prime opportunity for bad actors to deploy these methods for illicit financial gain.

However, ISPs cannot adopt the same business model because, by and large, they don't have a platform to deliver tailored ads to targeted consumers and must sell and convey data sets to leverage potential commercial opportunities.

Recent legislative activity in many countries, including the United States, has resulted in mass-surveillance and data sale bills that increase the risk that metadata poses to Internet users by permitted or requiring private entities, such as ISPs, to exchange consumer-centric information with unknown and unregulated third parties. This - along with data leakage, insecure ISP servers and increasing commercial viability and interest in consumer data sets - almost certainly means that it's only a matter of time before Internet users are harmed by exploitation tailored to their online

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activities. This can happen in unexpected ways. For example, potential employers or health insurance providers, when determining hiring or insurability, might rely on metadata generated by a user who is searching for health-related information for themselves or a family member.

Today, the rate of cyber-attacks continues to grow along with the sophistication of bad actors. Rather than focus on rare zero-day exploits, the focus has shifted to metadata and for an alarming reason: no matter how much is invested in personnel and training, it is impossible to avoid relying on people, and people's characteristics are difficult or impossible to change.

The risks associated with metadata are difficult to overstate. Metadata enables the success of direct and indirect exploits in all critical infrastructure segments in every nation because it exposes systemic vulnerabilities and simplifies the avoidance of embedded behaviors for cyber defense. For a bad actor who understands seemingly random metadata and how to combine it with other data sources that further weaponize the psychographic and demographic outputs of Big Data analytics, the possibilities for social engineering and cyber exploitation are – to put it mildly – endless. 📌

## ARTICLE

# Umniah's Security Operations Center



*In 2017, through Umniah's Security Operations Center (SOC), the telecommunications leader was able to protect 3 million 3G and 4G subscribers from known hackers using DNS protection mechanism, which showed Umniah's commitment and obligation towards individuals too, and protecting the image of the country. This year, Umniah's SOC was able to identify and mitigate an extraordinary huge attack targeting major Jordanian financial institutions and mainly the banking sector, which aimed to conduct an unauthorized money transfer.*

*Umniah's SOC provides world-class managed security services that have garnered the center ISO 1002 and ISO 27001 certifications, and was recognized as the Fortinet's MSSP Best Partner.*

Umniah's Security Operations Center (SOC) entered development in 2010, and was finalized as a fully integrated security solution provided in 2017. Today, the center provides an array of integrated services including unified threat management, web application security, DNS security, DDOS mitigation, vulnerability management, penetration testing, and antimalware protection. All these services are offered over the cloud in partnerships with major players in the security industry, such as Cisco, Fortinet, Rapid7, ARBOR, and RSA.

Over the last two years, the SOC has completed more than 50 penetration tests and has been referenced by enterprises in a wide range of business sectors, including government entities, financial institutions, manufacturing, education, healthcare, SMEs, and others. Vulnerability assessments were conducted for more than 1,100 systems, with over 10 million general security attacks and 1,000 ransomware attacks prevented in 2018 alone. Currently, the SOC manipulates 2 billion system events and logs on a daily basis from normalization, correlation, alerting and reporting, while the setup is scalable to handle 20 billion logs per second.

Umniah believes in its responsibility towards the information security of its clients and that of the country as a whole. As far as the network operator can be utilized as the first of defense, then it takes the initiative to warn authorities proactively about potential breaches and vulnerabilities in order to take a course of actions to mitigate the risk, thus leveraging on Umniah's SOC platform and expertise to support Jordan's national efforts to preserve its security. For instance, couple of years back, Umniah's SOC played a major role in protecting an attack that was targeting a national wide online services from different sectors. The role of Umniah was recognized and appreciated by Jordanian government authorities.

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In 2013, the SOC received ISO 9001 certification in recognition of the quality of the services provided. An ISO 27001 certification was granted to the center in 2018 for its information security management services, followed by an ISO 1002 certification for customer satisfaction. The center also became a Fortinet MSSP Best Partner, highlighting its stellar performance and high operational standards.

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It is worth noting that in the first half of 2018, Managed Security Services (MSS) account for 50 percent of Umniah's total adjacent services revenue, and continue to grow. The services provided to customers are saving them millions annually in upfront capital investment expenses, all the while providing tailored solutions that prevent breaches and compromises that could result in extended disruption in their services and affecting their brand image.

For more information about Umniah, please visit our website at: [www.umniah.com](http://www.umniah.com)



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## TECHNOLOGY NEWS

### Singtel, Ericsson to Launch 5G Pilot in Q4

Singapore Telecommunications (Singtel) has revealed it plans to kick start a pilot of 5G services in the fourth quarter of this year, working in partnership with Ericsson of Sweden. Trials are due to take place over the pilot network in 'one-



north', Singapore's science, business and IT hub, using trial spectrum allocated by the Info-Communications Media Development Authority (IMDA). Singtel and Ericsson confirmed the initiative, when they demonstrated 3D augmented reality (AR) streaming over a 5G network operating in the 28GHz millimeter wave band. In a press release it was noted that the demonstration enabled participants 'to view and interact with lifelike virtual objects such as a photorealistic human anatomy and a 360-degree image of the world. The immersive experience was then streamed in real-time to a remote audience via 5G'. Commenting on the 5G pilot network plan, Mark Chong, Group

Chief Technology Officer at Singtel, said: '5G has the potential to accelerate the digital transformation of industries, as well as empower consumers with innovative applications ... We are pleased to take another bold step in our journey to 5G with our 5G pilot network at one-north and invite enterprises to start shaping their digital future with us.' His words were echoed by Aileen Chia, Deputy Chief Executive and Director-General (Telecoms & Post) at IMDA, who said that the regulator will 'work closely with mobile service providers such as Singtel in their journey to build communication capabilities of the future and complement Singapore's efforts towards a vibrant digital economy'.

### Malta Working With Huawei on 5G

The government of Malta has signed a memorandum of understanding (MoU) with Chinese tech firm Huawei to collaborate on the deployment of 5G mobile equipment. A report from Malta Today says that Huawei is looking to set up a live test network in Malta by October this year. Parliamentary Secretary for Digital Economy Silvio Schembri is quoted as saying that 5G is the next step towards enhancing connectivity on the island. He added: '5G is finally becoming a reality in 2018 and will revolutionize life, businesses and communities in many ways. This MoU will also sustain academic research while addressing real world challenges.'



### China to be World's Leading 5G Market by 2025

While the US looks likely to win the race to become the first country in the world to rollout 5G, a new report by the GSMA suggests that China will be the world's preeminent 5G player by 2025. According to the report, China will boast over 430 million 5G connections by 2025 – over one third of the world's total connections. While China's potential to be a key player in 5G rollout is huge, industry experts believe that greater collaboration is needed between

China's key stakeholders, to realize the full potential of 5G. "China's leadership in 5G is backed by a proactive government intent on delivering rapid structural change and achieving global leadership – but without industry-wide collaboration, the right incentives or appropriate policies in place, the market will not fulfil its potential," commented Mats Granryd, director general of the GSMA. "Mobile operators should be encouraged to deliver what they do best

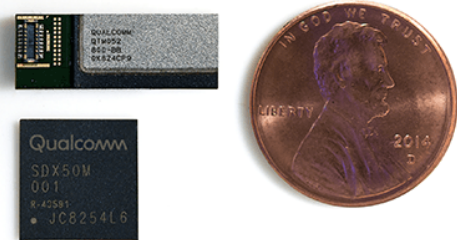
in providing secure, reliable and intelligent connectivity to businesses and enterprises across the country." All three of China's mobile network operators are currently proceeding with live 5G trials, with a view to achieving large scale commercial launch by 2020. The first deployments are expected to center around China's numerous, densely packed mega-cities.



## Qualcomm Reveals 5G NR mmWave, Sub-6 GHz RF Modules for Smartphones

Qualcomm engineers promised they would deliver the ability to pack 5G into a smartphone form factor, and deliver is what they're doing today with the unveiling of the world's first fully integrated 5G NR millimeter wave and sub-6 GHz RF modules for smartphones and other mobile devices. The Qualcomm QTM052 mmWave antenna module family and the Qualcomm QPM56xx sub-6 GHz RF module family pair with the Qualcomm Snapdragon X50 5G modem to deliver modem-to-antenna capabilities across several spectrum bands. "Today's announcement of the first commercial 5G NR mmWave antenna modules and sub-6 GHz RF modules for smartphones and other mobile devices represents a major milestone for the mobile industry," said Qualcomm President Cristiano Amon in a prepared statement. "Qualcomm Technologies' early investment in 5G has allowed us to deliver to the industry a working mobile mmWave solution that was previously thought unattainable, as well as a fully-integrated sub-6 GHz RF solution." Millimeter wave signals don't travel far and they're easily blocked, behaving erratically and scattering off surfaces. But there are techniques engineers can use to make the disadvantages work to their advantage, such as beamforming and beam steering. "It's important that we got to this milestone now in this time frame because we really are at the precipice" of the 5G network launches, Sherif Hanna, director of 5G product marketing at Qualcomm, told FierceWirelessTech. All of the biggest U.S. service providers are talking about 5G network launches. Last week, AT&T added a few more markets to its roster of markets to go live by the end of this year, most likely with a pucklike device as opposed to a handset. Hanna said devices for mobile hotspots

or mobile data cards are likely to launch in 2018, but he does not see 5G smartphones arriving until 2019 despite a great deal of pressure to make it happen this year. Qualcomm's engineers managed to make the modules small enough to fit into the bezel of a phone, and OEMs can fit four of them in a handset. That way, if a customer's hand covers up one module or if the consumer is walking down a busy street and a delivery truck happens to block the signal, the phone will be able to switch to another module to keep the connection going. Qualcomm's products support up to 800 MHz of bandwidth in the 26.5-29.5 GHz band, as well as the entire 27.5-28.35 GHz and 37-40 GHz bands. OEMs will be able to incorporate whichever bands fit their needs for a given geography; for example, in the U.S., they may want to include support for both 28 and 39 GHz. It's worth noting that voice services are not being talked about for 5G; the voice component will still be delivered via LTE. Qualcomm said both the QTM052 mmWave antenna module family and the QPM56xx sub-6 GHz RF module family are now sampling to customers.



## Ericsson, Telstra and Intel Complete 5G Data Call on a Commercial Network

Australia's Telstra, Swedish vendor Ericsson and US-based Intel have announced the successful completion of what they claim is the first end-to-end 5G non-standalone (NSA) 3GPP data call on a commercial mobile network. In a press release regarding the development the trio said the call took place at Telstra's 5G Innovation Centre on the Gold Coast Australia in a 'multivendor



setup', using spectrum in the 3.5GHz band. The core components used for the trial reportedly included: Telstra's 5G NSA commercial network, one of its retail SIM cards and its spectrum in the 2100MHz and 3.5GHz bands; Ericsson's commercial 5G NR radio 6488, baseband and packet core for 5G EPC; and the Intel 5G Mobile Trial Platform for the 5G NR UE. Commenting on the matter, Telstra's Group Managing Director Networks, Mike Wright, said: 'Demonstrating this 5G data call end-to-end using my own personal SIM card on Telstra's mobile network is the closest any provider has come to making a 'true' 5G call in the real world-environment and marks another 5G first for Telstra.' Fredrik Jejdling, Executive Vice President and Head of Networks at Ericsson, added: 'We're quickly moving towards 5G commercial reality. Achieving the first commercial data call with our partners Telstra and Intel shows the progress we've made from testing the technology in a lab to a 5G commercial network environment.' The commercial data call is the latest in a series of 5G announcements made by Telstra, with other notable developments including: the making of a 5G data call over 26GHz mmWave spectrum in November 2017; the switch-on of a 5G-enabled Wi-Fi precinct (March 2018); and a 5G mobile gaming demonstration (May 2018).

## Copper Network Switch Off Vital for UK's Digital Future

The UK must set a date to switch off its copper telecommunications network in order to encourage investment in full fiber network infrastructure, according to CityFiber CEO, Greg Mesch. Speaking in the House of Commons earlier this week, Chancellor Phillip Hammond said that the government would intervene and impose a final "switch off" date, if the industry did not act soon. Mr. Hammond said that switching off the legacy copper network was crucial to streamline the country's transition to full fiber networks. The recently commissioned National Infrastructure Report advised the government that the industry should prepare for copper switch off by no later than 2025. Mesch is a long term, vocal

advocate of full fibre networks. In a recent exclusive interview with Total Telecom, he said that there should be no role at all for copper-based architecture in the UK's digital future. "Consumers must not be misled into thinking they can get full-fiber benefits on a copper broadband network - they can't: copper is dead," he said. Speaking in response to the government's announcement, the CityFiber CEO said that copper switch off was imperative, urging the government not to leave the decision to the UK's incumbent operator, Openreach. "Switching off the copper network is a vital part of moving the UK to a full fiber future but leaving decisions on how it is done in the hands of the incumbent risks imposing

costs and delays on consumers. "As Clive Selley's comments on the Today program (17th July 2018) make clear, Openreach's approach to the switchover would result in unnecessary and unwelcome price rises for both consumers and internet service providers. "To put consumers and businesses at the heart of the full fiber upgrade, the Government needs to harness the competitive benefits of new market entrants and set out a carefully managed copper switch off process that prevents Openreach from hijacking the migration process, as this would re-establish its monopoly position and hold back the UK's digital economy," he said.

## DOCOMO Reports Success with 5G Test Using Vehicle Glass-Mounted Antenna on Connected Car

Japanese mobile operator NTT DOCOMO, Ericsson Japan and glass solution provider AGC have claimed a 'world first' in a 5G test using a 28GHz band antenna on a 5G connected car. The trials achieved 8Gbps 5G communications with a fast-moving car equipped with vehicle glass-mounted antennas ('On-Glass Antennas'). In a press release, DOCOMO said the field trial used On-Glass Antennas designed and developed by AGC, which can be installed on glass surfaces without affecting the vehicle design. The release read: 'Radio waves in the 28GHz band have a large propagation loss and have difficulty propagating over long distances. By installing an On-Glass Antenna on the vehicle, radio waves above 6GHz can be transmitted and received using the "beam forming function", which concentrates radio waves in a specific direction, and the "MIMO function", which improves communication speed by simultaneously transmitting different data from multiple antennas. This allows stable, high speed communications even for vehicles in operation.' Going forward, DOCOMO, AGC and Ericsson Japan say they will continue working toward utilizing 5G in various environments including in-vehicle communication modules and others, aiming to see 5G connected cars become a reality.



## Switzerland, Demonstrates '5G for People' with Huawei

Swiss operator Sunrise has put the first Swiss 5G antenna into operation, only

six months after setting a world record under laboratory conditions. The operator

also demonstrated '5G for People' with a Huawei Wi-Fi hotspot device.

## China 'Firmly Moving Ahead' with Wide-Scale 5G Launch Plans

Chinese companies, including the country's three major operators—China Mobile, China Unicom and China Telecom—are moving forward with an ambitious plan to launch wide-scale, commercial 5G services by 2020. "We remain highly confident that China's cumulative 5G capex in the next 5-7 years will be very large, although how big it will be in 2019 is uncertain," wrote the analysts at Wall Street research firm Jefferies in a report released to investors this week detailing the companies' announcements on the topic during the recent Mobile World Congress trade show in Shanghai. "The Shanghai MWC last week shows that China is firmly moving ahead with its plan to commercially launch 5G in 2020." Importantly, Jefferies noted that China Mobile—the largest mobile operator in the world in terms of subscribers—is working to take a leadership role in the

development of 5G, including by pushing 5G "stand alone" technology and creating guidelines for the construction and sale of 5G phones. Indeed, as the Jefferies analysts noted, China Mobile's new "5G device guideline" calls for the procurement of 5G modems by September of this year and the delivery of 5G phones—including those with augmented and virtual reality capabilities—by April of next year. China's move toward 5G is being closely watched by the U.S. government, which at one point reportedly floated the idea of a federal fund to build a nationalized, nationwide 5G network. While that reported proposal hasn't made its way to a public forum, it nonetheless underscores the interest legislators are taking in the United States' progress toward 5G. Indeed, Sprint and T-Mobile are using the topic to urge regulators to approve their proposed

merger—it will allow the combined company to launch 5G more quickly, they argue—and 5G played a central role in President Trump's decision to block Broadcom's hostile takeover of Qualcomm. Industry observers generally agree that China, the United States and South Korea will take a leading role in the rollout of initial 5G networks. Already all of the major, nationwide wireless network operators in the United States have pledged to launch a handful of markets this year or early next year. But most researchers believe China will ultimately host the world's largest 5G market, simply due to the country's sheer size. For example, China is expected to become the world's largest 5G market by 2025 with fully 430 million 5G connections, or one-third of the global total, according to a report by the GSMA and GTI.

## Robi, Huawei Demonstrate Speeds of 4Gbps in 5G Trial

The first test run of 5G technology in Bangladesh has taken place in Dhaka, showcasing download speeds of up to 4.17Gbps. The trial was conducted by equipment vendor Huawei and local cellco Robi Axiata, in cooperation with the Ministry of Posts, Telecoms & Information Technology (MoPTI). The demonstration aimed to show how a 5G ecosystem can be cultivated in the 'Digital Bangladesh' project. Sajeeb Ahmed Wazed, ICT adviser to the prime minister, said: 'With 5G, my goal is that we are going to be one of the first countries to deploy 5G in the world. I want Bangladesh to relentlessly move



forward. We will bring 5G in Bangladesh. Thanks to Huawei for demonstrating 5G

with their technology.'

## Asia Pacific Sees Exponential Growth in LTE Usage

4G LTE data consumption in the Asia Pacific region has grown by 317 per cent this year, according to new research published by Syniverse. Speaking ahead of the ConnecTechAsia event in Singapore this week, Syniverse's general manager and senior vice president John Wick said that LTE traffic was now playing a more significant role in people's daily

mobile interactions. "Asia Pacific is a hotbed of innovation for 5G with trials already underway, but interconnectivity and roaming between countries and regions at the 4G LTE level will be critically important in driving 5G uptake at scale in this diverse region," he said. "4G LTE is the preliminary technology foundation that the region needs to implement prior to

achieving the smart city and IoT capability that 5G connectivity will enable with data speeds 100 times faster than are capable today with legacy technologies." While Syniverse's research shows very strong growth in LTE usage, it also showed that the majority of roaming traffic in the Asia Pacific region is still carried on 3G networks (57 per cent).

## Telenor to Lead European 5G-VINNI Vertical Industries Project

Telenor Group has been chosen to coordinate the latest 5G PPP project under the EU's Horizon 2020 program. The initiative, 5G Verticals INNOvation Infrastructure (5G-VINNI), comprises 23 partners including telcos, vendors and academia. 5G-VINNI aims to accelerate the uptake of 5G in Europe by providing an end-to-end facility that validates the performance of new 5G technologies by operating trials of advanced vertical sector services. These sectors include public safety, eHealth, shipping, transportation, media and entertainment and automotive. The 5G-VINNI facilities include seven infrastructure instances

in nationally supported 5G nodes across Europe. In addition to the main research sites in Norway, UK, Spain and Greece, experimental sites will be set up in Germany and Portugal. More sites may be created as the ICT-19 projects come on-line in 2019. Open APIs will be published in order to ensure easy access to the 5G-VINNI facility. Telenor will host sites in Kongsberg (its designated 5G pilot location) and Oslo, with Nokia providing the virtualization platform and end-to-end orchestration, Ericsson and Huawei will supply 5G radios and core, and Cisco will deliver a distributed IoT data fabric. The project is scheduled to run for three years

and has a budget of €20m. Other telco members include BT and Telefonica. It is one of three 5G PPP infrastructure projects announced for the first part of its Phase 3 work (the other two being 5G EVE and 5GENESIS). "Being one of three large-scale test platforms for Europe, 5G-VINNI will help propel the development of 5G," said Patrick Waldemar, VP of Telenor Research, who will manage the project for Telenor Group. "Our aim is to make it as easy as possible to utilize and test the platform and we now call on industry players in Europe to engage with the project."

## Ericsson Sets Up 5G Innovation Lab in India

Ericsson set up India's first innovation lab for 5G at the Indian Institute of Technology Delhi, where it is working to fast-track deployments in the country by bringing together telecoms ecosystems, academia, industry and start-ups. Borje Ekholm, President and CEO of Ericsson said the Centre of Excellence and Innovation Lab aims to stimulate the 5G ecosystem in India, noting "we would like to unleash the creativity and innovation of the Indian industry, academia and entrepreneurs to fully leverage and make 5G a reality in India". The vendor is showcasing the first live 5G demonstration of beamforming and beam tracking technologies in the country at the center. Manoj Sinha, Minister of State for Communications and also for Railways said: "The 5G Centre of Excellence supports the government's plans to foster a robust and vibrant 5G ecosystem in India. We want India to be an active participant in the design, development and manufacture of 5G-based technologies, products and apps." He said the country needs the entire ecosystem to work together to make 5G a reality over the next two to three years. Ericsson research predicts 5G enabled revenue in India could reach \$27.3 billion by 2026, with the country's operators potentially generating an additional \$13



billion in revenue if they take up roles beyond being connectivity and infrastructure providers to become service enablers and creators. It forecasts the largest opportunity will be in sectors such as manufacturing, energy and utilities, followed by public safety and health.

## Elisa Claims Commercial '5G' Launch in Estonia and Finland

Finland's Elisa has become the latest company to claim a world's first launch of 5G, announcing that it has begun 'commercial use of a 5G network', including the sale of '5G subscriptions'. In a press release regarding the development, Elisa stated that its 'commercial 5G networks' had been opened in both Tampere in

Finland and Tallinn in Estonia, and had been used for the first time to make a video call between Kadri Simson, Minister of Economic Affairs and Infrastructure in Estonia and Anne Berner, Finland's Minister of Transport and Communications. Despite this, the company acknowledged that a full 5G launch across Finland is

still dependent on the forthcoming award of 5G licenses and suitable spectrum, with Ms. Berner cited in the company's press release regarding the 'launch' as saying: 'We aim to make Finland the leading nation as a developer of 5G mobile services. The Ministry of Communications is ready to allocate the first 5G licenses

to the 3.4GHz-3.8GHz frequency band in autumn, which will make Finland among the first countries in the world to start building 5G networks.' Moreover, in an FAQ on the website for Elisa's Finnish operations regarding the new '5G' service launch, the operator confirmed that it does not actually expect the first 5G devices to become available until next year. Until then, those signing up for one of its new tariffs –

'Saunalahti Huoleton 5G' and 'Saunalahti Mobililaaajakaista 5G' – can reportedly gain access to downlink speeds of up to 600Mbps by using handsets including the Huawei P20 Pro and the Sony XZ2, as well as Huawei's B618 mobile broadband router. It was also noted that the operator's new '5G' packages will automatically switch over to providing access to the 5G network as and when it becomes available, once

licenses and spectrum have been officially awarded and compatible devices are available. With regards to its infrastructure in Finland, meanwhile, Elisa noted that, having built out a network with 5G capability in Tampere and its surrounding areas, work on similar upgrades is already underway in Turku and Jyväskylä.

## 7 International Telcos Join RAN Research Group in Shanghai

Radio Access Network research collective, The O-RAN Group, has held its first board meeting and welcomed seven new members to its fold, in the run up to Mobile World Congress in Shanghai. Founding members AT&T, China Mobile, Deutsche Telekom, NTT Docomo and Orange welcomed the new members to the team on Thursday. Bharti Airtel, China Telecom, KT, Singtel Telefonica and Telstra joined the Radio Access Network collaborative, to bring the total number of operators to 12. In its first board meeting since its foundation at Mobile World Congress in

Barcelona this year, the O-RAN Group has been working closely with the 3GPP to push the development of standards for 5G rollout. "The O-RAN activity complements the standards developed by the 3GPP to facilitate 5G specification and deployment by pushing for open interfaces and APIs for the radio subsystem, which needs to evolve towards virtualization as it is in the networks systems. The importance of such standards to be implemented by the industry to speed up 5G deployments and to reach large economies is crucial if we are to deliver a 5G world where

connectivity should be ubiquitous in an affordable manner." Emmanuel Lugagne Delpon, senior vice president, Orange Labs Networks. At the meeting in Shanghai, Andre Fuetsch, president of AT&T Labs was elected as chair of the Board and Alex Jinsung Choi, SVP Strategy & Technology Innovation at Deutsche Telekom, was appointed as Operations Officer. The group continues to promote openness and collaboration in Radio Access Network development for 5G.

## Egypt to Launch 1st Egyptian Tablet

SICO Technology Chairman Mohamed Salem revealed that the launch of the first Egyptian tablet, named as "SICO Express 3", will be in the next week. Salem added that the tablet has been manufactured in the technological area in Assiut, with a local manufacturing rate of up to 45 percent. "The production of 10,000 tablets will be officially launched in the market within two weeks at a price LE 1149," he said. Former Minister of Communications and Information Technology Yasser el-Kady and Minister of Supply and Internal Trade Ali Moselhi launched the first Egyptian- manufactured smartphone "SICO" on February 19. E-SICO is expected to be priced at an average of LE 2,000 (\$112); the foreign components in the device are provided through partnership with China. SICO Technology is planning to acquire 5 percent of Egypt's mobile phones market share in the first year of selling. The company's technical centers will be in Cairo, Giza, Alexandria, Assiut, Sharqia and Luxor governorates. Mobile phones subscription in Egypt recorded 110 percent in January 2017, with 98.2 million users, according to the Ministry of Communications and Information Technology. Meanwhile, mobile internet users registered 26.16 million subscriptions in the same month.



## Qualcomm announces Three New Snapdragon Mobile Platforms for expanding High- and Mid-Tiers

Qualcomm announced three new additions to the Qualcomm® Snapdragon™ 600 and 400 tiers – the Snapdragon 632, 439 and 429 Mobile Platforms. These platforms are engineered to bring higher performance, better battery life, more efficient designs, impressive graphics and artificial intelligence (AI) capabilities into the highest-selling Snapdragon tiers. Qualcomm Technologies continues to bring more premium technology advancements to lower Snapdragon tiers, which is helping to transform the mass-market consumer experience. “The introduction of Snapdragon 632, 439 and 429 builds off Qualcomm Technologies’ highest-selling mobile platforms and provides users with increased performance and power efficiency, superior graphics, AI capabilities and enhanced connectivity features,” said Kedar Kondap, vice president, product management, Qualcomm Technologies, Inc. “We’re excited to offer these new platforms with enhanced features to our OEMs and consumers.” More than 1,350 commercial devices based on Snapdragon 600-tier mobile platforms and more than 2,300 commercial devices based on

Snapdragon 400-tier mobile platforms have been announced by global OEMs [1]. This new generation of platforms brings big improvements to already successful and feature-rich platforms. Snapdragon 632: The new Snapdragon 632 brings some of the most sought-after mobile experiences, including mainstream gaming, 4K video capture, artificial intelligence, and fast LTE speeds—all for an affordable price. Built on advanced FinFET process technology, the Snapdragon 632 boasts up to 40% higher performance [2] thanks to the combination of the Qualcomm® Kryo™ 250 CPU and Qualcomm® Adreno™ 506 GPU. Camera aficionados can benefit from either a single 24MP single-camera or dual cameras at 13MP each, while display resolutions can scale up to FHD+. For fast cellular speeds, the Snapdragon 632 also includes the X9 LTE modem, which supports LTE Advanced technologies like carrier aggregation. Snapdragon 439 and 429: The new Snapdragon 439 and 429 Mobile Platforms were created to help deliver popular mobile experiences for mass market, price-sensitive consumers. Both platforms are equipped with artificial

intelligence capabilities that enhance the camera, voice, and security experience. Built with FinFET process technology advancements, the Snapdragon 439 and 429 Mobile Platforms improve CPU performance and power efficiency by up to 25% [3]. They both feature the established X6 LTE modem for fast downloads, smooth video streams, and near seamless web browsing. Snapdragon 439 is equipped with an octa-core CPU and includes the Adreno 505 GPU with up to 20% faster graphics rendering<sup>3</sup>. The Snapdragon 429 scales to an Adreno 504 GPU, for up to a whopping 50% improvement in graphics rendering<sup>3</sup>. Snapdragon 439 features 21MP single-camera and 8+8MP dual-cameras along with support for FHD+ display, while the Snapdragon 429 includes 16MP single-camera and 8+8MP dual-cameras with HD+ display. Snapdragon 632, 439 and 429 are software compatible, as well as with Snapdragon 626, 625 and 450. The Snapdragon 439 and 429 are pin- and software-compatible. Commercial devices based on Snapdragon 632, 439 and 429 are expected to launch in the second half of this year.

## DOCOMO Starts its 5G Countdown Clock

Japanese mobile operator NTT DOCOMO plans to launch 5G technology ‘within 800 days’, Mobile World Live reports citing Lan Chen, president and CEO of DOCOMO Beijing Labs, speaking at MWC Shanghai 2018. According to her, the carrier aims to build out a non-standalone 5G system based on trials undertaken in 2017, adding that it expects spectrum to be allocated by end-March 2019. ‘Since the standardization is set, it’s time to

consider how to deploy a 5G network. We need to strategically deploy 5G in the necessary areas, with the necessary functions and with adequate frequencies,’ she is quoted as saying. NTT DOCOMO has previously announced its intentions to launch a commercial 5G service in 2020, ahead of the Summer Olympics in Tokyo. Ms. Chen notes that DOCOMO is starting to transform its business to meet the challenges presented by the ever-rising

demand for data and a need to handle new business cases across a diverse range of industries. DOCOMO is looking to shift from being ‘a global communications company into a value co-creation company by collaborating with partners across a wide range of industry verticals,’ she said. In February, the carrier launched its 5G Open Partners Program, with more than 1,400 companies already joining the initiative, Chen noted. 📍



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## ARTICLE

# KunLun SAP HANA Appliance: The Right Tool for Digitalization



## AnJian

President, Carrier Network Business Group  
Huawei Middle East



As the Middle East undergoes rapid digital transformation, the regional leadership is putting strategies in place to accelerate their digital agendas as a part of their national visions. The reason is simple: investing in digitalization pays. To cope with market demands and maintain a competitive edge, organizations are moving to the cloud and adopting machine learning and AI technologies to enhance their performance and becoming smarter in the way they operate. All this requires a reliable, cost-effective and agile ICT infrastructure. This perhaps is the defining line between success and failure of a business or a country's economy in today's world.

**To cope with market demands and maintain a competitive edge, organizations are moving to the cloud and adopting machine learning and AI technologies to enhance their performance and becoming smarter in the way they operate.**

This is where the SAP HANA appliance comes in. It was created by Professor Hasso Plattner, a technological zealot who personally funded the establishment of the Hasso Plattner Institute (HPI) in 1998 with a commitment to promote academic research in software system engineering and industrial applications. For nearly two decades, HPI's biggest achievement has been the development and successful application of SAP HANA, a High-performance Analytic Appliance that uses in-memory computing technology to enable the processing of massive amounts of real-time data in a short time.

**Huawei KunLun: A Natural Fit with SAP HANA Software Features**  
Huawei KunLun has been certified for integration with a full range of SAP HANA appliance solutions. The KunLun SAP HANA appliance is based on the KunLun Mission Critical Server, which is engineered for business-critical workloads such as enterprise databases, decision support, and business processing. Supporting 4, 8, 12, 16, 20, or 32 Intel® processors with an ultra-large memory of up to 32 TB, the KunLun server is capable of efficiently processing massive amounts of data in large-scale in-memory computing systems. In fact, a single KunLun server can support a larger in-memory database than any existing 8-socket



x86 server and, in so doing, greatly improve enterprise IT resource utilization and reduce management expenditures.

At present, the improvements in CPU performance have shifted from a sole reliance on faster clock frequencies to the use of multi-core parallel technologies. For example, each Intel® Broadwell processor supports up to 24 cores and 48 threads, and Huawei's KunLun server provides a physical platform capable of supporting up to 768 cores and 1,536 threads. In accordance with the primary goal of SAP HANA appliances to keep data as close as possible to the CPU, KunLun servers are perfectly suited to supporting the SAP HANA software features for meeting customer demand for the ultimate in database performance.

### **The KunLun SAP HANA appliance is based on the KunLun Mission Critical Server, which is engineered for business-critical workloads such as enterprise databases, decision support, and business processing.**

For customers intent on selecting an in-memory appliance solution, SAP's proposition is that the appliance be able to deliver best-in-class performance to customers. Based on this principle, SAP's advice to customers is 'scale-up first' – which translates to a preference to meet memory capacity requirements in single-node configurations instead of cluster configurations. The implication of this principle is that cluster configurations cannot provide the best performance. In practical terms, if the memory required by a customer exceeds the capabilities of a single server (for example, a requirement for 100 TB cannot be met by any single x86 server), the customer system will have to be installed as a cluster. This is also when the experts in enterprise databases come into play with techniques such as dividing database tables into cluster nodes, or distributing data through the use of built-in algorithms.

For SAP HANA, differences in access modes lead to drastically different performance results between a single, high-performance node and a cluster of nodes that involve cross-node (cross-OS) I/O or Remote Direct Memory Access (RDMA) operations. Though not currently available, the roadmap is prepared for SAP HANA to support InfiniBand or RDMA over Converged Ethernet (RoCE). As detailed above, the latency when reading 64 bytes of data from the local memory of an Intel® E7 v4 processor is 110 nanoseconds. Using an InfiniBand interface supporting RDMA, the typical latency for reading 64 bytes from the memory of another node is 1.5 microseconds at a 40 Gbit/s InfiniBand Quadruple Data Rate (QDR). There is a 15x difference between the two modes. If a 10 GE interface is used (10 Gbit/s line rate and 1 Gbit/s effective bandwidth), there is at least a 60x difference between the two modes.

There is an obvious necessity to avoid such cross-node data reads whenever possible, which requires databases or tables to be precisely divided. Though, in practical terms, making cross-node data reads is inevitable as the cross-node data accessed by enterprise applications is often correlated by nature. This makes the huge difference in the performance of single nodes versus clusters of nodes commonplace.

At present, the Huawei SAP HANA solution based on the KunLun Mission Critical Server supports up to 32 sockets with 32 TB of memory capacity on a single node. The 16 TB memory model is certified, the 20 TB model is planned for certification, and any specification above 20 TB will be certified on a case-by-case basis. KunLun single-node solutions, that experience shows meet the requirements for the majority of customers, support capacity expansion from 4 sockets to 32 sockets as may be needed to grow the customer's business based on business need. KunLun provides a unique logical partitioning function that further divides resources. With the KunLun logical partitioning function, multiple SAP applications and HANA databases can be consolidated onto KunLun, meanwhile ensuring high performance and fault isolation. This feature is in the process

of planning. For customers, the memory capacity and computing capability of the deployed Huawei SAP HANA appliance can be gradually expanded based on the actual service development requirements. In addition, the excellent performance of the single-node solution is always maintained. KunLun's 32 TB memory capacity on a single node can meet most customers' requirements. For hyper-scale applications requiring more than 32 TB of memory, Huawei can provide cluster solutions today and is well on track to providing next-generation KunLun-SAP HANA appliances capable of larger scales and higher performance.

### **Huawei: Best SAP Practitioner and Best Choice for Enterprise Digital Transformation**

Used and trusted by many customers all over the world, solutions are serving more than 1,000 customers in over 40 countries and regions worldwide.

As the experience of delivering tangible benefits to enterprises with the SAP HANA system deepens, Huawei has risen to become the world's best practitioner of SAP system infrastructure solutions and the best partner for enterprises undergoing their digital transformation. Huawei aims to bring cutting-edge products and solutions from around the world to the Middle East, to help equip our partners and customers with the tools they need to succeed on their digitalization journey, and Build a Better Connected World. 🌍

### **... Huawei has risen to become the world's best practitioner of SAP system infrastructure solutions and the best partner for enterprises undergoing their digital transformation.**

## REGULATORY NEWS

### UK Government Sets Out Stall to Achieve Nationwide Full Fiber Coverage by 2033

The Department for Digital, Communication, Media & Sport (DCMS) has published a national, long-term strategy for the UK's telecommunications sector, with a notable focus on the provision of full fiber services. The DCMS' 'Future Telecoms Infrastructure Review (FTIR)', which was announced as part of the government's modern Industrial Strategy, proposes changes that the state says are needed to ensure that in future, the majority of the population will have access to 5G. Moreover, it calls for 15 million premises to be connectable via full fiber broadband by 2025, while targeting nationwide coverage by 2033. With the FTIR's analysis indicating that, left unchanged, full fiber broadband networks would at best only ever reach three quarters of the UK, several recommendations have been made with a view to boosting fiber availability. Among the more notable are: the introduction of new legislation that will guarantee full fiber connections for new build developments; reforms to the regulatory environment

for full fiber broadband that will drive investment and competition and is tailored to different local market conditions; an industry-led switchover from copper to full fiber coordinated with regulator Ofcom; and a reform of regulation by Ofcom so as to allow unrestricted access to Openreach's ducts and poles for both residential and business use. While the DCMS has said it expects the FTIR to drive competition and commercial investment in full fiber networks across as much of the UK, it has acknowledged there will be some parts of the country where it is unlikely the market will be able to deliver on its own. As such, it has said that nationwide availability of full fiber is likely to require additional funding of between GBP3 billion and GBP5 billion (USD3.9 billion-USD6.6 billion) to support commercial investment in the final 10% of areas. The affected regions, which the government noted are mostly rural locations, must not be forced to wait until the rest of the country has connectivity before they can access gigabit-capable

networks. To that end, the state intends to pursue an 'outside-in' strategy, meaning that while network competition serves the commercially viable areas, the government will support investment in the most difficult to reach areas at the same time. It claims to have already identified around GBP200 million within its existing superfast broadband program that can further the delivery of full fiber networks immediately. In terms of next steps, the DCMS has said it will shortly publish consultations on legislative changes to streamline wayleaves (i.e. written consent to carry out work on private land) and mandate fiber connections in new builds. The conclusions of the FTIR will meanwhile form the basis of the government's Statement of Strategic Priorities (SSP) to Ofcom, setting out the strategic objectives and outcomes that the regulator must have regard to in the exercise of its regulatory functions.

### FCC Changes Number Portability Rules

FCC number portability rules changes adopted in mid-July are aimed at creating a nationwide number portability system. Number portability enables subscribers to keep their numbers when changing carriers and/or locations. Currently, full portability is not possible. To make this a reality, the FCC is changing rules that were designed in an earlier era customized to discreet local and long-distance services. Today's market features integrated carriers that offer both types of service.

The FCC number portability rules changes include:

- Elimination of the last vestiges of the "dialing parity" rule. This rule was intended to ensure that consumers

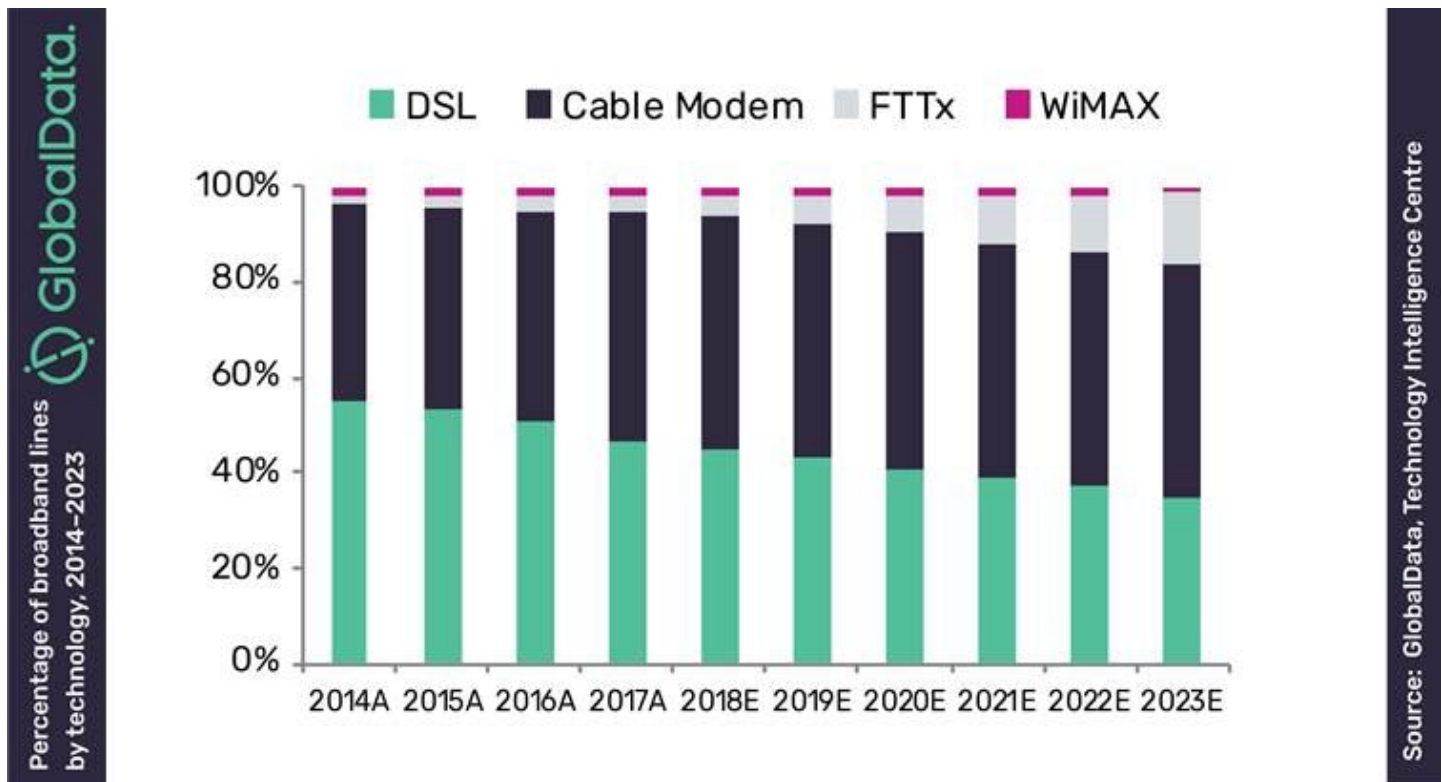
could choose and access a stand-alone long-distance provider without dialing extra digits. However, stand-alone long-distance service is disappearing with the rise of all-distance plans, VoIP and wireless, and the FCC in 2015 eliminated the rule for most local providers. Today's action eliminates the rules for competitive providers, and for stand-alone services grandfathered in 2015.

- Providing flexibility in call routing by easing the "N-1" rule that currently requires the next-to-last carrier in a call – typically the long-distance provider – to query the number portability database. The modification

allows other carriers in the chain to query the database. This will open new opportunities for call routing as the industry prepares for nationwide number portability.

Last month, the FCC's federal advisory committee on numbering – North American Numbering Council (NANC) – approved a report on national number portability implementation. On July 3, the FCC asked NANC to continue providing input on the costs, benefits and technical requirements on two possible nationwide number portability mechanisms and on the next steps the FCC and industry should take to achieve this goal.

## Central America Broadband Penetration to Hit 30.6% by 2023



The Central America region will add 1.3 million new fixed broadband accesses to total 4.2 million over the next five years and penetration will reach 30.6 percent of households by 2023, according to a report by GlobalData. Penetration is expected to end 2018 at 24.3 percent, up 1.4 points

from 2017. GlobalData's analysts expect cable connections to grow faster than DSL lines over the next five years as operators upgrade to HFC networks and amid a general trend towards fibre expansion. At present, cable accounts for 48.6 percent of broadband subscriptions in Central

America, followed closely by DSL at 44.7 percent. The report forecast tenfold growth in FTTH/FTTB subscriptions over the coming five years, citing major fiber roll-out plans among companies such as Kolbi, Cable and Wireless, Tigo and Movistar.

## CTIA Ups the Political Pressure to Cut Cell Site Regulation

The US wireless industry is doing everything it can to ensure it maximizes the benefits of 5G, and that includes using the anticipated new service capabilities as leverage for its ongoing campaign to reduce the planning rules and legislation surround cell sites. It has long called for all levels of US government to streamline infrastructure deployment, and be more lenient and understanding of telcos' request to blanket the country with new towers, masts and cells. Last year, a CTIA study calculated that 5G would provide a \$500 billion boost to US GDP and create 3 million new jobs. Picking up on the need to have far, far more small cells in operation to support 5G coverage (300,000

in the next three to four years it claims), the CTIA commissioned Accenture to undertake an economic study. It found that reducing current timelines for 5G wireless infrastructure deployments by 12 months would unlock an additional \$100 billion to the US economy. This streamlining of federal, state and local infrastructure rules for small cells includes updating the requirements for small cell deployments in rights-of-way and creating "reasonable fee structures" for small cells.

Key quotes:

"Modernizing outdated infrastructure rules is key to the US winning the global race to 5G and unlocking the benefits that will come from the next generation

of wireless," said Meredith Attwell Baker, CTIA President and CEO.

"The deployment of small cells will lay the foundation for 'smart cities' and more innovative services, which will help strengthen the economy and ultimately improve the way we live our lives," said Tejas Rao, managing director and global 5G offering lead for Accenture's network practice.

"The economic benefit we isolated can only be achieved with robust mobile ecosystems that quickly usher in the age of 5G," said Sanjay Dhar, Managing Director, Accenture Strategy, Communications, Media & Technology.

## Subtel Opens Consultation on 5G Plan

Chile's Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) has opened a public consultation for its National Plan for 5G, with a view to gathering information and proposals that the regulator can use to formulate a definitive development plan for 5G. As such,

the regulator is soliciting the views of the public as well as academics, companies, consumer organizations, public sector agencies and non-governmental organizations (NGOs). The consultation documents covers the following subjects: the priorities and objectives of the 5G

plan; potential services and applications; efficient management of radio spectrum; regulatory principles; user rights; network security; and the preparation of a road map for the technology. Subtel is accepting comments on the plan until 23 August.

## NetOne Problems hit Zimbabwe Mobile User Total



The latest quarterly report from the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) shows a dramatic decline in active mobile subscriptions in the three months to 31 March 2018. The user total dropped 16.8% in the first quarter

of the year, from 14.09 million to 11.73 million. The drop was attributed largely to declines at state-owned cellco NetOne, which lost almost half of its subscriber base in three months, with its customer total falling from 4.96 million to 2.63 million. Part of the reason behind NetOne's customer losses has been the completion of an exercise to close inactive accounts, but the operator has also been the victim of problems with its once-popular OneFusion voice and data bundles. Earlier this year subscribers began complaining that their monthly bandwidth was being depleted by Facebook and WhatsApp usage when access to these two services was meant to be covered by a totally separate data allowance. NetOne blamed this on changes made by Facebook and offered to compensate users with 150MB of free data, but TechZim reports that this has done little to appease subscribers, many of whom appear to have abandoned the OneFusion product. Another state-backed mobile provider, Telecel, also had a bad quarter, seeing its customer total drop 12.4% to 1.44 million. Only privately-owned cellco Econet Wireless reported subscriber gains, with its active user base climbing 2.2% in three months to 7.65 million.

## GSMA and ASIET Raise Concerns on Spectrum Ruling

The GSM Association (GSMA) and the Inter-American Association of Telecommunication Companies (Asociacion Interamericana de Empresas de Telecomunicaciones, ASIET) have issued a joint statement raising concerns following two controversial rulings on spectrum holdings in June. The first saw sector watchdog the Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) ordering a halt to the use of 3.5GHz spectrum on the grounds that it was being under-utilized by the current license holders and should be re-allocated. This was followed by a Supreme Court ruling that Movistar, Chile and Entel had engaged in anti-competitive practices by purchasing 700MHz spectrum that pushed them above the previously-established spectrum cap, and required those cellcos to return a por-

tion of their frequencies (in any band). The GSMA and ASIET warned that such decisions weaken 'sectoral institutional' by contravening the policies implemented by the government and related agencies including the National Economic Prosecutor (Fiscalia Nacional Economica, FNE) and the Antitrust Tribunal (Tribunal de Defensa de la Libre Competencia, TDLC). According to the duo, it is 'essential' to reinforce the institutional framework and mechanisms to create an environment of predictability and transparency that can provide companies with confidence. Regarding the specifics of the rulings, the statement argues that the spectrum cap enforced by the apex court's decision is 'anachronistic' and that the 'technological requirements of 2018 are very different from those ten years ago.' Had the limit been enforced

over the last decade, the statement goes on, Chile would not hold its place as a leader in Latin America's digital ecosystem and nor would Chileans enjoy the level and quality of service they currently experience. Looking to future developments, the organizations warn that: 'The ruling harms users and puts at risk the necessary investments for the expansion of 4G and the deployment of 5G, which is expected to be led regionally by Chile ... The country must avoid judicialisation, uncertainty and institutional entrapment if it wants to achieve investments that will allow it to move towards 5G during the present government.' To that end, the two groups offered to contribute 'all their technical knowledge and international experience' to help the Chilean government resolve the situation.

## Arcep Publishes Its Annual Report and Delivers a Progress Report on Its Strategic Roadmap

For Arcep, 2017 was the year that it served as Chair of BEREC (Body of European Regulators for Electronic Communications), and so marked by the role it played in helping drive forward the work being done in Europe on building a Gigabit Society, and on net neutrality. At the national level, Arcep's pro-investment regulation proved fruitful once again last year: through the size of their investments in fixed and mobile infrastructures, operators demonstrated that they could

meet French people's expectations of nationwide access to competitive infrastructures. Two flagship tools came to flesh out the regulators' toolkit last year, in keeping with a data-driven approach to regulation: "Mon réseau mobile" (My mobile network), a map-based tool for obtaining a targeted assessment of each operator's mobile coverage and quality of service performance, and "J'alerte l'Arcep", a user reporting platform that allows anyone to inform the regulator of malfunctions they

have experienced with their fixed, mobile or postal operator. 2017: Arcep's strategic roadmap and new regulatory methods are yielding positive results. In January 2016, Arcep presented the conclusions of its strategic review in the form of a roadmap: four pillars of action, three new regulatory methods and twelve priority courses of action. After two years of implementation, it is now time to see whether it has yielded results.

## Regulator Denies Talk of Imminent MTN Nigeria IPO

Nigerian stock exchange officials denied claims MTN was close to launching its long-awaited IPO in the country, stating it had not received an application from the operator or any of its representatives. The country's media last week reported MTN Nigeria was ready to IPO after what Business Daily said was a six week delay caused by the country's Securities and Exchange Commission (SEC). In a statement, the SEC dismissed the claims, adding that because it had not received a formal application from MTN or its advisers, no regulatory review had yet taken place. "If MTN finally files a formal and complete application with the Commission, it would be treated with the usual diligence and urgency that is applicable to all such filings." MTN has been preparing to list a stake in its Nigeria business since it struck an agreement with regulators to do so in 2016. Since then, speculation has been rife on the dates, value and process, but formal details have failed to materialize. Although not committing to a firm date, on the company's Q1 financial results call MTN CEO Rob Shuter



said its units in Nigeria and Ghana were on track to float by the end of the year. Subsequently its IPO in Ghana opened in late May.

## Ethiopia, Eritrea Restore Direct International Phone Connection

Direct international telephone connectivity between Ethiopia and Eritrea was restored on Sunday, reported Reuters quoting a Tweet from the Ethiopian Prime Minister's chief of staff. The telecoms development was one detail stemming from a historic summit between Prime Minister Abiy Ahmed and Eritrea's President Isaias Afkwerki, who on Monday declared an

official end to the state of war between the neighboring countries. A two-decade-long stand-off had followed the 1998-2000 border war. Various economic benefits are expected from the raft of deals signed by the two leaders, who promised that diplomatic, trade, transport and communication links will be re-established and borders re-opened. According to other statements

released from the meetings, Ethiopia and Eritrea will work 'to promote close cooperation in political, economic, social, cultural and security areas'. Ethiopia is being granted access to an Eritrean port, whilst embassies will be re-opened in both countries.

## CTIA Cites New Report as Reason to Back Larger Geographic Licenses at 3.5 GHz

CTIA submitted a new report to the FCC showing other countries' approach to midband spectrum, and most of them are using a national licensing scheme as opposed to basing it on smaller geographical areas. The report by Analysys Mason backs up CTIA's claims that larger license sizes will make the U.S. more competitive when it comes to 5G. As it stands, the rules for the 3.5 GHz Citizens Band Radio Services (CBRS) that were passed in 2015 call for census tract-sized license areas. CTIA filed a petition last year aiming to change the CBRS rules for longer license terms and larger license sizes. The latest Analysys Mason report that CTIA submitted to the FCC (PDF) examines the geographic licensing approaches to midband spectrum for the U.S. and 12 other countries—Canada, China, France, Germany, Japan, Russia, Singapore, South Korea, the United Kingdom, Australia, Spain and Sweden. Most of the countries are planning or are expected to release midband spectrum for 5G on a national basis. Canada and Australia are adopting a regional approach, but even there, the license areas will cover a significantly larger population per license compared to the U.S. The report notes that if the licensing size in Canada were a baseball field, including outfield, the U.S. census tract proposal would be smaller than the pitcher's mound. CTIA

argues that census tract licensing will hinder the development of the 3.5 GHz band and impede U.S. companies as they compete in the global race to 5G. When the rules for 3.5 GHz were adopted in the U.S., it wasn't as clear how many other nations were going to use the midband spectrum for 5G. While CTIA is arguing for the larger licenses, companies in the Industrial IoT, WISPs and others want to keep the small census tracts that they view as more localized and affordable. The Wireless Internet Service Providers Association (WISPA), for example, has complained that efforts were underway to "shove aside" the interests of rural America and turn the "Innovation Band" into a "same ol' thing" band. Analysys Mason previously conducted a study for CTIA that shows China with a slight lead in 5G readiness, with South Korea and the U.S. close behind. CTIA used that study to support its calls for infrastructure reform and speedy time to market with spectrum auctions. CTIA President and CEO Meredith Attwell Baker told FierceWirelessTech in April that the U.S. could still pull ahead and win the 5G race if it acts fast. Analysys Mason's latest report shows that China has 500 MHz of spectrum within the 3.3-3.6 GHz and 4.8-5.0 GHz to be released, with the 3.3-3.4 GHz range subject to indoor use. Details haven't been specified, but assignment is expected in 2018/2019 in line with commercial launch schedules. Sprint CTO: Together we can build much bigger 5G network South Korea auctioned 280 MHz of spectrum in the 3420-3700 MHz range on a national basis in June 2018, the report notes. Of course, T-Mobile and Sprint are making their proposed merger pretty much all about 5G, saying their merger into one larger entity is going to make the U.S. more competitive. Sprint brings to the table its trove of 2.5 GHz spectrum, most of which is unused today, while T-Mobile has a swath of 600 MHz and other spectrum to use for 5G. Sprint CTO John Saw, who won this year's Fierce Wireless Rising Stars contest, has said Sprint is not slowing investment in its network while its proposed merger with T-Mobile gets reviewed, but it will be able to offer a much more compelling 5G service if it is allowed to combine the two.



## New Player Emerges in the Race to Become the Philippines' Third Telco

With the race to launch a major new operator into the Filipino telecommunications market grinding to a near halt, Transpacific Broadband Group International (TBGI) has thrown its hat into the ring to become the nation's third telco. President Duterte has repeatedly called for the launch of a third network operator, to breathe new life into the country's stagnant duopoly, currently presided over by Globe and PLDT. In a

filing to the Filipino Stock Exchange in Manila, TBGI said that it intended to apply to become the country's third major telco. In order to raise capital for the venture, TBGI has proposed making a 40 per cent stake in the company available to foreign investors. "The chairman informed the board of the need to raise funds from a private placement, up to 40% of common equity from foreign sources, to be able to

participate in various opportunities in the telecommunication market brought about by a directive of the government to have a third telco in the Philippines," the company said in a bourse filing. President Duterte has publicly courted China Telecom as the preferred bidder but has so far met with stony resistance from the Chinese telecommunications giant.

## UK Digital Minister. 5G Is Not Just another G



The UK's Minister for Digital, Culture, Media and Sport, Margot James, has said that getting 5G right will be absolutely critical to the country's economic success in the coming years. Speaking exclusively to Total Telecom at the Connected Britain event in London, James said that 5G was potentially the single biggest factor in determining the country's productivity and international competitiveness. "There is so much that we need to learn about the potential of 5G but we are very excited about it. It's probably the biggest single benefit towards our productivity that we could imagine. So, it's very important that we get that investment right. "I believe that this connectivity is probably the single biggest determinant for improving Britain's productivity and international competitiveness," she said. James also warned that the UK must keep pace with nations in the Far East in terms of investment in 5G, or risk falling behind in an increasing digital divide. "If we don't get it right, we will be overtaken. There is no doubt that countries in the Far East, who at the moment are not that much further ahead than us on 5G, are committed to 5G, they will make it work, and they will open up a bigger productivity gap between Asia and Europe, if we don't keep pace with them," she said. James said that the UK government was committed to supporting the development of the industry and was focused on creating conducive market conditions to encourage investment.

## Nkom Calls for Bids for 700MHz Spectrum on Svalbard

Norway's National Communications Authority (Nasjonal kommunikasjonsmyndighet – Nkom), which oversees the regulation of Svalbard's wireless sector, has invited interested parties to apply for spectrum in the 700MHz band covering the archipelago. With the move having been prompted by an application to use such frequencies from an unnamed party, the Nkom has set a deadline of 31 August 2018 for interested parties to

come forward. Here, the Nkom has noted that 2x30MHz will be assigned for mobile communications services in the 700MHz band (703MHz-733MHz/758MHz-788MHz), and the available frequency resources will be divided into six duplex blocks of 2x5MHz. In the event of demand outstripping supply, meanwhile, the watchdog says that it will apply a spectrum cap of 2x10MHz per operator. The frequencies in question will be available

for immediate use as soon as licenses are issued, with the concessions to be valid until December 31, 2038. Also of note, any company that does secure a license will be required to provide mobile broadband coverage using the 700MHz band to 40% of Svalbard's population within five years of the license coming into force, and at an average downlink speed of 5Mbps.

## DTAC Expresses Reservations over Bidding in 850MHz Auction

Thailand's staging of a second planned auction of spectrum in the 850MHz band is yet again in doubt, with Total Access Communication (DTAC) having expressed reservations about bidding in the sale process after telecoms watchdog the National Broadcasting and Telecommunications Commission (NBTC) refused its request to lower the reserve

price. The Bangkok Post cited Chief of Corporate Affairs Rajiv Bawa as saying that 'it would be very difficult to bid' if the conditions are not changed, as it would cause operational risks and the costs would be unpredictable. The executive added that the terms and conditions of the auction create ambiguous responsibilities for the successful licensee, with the winner

of the auction set to be solely responsible for any interference with Thailand's upcoming railway projects, which will make use of spectrum in the 850MHz and 900MHz bands. Further, he added that the lowering of the reserve price by THB2 billion (USD60 million) to THB36 billion will not cover the cost of installing filters to block frequency interference.

### 3 Sweden Appeals Terms of 700MHz Auction

Swedish mobile operator Tre Sverige (3 Sweden) is launching an appeal against the terms of a forthcoming auction of 700MHz wireless spectrum for future 5G services. The Swedish Post and Telecom Authority (Post & Telestyrelsen, PTS) invited applications for the sale earlier this month, but 3 says it could be locked out of the 5G market by its larger rivals Telia, Tele2

and Telenor. A total of 60MHz of spectrum will be offered at auction, but with a cap of 40MHz per operator it is possible that just two companies could emerge with frequencies. 3 says the auction terms violate PTS' own practice, as well as several EU directives, and risk undermining competition in Sweden's mobile market, leading to higher prices for end users.

The auction has been split into two lots of 2×5MHz and one lot of 2×10MHz, plus four 1×5MHz blocks for supplemental downlink (SDL). The reserve price has been set at SEK50 million (USD5.7 million) per 5MHz, meaning the sale will raise a minimum of SEK600 million. Applications can be made until 5 November, with the auction due to begin on 4 December.

### KPN Q2 Revenues Fall 1.7% on Regulatory Factors

Dutch fixed and mobile operator KPN posted a 1.7% year-on-year drop in total revenues to EUR1.402 billion (USD1.640 billion) in the three months ending 30 June 2018, which it attributed to the effects of regulation. Excluding regulatory factors, KPN said that adjusted revenues grew 0.5% y-o-y on higher consumer ARPU per household and growth in its Professional Services/IT business segments, partly offset by continued price pressure in mobile

and lower wholesale revenue. Operating profit (EBIT) and EBITDA climbed 6.3% and 1.0% y-o-y in Q2 2018 to EUR210 million and EUR555 million respectively. Quarterly CAPEX was 4.1% higher than 1Q17, at EUR245 million. Three-month net profit declined 15% y-o-y to EUR137 million, mainly due to lower dividend received from KPN's minority stake in Telefonica Deutschland. In 2Q18 mobile service revenues declined 6.2% y-o-y, mainly due

to regulation and lower ARPU as a result of ongoing price pressure (with post-paid ARPU declining 7.3% y-o-y to EUR18). KPN continues to focus on retention of high value post-paid customers, and the main KPN brand's post-paid customer base was virtually flat in Q2, while the customer base of no-frills brands Telfort and Simyo declined by 10,000 in the quarter.

### Regulators in the Developing World Must Get Real Over Spectrum Pricing

Prohibitively expensive spectrum pricing is a key barrier to increasing mobile penetration levels in the developing world, according to a new report published by the GSMA. The report found that governments across the developing world are helping to drive up the cost of mobile spectrum as a way of maximizing revenues for the state, rather than prioritizing the rollout of mobile communication networks. Ironically, this short-termism will likely cost the region billions of dollars in lost revenues in the

years to come. "Connecting everyone becomes impossible without better policy decisions on spectrum," said Brett Tarnutzer, head of spectrum, GSMA. "For far too long, the success of spectrum auctions has been judged on how much revenue can be raised rather than the economic and social benefits of connecting people. Spectrum policies that inflate prices and focus on short-term gains are incompatible with our shared goals of delivering better and more affordable mobile broadband

services. These pricing policies will only limit the growth of the digital economy and make it harder to eradicate poverty, deliver better healthcare and education, and achieve financial inclusion and gender equality," he added. According to the GSMA, over 4 billion people across the world currently remain unable to access mobile connectivity of any kind. The report was released to coincide with the GSMA's Mobile 360 conference, which is being held in Rwanda.

### Senegal Government Introduces New Telecoms Tax

The government of Senegal has introduced a new tax named the 'Special Contribution from the Telecommunications Sector (CST)' to replace the special levy on

the telecommunications sector and the contribution for economic development, writes Dakaractu. The tax is required to be paid by any operator with a public

telecoms network and has been set at 5% of an operator's pre-tax turnover, net of interconnection charges paid to other operators of public telecoms networks.



## FCC Votes to Open C-Band for Wireless Broadband Invoking 'Jaws,' Pai Talks Up Need for Bigger Spectrum 'Boat'

The FCC has unanimously voted to find ways to open up the C-band spectrum (3.7-4.2 GHz) -- either all of the proposed 500 MHz or some portion of it -- for terrestrial wireless use. Those ways could include an incentive or capacity auction, a market mechanism where incumbents voluntarily strike deals to reduce their footprint, or some other means. The C-band is currently used for satellite delivery of cable and broadcast network programming to cable head-ends, TVs and radio stations. The FCC wants to open it up to wireless broadband to help close the digital divide and promote 5G, both prime directives for the commission.

The combination order and notice of proposed rulemaking (NPRM) would do four things:

- Collect information from those broadcast and cable operators to help guide the repurposing/sharing;
- Propose to add a mobile allocation to the entire 500 MHz, which is currently designated for nonexclusive fixed-satellite use;
- Seek comment on allowing shared fixed-use in a portion of the band; and
- Seek comment on service and technical rules.

FCC Chair Ajit Pai, a big fan of movie and song references, likened the FCC's search for more spectrum to the observation in *Jaws*



once the size of the shark became obvious: "We're going to need a bigger boat." Pai said the item was another recognition that the U.S. needs a bigger spectrum pipeline. Commissioner Jessica Rosenworcel agreed, but said the FCC is playing catch-up in the mid-band spectrum clearing space, and needed to be less opaque about what spectrum it is freeing up and when. "With today's rulemaking and order we are doing something about it," she said. "We explore a variety of mechanisms for clearing the 3.7-4.2 GHz band for 5G use. And if we make headway here, we can start to reclaim lost leadership in spectrum that is critical for success in 5G networks." Commissioner Michael O'Rielly supported the item, but had some issues with it, including taking an auction route. He said it made more sense to let market players resolve the issue among themselves rather than through FCC mandates and mandatory clearing. He also said he does not think the proposed 100 MHz is enough to free up, saying it will need to be more like 200-300 MHz for exclusive wireless use. "The broadcast, cable and satellite incumbents have made it clear that only a portion of C-band can be cleared for exclusive mobile use any time soon," said Michael Calabrese, director of New America's Wireless Future Program. "It's therefore critical that the NPRM also proposes that fixed wireless providers be allowed to coordinate shared use of other portions of the band as a way to narrow the rural broadband gap and enhance competition for high-capacity internet access." AT&T EVP Joan Marsh said: "The FCC's ongoing efforts to make additional spectrum available to support next-generation 5G services is essential. The 3.7-4.2 GHz band could play a key role in providing the broad coverage capabilities necessary to bring the promise of 5G technologies to consumers across the U.S. The Commission's order and proposed rulemaking strikes the right balance between the effort to reallocate spectrum to bring robust 5G services to consumers and ensuring that essential existing spectrum use cases are preserved. In addition, we appreciate the Commission's continuing efforts to reform and harmonize its cellular rules to eliminate outdated and duplicative regulations so carriers can focus on investing in advanced wireless services."

## Taiwan Operators Face Continued Price Pressure

Taiwan's three major mobile operators – Chunghwa Telecom, Taiwan Mobile and Far EasTone Telecommunications – are likely to see larger declines in ARPU in the second half of the year as the companies show little interest in backing away from low-cost, unlimited tariff plans, Taipei Times reported. In a research note, KGI Securities Investment Advisory Company analysts Victor Tseng and Jim Liou forecast ARPU for the three operators to

decline by 5 per cent to 10 per cent in the July-December period after slipping by between 1 per cent and 5 per cent year-on-year in the first half of the year. KGI said average ARPU in June fell 8 per cent to 8.5 per cent. Chunghwa Telecom introduced unlimited 4G data and voice plans in April. Rivals Taiwan Mobile, Far EasTone and Asia Pacific Telecom quickly followed. The National Communications Commission warned at the time the 4G price war could

impair mobile operators' ability to invest in and develop new services, including 5G networks and applications, needed to sustain the long-term development of the telecoms industry. All three operators recently reported year-on-year declines in net profit and mobile service revenue in Q2. The newspaper noted the business income tax rate rose from 17 per cent to 20 per cent.

## France Unveils Ambitious 5G Rollout Goals

The French government targeted a commercial 5G launch in at least one major city by 2020 as part of a range of measures designed to get the technology off the ground swiftly. In a statement, regulator Arcep said a newly completed 5G Roadmap sets “ambitious targets” including allocating frequencies to enable commercial launches over the next two years; launching a series of fresh pilots of pioneering industrial applications; and covering all main transport routes with 5G by 2025. The roadmap was unveiled by Arcep chair Sebastien Soriano alongside secretaries of state Delphine Geny-Stephann (Economic Affairs and Finance) and Mounir Mahjoubi (Digital Affairs). France regards 5G as “strategically vital” to its industry, economy and public services, the regulator stated. Arcep announced 11 fresh government-backed test projects in the Ile-de-France region, including three connected vehicle use cases. It said the

window to such pilot schemes is “open to everyone,” indicating operators, which are currently battling it out for leadership in the technology, are free to participate. The regulator in January revealed it would grant temporary licenses in 5G-compatible spectrum to kick-start operator trials. It added the roadmap was drawn up following a consultation process conducted in Q1. Those discussions contributed to four key courses of action in the roadmap: to free

up and allocate 5G frequencies; foster development of new uses; back deployment of compatible infrastructure; and keep the public informed of progress. The regulator noted the 5G plan builds on an agreement struck by the government and operators in January to invest €3 billion in expanding LTE coverage, particularly in rural areas. Working groups are already being formed to deliver on the 5G Roadmap’s goals, Arcep stated.



## US Lifts Import Ban on ZTE

The US Department of Commerce (DoC) formally lifted a seven-year ban on US companies selling components and software to China-based ZTE after it complied with all the requirements of a settlement agreed in June. ZTE said in a statement the department’s Bureau of Industry and Security terminated the denial order and removed it from the denied persons list, effective immediately. The vendor paid a \$1 billion fine in June and last week deposited \$400 million into an escrow account, clearing the way for it to resume operations. It also elected a

new eight-member board and appointed a new company president as stipulated by the deal. In a statement, the DoC noted the latest sums are in addition to penalties totaling \$892 million ZTE paid when it settled an original case relating to breaches of US government trade embargos covering Iran in March 2017. Wilbur Ross, US secretary of commerce, said the DoC is confident the “three interlocking elements” comprising the suspended denial order, escrow payment and a new ZTE compliance team “selected by and answerable to” the DoC will enable

it to “protect US national security.” In a preliminary statement issued to investors last week, ZTE warned it expects to post a heavy net loss for the first half of this year as a result of the suspension of operations after the US imposed the trade ban. The company noted the loss could total between CNY7 billion (\$1 billion) and CNY9 billion, compared with a profit of nearly CNY2.3 billion in H1 2017. US companies were barred from selling components to ZTE after the DoC determined the company made false statements during settlement talks and a probationary period in 2017.

## German Government Updates Broadband Subsidy Guidelines to Boost Roll-Out

Germany’s Federal Ministry for Transport and Digital Infrastructure (BMVI) has revised its funding guidelines for broadband subsidies in an effort to accelerate the expansion of high-speed internet in the

country. The new guidelines, which go into effect 01 August, raise the maximum amount of funding municipalities and districts across Germany can apply for from EUR 15 million to EUR 30 million,

while restrictions will be relaxed to allow communities to obtain additional funding should initial cost projections be overrun.

## CTIA: U.S. Mobile Usage Includes 1.5 Trillion Text Messages and 15.7 Trillion MBs of Data

CTIA released their latest research on U.S. mobile usage trends for 2017, and some of the numbers are staggering. Americans love their smartphones, and even though mobile data usage equates to 15.7 trillion MBs of data, they also still like to talk on their phones, with 2.2 trillion voice minutes used during 2017. There are more than 400 million mobile devices in service in the U.S., according to CTIA. That equates to 1.2 devices for every person in the country. Increasingly, those devices are data-only, including cars, smartwatches and other IoT devices. CTIA says there were 126.4 million data-only devices in use at the end of 2017, laying the foundation for a 5G interconnected IoT world, according to the wireless trade group.

### Annual minutes, messages and megabytes of wireless traffic (Billions of MOUs/Messages/MB)



The Mix of Minutes, Messages and MBs Changes – Data Dominates

## Data Requests under GDPR to Push Cost to Public Sector Past £30m



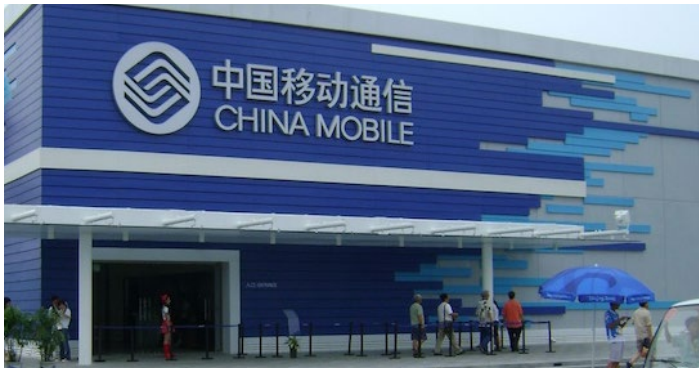
New research released today shows that public sector organizations face increased financial pressure as a result of the recently implemented General Data Protection Regulation (GDPR), to the tune of £30million per year. The NHS is expected to be hit hardest by the influx in data requests, given that before the introduction it cost the NHS £20.6million per year to retrieve customer data. The impact of GDPR doesn't stop there. Further new guidelines ruling that in most cases an organization must also complete requests free of charge are an extra blow to budgets. This marks a key change from previous guidelines under the 1998 Data Protection Act (DPA), which allowed a processing fee to be charged. As such, a £2.1m gap in income per year is expected

to emerge. The figures are the result of an extensive Freedom of Information (FOI) Act request made by Exonar, a leading provider of GDPR data mapping and data inventory solutions, to 458 organizations, including NHS Trusts (206), local government (125), central government (61) and emergency services (66) from across the UK. The FOIs asked for the number of subject access requests (SARs) received by the organization in 2014, 2015, and 2016\* and the cost of processing each SAR. On average, a SAR cost £145.46 to process, though some bodies admitted it costs much more, sometimes running as high as £1,800 such was the complexity of finding data and the associated administration. Multiplying the average cost to complete a SAR with the number of SARs received by the respondents in 2016 (209,023), results in a total administration cost to the public sector of £30.4 million. Each organization could previously have recouped some of the cost and charged a recommended £10 fee to complete a SAR but under GDPR they will no longer be able to, resulting in a £2.1m deficit that is set to grow wider as

more requests are made. Exonar's research found that many organizations struggled to meet the deadline for providing answers to its FOI requests (requests must be completed within 20 working days), highlighting the difficulty that many will face complying with requests under the new GDPR requirements. It's estimated by Exonar that an average SAR will run to thousands of pages as complete medical histories and the like are produced. It's a reflection of the situation in the private sector, where a bank provided 2 boxes of paper for a single customer who had banked with them for 25 years. Barrett says the total number of SARs could cost UK PLC billions: "We expect 30 million requests to be made this year to private businesses of all sizes and the public sector. If we assume the cost to process a SAR is the same in public and private sectors, then the cost to UK PLC stands at £4.5bn. That's an extraordinary sum to set against admin that has no value to a company."

## Trump Administration Rejects 2011 China Mobile License Request

The US National Telecommunications and Information Administration (NTIA) has issued a surprise statement advising the Federal Communications Commission (FCC) to reject a pending 2011 license request from China Mobile, which sought to offer telecoms services in the US. David J. Redl, Assistant Secretary for Communications and Information at the Department



of Commerce, commented: 'After significant engagement with China Mobile, concerns about increased risks to US law enforcement and national security interests were unable to be resolved. Therefore, the Executive Branch of the US government, through the NTIA pursuant to its statutory responsibility to coordinate the presentation of views of the Executive Branch to the FCC, recommends that the FCC deny China Mobile's Section 214 license request.' The development comes amid rising trade tensions between the US and China. In April, the Department of Commerce established that Chinese technology giant ZTE had violated trade bans with North Korea and Iran, and the company was prohibited from buying parts from US suppliers. The move forced the Chinese vendor to suspend major operations, and threatened the future of its business, until a USD1.4 billion settlement was agreed last month. TeleGeography notes that the NTIA – part of the US Department of Commerce – is the Executive Branch agency that advises the President on telecoms and information policy issues.

## China's ZTE Expected to Take Last Step to Lift Ban: U.S. Official

ZTE Corp (000063.SZ) is expected to deposit \$400 million in an escrow account in a U.S. bank in the "next couple of days," the last step the Chinese company must take before a ban on U.S. suppliers can be lifted, a U.S. Department of Commerce official told Reuters. ZTE, which makes smart phones and networking gear, agreed to pay a \$1 billion penalty and put \$400 million in escrow as part of a settlement it reached on June 7 with the Commerce Department to regain access to the U.S. market, which it needs for components. ZTE, China's second-largest telecommunications equipment maker, ceased major operations after the United States imposed the ban in April. The company had broken a prior agreement, the Commerce Department said, by making false statements about disciplining executives involved in illegally shipping U.S. goods to Iran and North Korea, which

are subject to U.S. sanctions themselves that led to nearly \$900 million in civil and criminal penalties to U.S. authorities last year. The escrow account in the new settlement is designed to allow the U.S. government access to the \$400 million if ZTE violates the latest deal. An escrow agreement, which defines the conditions under which the money could be released, was in the process of being finalized, sources told Reuters on Friday. ZTE is hopeful the \$400 million can be deposited on or before Monday, one person familiar with the matter said on Friday. The company paid the \$1 billion penalty last week, Reuters reported on Tuesday, citing sources. Spokespeople for ZTE did not immediately respond to requests for comment. The decision to lift the ban was made by President Donald Trump as a way of showing good will to the president of China, White House

trade adviser Peter Navarro has said. The Republican-controlled U.S. Senate passed legislation this week that would overturn the settlement, in a rare rebuke to Trump. But the measure, an amendment to a massive defense policy bill, is still several steps from becoming law, and the White House has said it will push its allies in Congress not to let the provision move forward. ZTE paid Qualcomm (QCOM.O) and over 200 other U.S. companies more than \$2.3 billion in 2017, including over \$100 million each to Intel (INTC.O), Broadcom (AVGO.O) and Texas Instruments (TXN.O), a senior ZTE official told Reuters last month. Under the new Commerce Department settlement, ZTE agreed to numerous conditions beyond monetary penalties, including changing its board and leadership within 30 days.



## Swiss Parliament Committee Calls for Stronger Net Neutrality Law

A parliamentary committee in Switzerland has called for stronger protection for net neutrality in the proposed reform of the Telecommunications Law. It also agreed to

hold off on regulating roaming, but said it would consider starting to regulate virtual wholesale network access.

## India DoT Casts Doubt on Vodafone, Idea Deadline

India's Department of Telecommunications (DoT) is mulling a demand for INR47 billion (\$690 million) in back-dated spectrum charges before clearing Vodafone India's merger with Idea Cellular, The Economic Times (ET) reported. The fee casts doubt on the companies' ability to complete the deal by a deadline of 30 June. It relates to charges levied in 2015 during the merger of Vodafone's five India-based business units into one company. At the time the DoT demanded around INR67 billion for charges related to spectrum, in addition to other regulatory costs, which led to

a protracted legal battle. Eventually the Supreme Court ordered Vodafone should pay INR20 billion as an interim payment to get the deal through. At the time, the remainder was said to be subject to further court action as the DoT reserved the right to challenge the fee. No further payments were agreed and now the DoT, after legal consultation, believes it can recover the remainder before clearing the merger with Idea Cellular, ET reported. In addition to the fee from Vodafone, the DoT is also tipped to be preparing a separate demand for INR21 billion in bank guarantees

from Idea Cellular for costs related to its spectrum licenses. Last week, clearance from the DoT was said to be "imminent", however the latest hurdle looks set to leave the parties struggling to meet the 30 June deadline originally set out for the transaction. Once complete, the tie-up between the second and third largest operators in India will create a new market leader by connection numbers. Both operators have made lengthy preparations ahead of anticipated approval including the sale of towers and, in Idea Cellular's case, fundraising measures.

## MTN Uganda Plans Share Sale, Files Complaint against Regulator

MTN Uganda is planning to list part of its shares on the Uganda Securities Exchange (USE) in Kampala. A report from The East African says MTN prefers a phased approach to the sale, first offering a stake to Ugandan pension funds through a private share offer before subsequently holding a public offer. CommsUpdate reported earlier this month that selling shares on the local bourse forms part of the government's conditions for MTN's

pending license renewal. The telco will also be required to meet new network coverage obligations with its 3G and 4G infrastructure. Separately, MTN Uganda is reported to have filed a petition with the High Court seeking self-regulation and supervision following a series of disagreements with the country's telecoms regulator, the Uganda Communications Commission (UCC). PML Daily writes that MTN is accusing the UCC of working

outside the law when determining complaints against the telco. MTN was unhappy with a UCC decision which found in favor of VAS Garages, a company which provided value added services (VAS) on behalf of MTN. MTN was ordered to pay the supplier UGX529 million (USD136,000) for breach of contract. The UCC has defended its decision, accusing the operator of flouting industry procedures and cheating suppliers.

## Minister: Singapore Will Lead ASEAN Smart Cities Boom

Singapore will lead a collaborative network of South East Asian nations looking to speed up the deployment of Smart City initiatives, according to the country's Minister of Communications and Information. Speaking at the opening of the ConnectTechAsia event in Singapore earlier today, Mr. S Iswaran said that Singapore would look to share its expertise with its regional neighbors in an attempt to kick-start Smart City initiatives in the region. "We have proposed the foundation of an ASEAN Smart Cities Network which will function as a collaborative platform for South East Asian cities such as Hanoi, Kuala Lumpur, Manila and Yangon to work together with Singapore towards the common goal of Smart, sustainable urban development. "Not only will this Smart City initiative synergise innovation and showcase new technologies, importantly it will also facilitate growth and investment in all business sectors across the ASEAN region," he said. Iswaran said that the continued growth in internet connectivity and digital consumption throughout the ASEAN [The Association of South East Asian Nations] region would herald more business opportunities for citizens of the region in the years to come. "The future is bright for companies who want to take advantage of ASEAN's vibrant



digital economy. "The emergence of disruptive technologies has revolutionized the global economy. It has changed entire industries, redefined business models and transformed the nature of work. It has opened up many new possibilities for our people, for our businesses and for our economies. The challenge for us now is how best to navigate this dynamic and evolving landscape, so that we might achieve growth and mutual benefit.

## New 5G Cross-Border Corridor for Connected and Automated Mobility Announced at the Digital Assembly 2018

Bulgaria, Greece and Serbia have jointly agreed to develop experimental 5G cross-border corridors that will allow for the testing of driverless vehicles. This corridor will include the border crossings and key sections of the main roads. At the Digital Assembly 2018 in Sofia (June 25-26), another important milestone in the extension of 5G testing corridors for connected and automated mobility was reached. Bulgaria, Greece and Serbia signed a Letter of Intent to work together on the Thessaloniki – Sofia – Belgrade corridor. This new agreement builds on a number of previous ones between a numbers of European countries, and underlines that a pan-European network of 5G corridors is now emerging. Last year, 27 Member States agreed to develop large scale testing of connected and automated mobility on European

motor ways cross-border corridors) as part of the Digital Day 2017. This collaborative network between European countries will enable a better environment for the testing and deployment of 5G technology, and will allow tests to be conducted with driverless vehicles over hundreds of kilometers of motorways. There are already several important initiatives in place:

- France, Germany and Luxembourg have announced a joint corridor between Luxembourg, Metz and Merzig;
- Followed by Norway, Finland and Sweden with the E8 corridor between Tromsø (Norway) and Oulu (Finland) and the E18 corridor between Helsinki, Stockholm and Oslo;
- The Netherlands and Belgium join in with the Rotterdam – Antwerp - Eindhoven corridor;
- At Digital Day 2 in Brussels (April 2018), Spain and Portugal signed a Letter of Intent to have two joint corridors between Vigo and Porto and between Evora and Mérida, allowing connected automated driving to be tested across borders;
- Italy and the three Presidents of Euroregion Tirol-Südtirol-Trentino have confirmed their intention to work, in cooperation with other interested Member States, on the development of the 5G Corridor on the Brenner Pass motorway which has traffic of over 60 million vehicles per year.

The 5G corridors make Europe the biggest experiment area rolling out the 5G technology. This confirms Europe's leadership in large-scale testing and the early deployment of 5G infrastructure enabling connected and automated mobility. This pan-European effort will create a secure and safe environment for citizens to be able to enjoy the benefits of connected and automated driving.



## Huawei Defends Itself against Australian 5G Allegations

Chinese tech giant Huawei has defended itself against accusations that it poses a security risk, this time from authorities in Australia. Australia is mulling over a decision to ban Huawei from work on its 5G mobile communications networks, claiming that it is too closely linked to the Chinese government. "Banning Huawei will not make the Australian telecom

ecosystem safer, but will have a huge impact on the industry and the prices and services Australians receive," John Lord, chairman of Huawei's Australian unit, told Australian Associated Press. "It will be a great policy failure and demonstrate to the world that we are not ready for the new reality of a smart and innovative China," he added. Huawei has been forced to

defend itself against similar allegations from the US in recent months, despite a US government enquiry finding no evidence to support the accusations. "Yes, I've heard a lot of the rumors about Huawei. As of this moment I don't believe that our department has found any violation by Huawei," US Commerce Secretary, Wilbur Ross, said earlier this month.

## Vodafone-Cyta Deal Approved

Vodafone Greece has been granted approval by the Hellenic Telecommunications & Post Commission (Ethniki Epitropi Tilepikoinonion kai Tachydromeion,

EETT) to acquire smaller rival Cyta Hellas, according to a report from Kathimerini. Vodafone was named as the preferred bidder for Cyta in January this year, having

submitted an offer of around EUR117 million (USD152 million), topping a bid of EUR100 million from another Greek telco, Wind Hellas.

## European Regulators Report Sharp Rise in Complaints after GDPR Watchdogs Reveal More Data Protection complaints and Increase in Breach Notifications

The first month of GDPR has seen a sharp increase in the number of complaints to regulators across Europe, showing strong public interest in the new rules. The UK's Information Commissioner's Office (ICO) told the Guardian it has seen a rise in breach notifications from organizations, as well as more data protection complaints following the activation of the law. The French data protection regulator, CNIL, reported a 50% increase in the number of complaints since the legislation came into effect on 25 May, compared with the same period last year. A further 29 cases are under investigation at the European level, the site reports. Across Europe, the regulation has also sparked greater transparency from firms that have suffered a data breach, with notifications spiking

over the same period. GDPR increases maximum fines for malpractice to €20m (£17.6m) or 4% of a company's global turnover – whichever is higher – and companies are more likely to face higher fines if they delay reporting breaches. In Austria, more than 100 complaints have been filed in the last month, along with 59 breach notifications – the same number that would typically be received in eight months. An ICO spokesperson said: "its early days and we will collate, analyze and publish official statistics in due course. But generally, as anticipated, we have seen a rise in personal data breach reports from organizations. Complaints relating to data protection issues are also up and, as more people become aware of their individual rights, we are expecting

the number of complaints to the ICO to increase too." Isabelle Falque-Pierrotin, the head of CNIL, told Politico: "The general public is interested about all the transparency obligations, consent and all the new rights." The bulk of the response to the legislation has been a substantial number of complaints against high-profile companies, such as those against Facebook and Google filed by privacy campaigners at the consumer rights organization Noyb. Those complaints accuse the two companies of forcing consumers into providing "consent" for data processing in a "take it or leave it" deal, which Noyb argues is against the principles of the law. "Considering the powerful position these companies have and the consequent pressure the data subject is put under, to agree to irrelevant processing/advertising purposes, we believe that any such consent obtained should be considered invalid," a Noyb spokesman told the Guardian. Fearing such complaints, other companies exited European operations entirely in May, and still have not worked out a way to re-establish themselves on the continent. Operations at the LA Times, Chicago Tribune and other papers owned by the Tronc media group are blocked to EU readers; the Pinterest-owned reading app Instapaper has been down for maintenance for a month; and USA Today has taken to offering those in Europe a slimmed-down, ad-free experience, hoping that will leave their title compliant with the law.



## ARTP, Sonatel Launch Local Loop Unbundling

The Regulation Authority for Telecoms and Post (ARTP) has announced that local loop unbundling (LLU) has been launched in Senegal, writes Kewoulo. The incumbent Senegalese ISP Sonatel has had its fixed

copper network opened up to other telcos in a move that the regulator hopes will increase competition in the sector and encourage retail rates to drop, with the aim of enabling more customers to access fixed

broadband services. ARTP has already taken steps to increase competition in the fixed broadband sector by licensing three new ISPs in March this year, namely Waaw, Africa Access and Arc Informatique. 🇸🇳

## ARTICLE

# Building and Securing 5G Networks of Tomorrow

**While 5G brings the promise of new revenue opportunities for service providers, new infrastructure and use cases will open up new risks. The security of the SP network infrastructure, their business, and their customers will require a holistic approach says Ali Amer, Managing Director, Global Service Provider Sales, Cisco Middle East and Africa.**

Every new generation of carrier technologies has brought forward new business and consumer use cases. The release of 3G rolled in wireless mobile data communication, while the release of 4G brought in IP wireless data communication. Both combined have made ecommerce, video, gaming, social media, an every-day routine on smartphones and mobile phones.

In essence 3G and 4G networks enabled mobile broadband for business and consumers. As part of this growth: the world is now mobile; there is huge growth in network access; digitization has become a reality leading to emergence of Internet of Things (IoT); and cloud is now mainstream.

5G is an enabler for new set of possibilities and capabilities. The growing 5G momentum promises new revenue opportunities for service providers. To pursue these new untapped opportunities, they will need to ramp up their network capabilities to support future 5G services.

As we move closer towards mainstream 5G adoption, mobile networks are increasingly expected to handle more data-intensive applications and deliver low-latency connectivity to more devices.

The roll out of 5G networks provides an opportunity for service providers to gain benefits from next generation cycles in the data center, networks, mobility, in a multi-vendor environment. Significant changes such as personalized networks are now possible through slicing and other granular functions.



## Ali Amer

Managing Director, Global Service Provider Sales  
Cisco Middle East and Africa





**The roll out of 5G networks provides an opportunity for service providers to gain benefits from next generation cycles in the data center, networks, mobility, in a multi-vendor environment. Significant changes such as personalized networks are now possible through slicing and other granular functions.**

Simultaneously, 5G is about service providers being able to exploit new enterprise use cases and new revenue streams. In parallel, new transient network surfaces raise additional challenges of security and country regulations.

Some of the new use cases that 5G will cater to include: autonomous transport, augmented and virtual reality, smart city traffic management, rapid response services, robotics in manufacturing, healthcare and fitness, smart grids and utilities, smart offices, smart homes, industrial automation, machine to machine communications, 3D video and high definition screens, working and play in cloud, amongst others.

Other use case categories include:

**5G Enhanced Mobile broadband** offers high speed and dense broadband connectivity to users. With performance of Gigabit speeds, 5G is an alternative to fixed line connectivity services. To support enhanced mobile broadband use cases, the mobile core must support high density performance, scalability and security.

**Ultra-reliable low latency communications** focuses on mission critical services such as virtual reality, tele-surgery, healthcare, intelligent transportation, industry automation, manufacturing robotics, and factory automation. Previously delivered through a wired connection, 5G is now an alternative for these use cases.

For millions of sensors and thousands of cars, all on the edge of the network, **Massive IoT** can support the number of scalable connections required. Service providers can use network slicing technology, to deliver network as a service for businesses.

5G will bridge wireless and wireline networks, forcing a major network architectural change from radio access to core. This requires transition to cloud native applications, monitoring and managing an end-to-end network, including radio access networks and packet core. It also combines and leverages the capability of a variable bandwidth network with mixed and flexible access. On the flip side, this enhanced flexibility increases the surface vulnerable to threats.

Securing 5G networks requires complete visibility of the stack managing a use case and controls to take remedial action. Contrary to traditional carrier networks, 5G networks require visibility from the edge to the cloud platform, to the application, across the extended network, to the end point.

Securing the 5G network then requires comparison to the normal baseline behavior and alerts for any deviation. The key functional aspect being to be able to measure the network, so that it can be managed.

Continuous aggregation of near real-time network data allows analyses of the workflow through a security controller. Based on predefined security policy, remedial action and controls can be triggered. Inbuilt machine learning capability, monitors the remedial actions and its ability to counter threats, as an iterative loop for further improvement and action at a later stage.

Day zero attacks, are typically where the signature and finger print of the threat actor, exploiting an unknown vulnerability, are seen for the first time. These can be detected by variation from the baseline behavior of the network, cloud and applications. Remedial action is then initiated by the security controller to identify, isolate, and control the threat.

Day one attacks, are previously identified threats, where a series of counter attacks have already been developed and can be initiated with predictable results. Applying these types of responses in a closed loop process, where both the controller remediation and its results can be monitored and recorded, can help in improving future responses.

Another way of securing 5G networks is the advanced usage of encryption. Half of all Internet traffic today is encrypted and this is expected to increase. Machine learning can be used to build analytics from encrypted Internet traffic increasing the visibility of threats as close to the threat as possible. This reduces the possibility of collateral damage inside the 5G network.

New tools for increasing visibility inside 5G networks include application level probes and path computation elements. An application probe is an automated cell that travels across the network and benchmarks the application performance at various network points.

A path computation element, feeds network characteristics at every point of the network into a near real-time database to simulate functioning of a network. As an example, remedial responses to a DDoS attack are first simulated using the near real-time network database to assess the impact before initiation.

The nature of the 5G network creates a widely distributed data center and an expanded attack surface. Such a topology is susceptible to lateral attacks and threats. This can be countered by segmenting the network - right from the edge, across gateways, applications, wireless and wireline networks, backhaul networks and so on. Segment routing is an important tool in network segmentation.

By investing time and money in securing their 5G networks, service providers can be better assured of a predictable return on investment. 📌

## A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



The Afghan Minister of Communications and Technology, has signed a cooperation agreement in the field of ICT with the head of the Foreign Relations Office of Tajikistan. The agreement includes regional interconnection through fiber-optic networks, the transfer of internet traffic, postal services, electronic commerce and the exchange of experiences and knowledge in the IT sector, as well as other issues of bilateral interest. (July 1, 2018) telecompaper.com

The Acting Director of the Information Security Directorate of MCIT Mohammad Zahid Stanekzai, headed a joint meeting with Manager of NIXA Project Abdul Majid Yama and the representatives of the top ten ISP Companies. During the meeting, the ten ISP officials

expressed their interest to joining the National Internet Exchange of Afghanistan (NIXA) Project. The Acting Director of Information Security Department who is responsible for managing the project provided detailed information on the role and importance of this system in terms of price reductions and speeding up Internet access. Afterward, ISP officials put up their questions about the security of information and communication, to which the required answers were provided by Zahid Stanekzai. Subsequently, ISP officials pledged to join the National Internet Exchange Project after signing a bilateral agreement in order to provide better service to citizens through the benefits of this system.

(June 27, 2018) mcit.gov.af

### Afghanistan



The independent telecom sector watchdog has changed its name from the Authority for Regulation of Post and Telecoms (Autorite de Regulation de la Poste et des Telecoms, ARPT) to the Authority for Regulation of Post and Electronic Communications (Autorite de Regulation de la Poste et des Communications Electroniques, ARPCE). The new title reflects the regulator's wider involvement in all aspects of today's digital communications sphere.

(July 20, 2018) telegeography.com

Mr. Mohamed Ahmed Nacer Chairman of the Board of the Regulatory Authority of the Post and Electronic Communications (ARPCE), Board Members and the Director General received Dr. Abdulaziz Salem Alruwais, Governor of the Commission for Information Technologies and Communications (CITC) of the Kingdom of Saudi Arabia, who was accompanied by a delegation from CITC. The visit of the Saudi delegation to Algeria, which spans two days, is part of the memorandum of understanding signed between the two institutions providing for the establishment of a program of cooperation and exchange of information. Expertise in several areas related to electronic communications, particularly

in the field of service quality control of fixed and mobile networks, universal service, interconnection and spectrum management. The delegation of Saudi Arabia is aware of the missions, the organization and the functioning of the Regulatory Authority as well as the regulatory instruments available to it to promote the development of competition as well as the postal and electronic communications services, and this at the dawn of the new provisions introduced by Law 18-04 of May 10, 2018 laying down the general rules relating to postal and electronic communications. The meeting was also an opportunity for the Saudi side to present their institution and their feedback in the field of e-services development, and particularly in the processing of applications for certification of electronic communications equipment, and the processing of user complaints. In addition, questions related to their 5G service experimentation work and electromagnetic field exposure measurements were also discussed. Officials of both institutions expressed their strong desire to collaborate and coordinate their efforts to achieve the missions assigned to them in the development of quality electronic communications for the benefit of consumers. (July 1, 2018) arpce.dz

### Algeria



## Bahrain

The Telecommunications Regulatory Authority (TRA) held a session on its Consumer Dispute Regulation for telecom operators in Bahrain to discuss the provisions of the regulation related to compliance and enforcement. During the session, TRA stressed the importance of complying with the measures set forth in the regulation, and in the case of a failure by a telecoms operator to the provisions of the regulation, TRA may impose a number of penalties, which may reach to BD 50,000. The purpose of this regulation is to establish the principals and procedures for the submission, handling and resolution of a Dispute arising between a Subscriber and a telecoms operator, in addition to improving the Complaint handling process by establishing basic high-level criteria for the handling of Complaints by Licensed Operators. TRA's Senior Advisor of Consumer Affairs Development, Sh. Abdulla bin Humood Al Khalifa stated "This regulation is an integral part of the previous regulations on consumer protection, where it came following a number of studies on best practices of dispute handling mechanisms, taking into consideration the role, rights and duties of subscribers and telecom operators with TRA." "TRA published a public consultation on the regulation aiming at reviewing and receiving feedback from all stakeholders, in particular consumers and consumer groups prior to the adoption of the regulation to ensure transparency and participation in decision-making." Sh. Abdulla added. The regulation consists of several chapters that apply to all subscribers, including submission procedure and content of a request for dispute resolution, acceptance of a dispute, dispute resolution procedures, resolution by settlement, issuance of decisions, in addition to subscriber rights and guarantees as well as a number of general provisions related to compliance and enforcement. The regulation highlights the fact that subscribers no longer have to wait 60 days to submit a dispute to TRA. Instead, they can submit a dispute after the exhaustion of the telecoms operator's procedures for dealing with complaints in accordance with the Code of Practice, which can be found on telecom operators websites. The Code of Practice sets out the minimum number of days that the subscriber has to wait per category of complaint before being able to submit a dispute. The regulation entitles the relevant stakeholders to determine and resolve disputes through mediation, settlement and issue of decision. The regulation shall guarantee the right of the subscriber to request to restore the disputed telecommunications service during the submission procedure of the dispute request. In order to promote the principle of transparency and competitiveness for the public interest. The regulation includes a number of provisions related to the publication of statistics by TRA of the telecom operators' performance in respect of the resolution of complaints and disputes. This is one of the new rights covered by the regulation to ensure that all rights of subscribers are protected in respect of disputes arising between them and the telecom operators. TRA urges all subscribers who have unresolved complaints during the above period, or have not reached a satisfactory solution with their telecoms operator or

have comments on telecoms services, to communicate with TRA through its website [www.tra.org.bh](http://www.tra.org.bh), contact the Consumer Call Center: 81188 or submit a written request to [consumer@tra.org.bh](mailto:consumer@tra.org.bh). TRA's website also includes more information on the content and attachments of dispute settlement request or the scope of acceptance or rejection insights. (July 26, 2018) [tra.org.bh](http://tra.org.bh)

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain officially inaugurated a new Telecom Mast Permitting Office, which will be responsible for regulating and rectifying telecom towers. The Office will be responsible for coordinating with the relevant government bodies, including the Ministry of Works, Municipalities Affairs and Urban Planning, the Supreme Council for Environment and the Civil Aviation Affairs to obtain required permits and No-Objection Certificates from these bodies prior to granting the final permit by TRA for deploying telecom towers. This will ensure the optimal implementation of the provisions of the Prime Ministerial Decision No. 45 of 2015 ("Decision 45") that promulgate the Regulation concerning Public Radio-communications Stations. Based on Decision 45, TRA appointed a consulting firm to develop a framework and regulations for the deployment of telecom towers and the establishment of a specialized office to ensure the implementation of these regulations. TRA has recently completed the development of engineering conditions and standards related to the technical and aesthetic aspects, in coordination with the relevant government bodies, to deploy telecom towers according to both the provisions of Decision 45 and the best international engineering practices. A specialized technical team will carry out the approval processes and ensure that operators comply with all new engineering conditions and standards prior to granting final permits. The specialized team will conduct site visits to ensure that telecom towers comply with the general safety requirements and engineering specifications and to audit technical information and sites of existing and planned telecom towers. The team will also coordinate with operators to implement the plan to rectify unpermitted telecom towers to ensure that all telecom towers comply with the new engineering conditions, standards and specifications. TRA has recently used an electronic system to manage the telecom towers permit process and to process applications for tower sharing between operators. TRA's Technical & Operations Director, Eng. Mohammed Alnoaimi stated "One of TRA's strategic objectives is to develop regulations aiming at ensuring a secure and advanced telecommunications infrastructure. In view of the importance of telecom towers as an important component of the telecommunications infrastructure and the TRA's insistence on deploying towers according to the best international engineering standards and practices in this field, TRA has contracted with a specialized consulting firm to provide consultancy, technical and operational support to the new Telecom Mast Permitting Office. This will enable the office to carry out the approval processes and monitor the implementation

of the telecom towers rectification plan to ensure that all towers comply with applicable regulations and requirements. Since August 2016, TRA has issued 50 permits for the deployment of new telecom towers that comply with all the conditions of the concerned bodies." "TRA exerts significant efforts to ensure that small towers with integrated architectural forms which are consistent with the surrounding environment and landscape are deployed instead of the current traditional tower. In collaboration with all concerned government bodies, TRA aims to have a radical change over the next few years in the forms, types and sizes of telecom towers without impacting rapid technological development and progress. The consulting firm implements a comprehensive training program for Bahraini engineers in TRA, ensuring that these engineers have the knowledge and expertise necessary to continue to deploy telecom towers according to the best engineering standards and practices in the future." Eng. Mohammed added. (July 23, 2018) tra.org.bh

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain published a report on the retail price benchmarking study of telecommunications services in Arab countries for 2017. TRA carried out this study on behalf of the Arab Regulators Network ("AREGNET"), and has commissioned Strategy Analytics, an independent consulting firm that specializes in tariff comparisons, to undertake the study. The study compares prices of the telecommunications services in Arab countries with those in the Organization for Economic Co-operation and Development countries (OECD). The results of the study reveal that based on a set of agreed baskets, the prices of fixed and mobile broadband services in Bahrain compare very well regionally, and that the prices of fixed broadband services have dropped by up to 33% between 2016 and 2017. The study shows that most Arab providers have made changes to portfolios, speeds and data allowance since 2016. The study also shows that all the mobile packages in Bahrain have data service in addition to the voice services. The study also confirms that the mobile operators in Bahrain offer more competitive prices compared with other GCC countries. Although mobile operators discontinue offering unlimited data allowance (with throttling the download speed after consuming the data threshold) and have decreased the range of mobile packages, however, the data allowance provided with these packages has significantly increased in 2017. The study shows that 46% of plans have data allowances over

10GB in 2017 compared with 9% in 2016. This large increase in the allowance of data provided with mobile packages is a response to the increase in the data usage. Based on the latest market data, the average monthly outgoing mobile domestic voice minutes per customer dropped by 15%, while the mobile data usage increased by 16% over the period 2016-2017. Average monthly data usage for Bahrain in 2017 reached 9 GB compared to 2 GB in 2013. Moreover, 80% of mobile subscribers have an active data subscription by the end of 2017 compared to 50% in mid of 2013. TRA's Acting General Director, Sh. Nasser bin Mohamed Al Khalifa stated "The objective of the study is to monitor the development of the telecommunications market in Bahrain compared to the Arab countries and developed countries. The study is part of TRA's duties in protecting the interests of consumers and fostering a mature competitive telecommunications environment through taking the necessary actions to achieve this. This study is considered one of the significant initiatives implemented by Bahrain at the regional level."

(July 15, 2018) zawya.com

The Telecommunications Regulatory Authority's (TRA) Board of Directors held their second meeting this year, at TRA's headquarters. During the meeting, Board members discussed key issues related to the telecommunications sector; in particular those that are of interest to the general public. This includes the progress of the projects related to the Fourth National Telecommunications Plan (NTP4) and the progress of achieving the NTP4's objective of establishing the National Broadband Network ("NBN"), which is supported through a single fixed fiber network. These projects are considered important to address consumers' concerns and promote their welfare, which is a step towards achieving the vision and policy of Bahrain's leadership. The Board also discussed the issue related to regulating and rectifying telecoms towers which is of a high importance in the telecommunications sector, stressing on the need for TRA to accelerate the process of rectifying unpermitted telecoms towers which affect the surrounding environment, by exerting significant efforts and taking the necessary actions in coordination with the concerned government bodies. The Board emphasized on addressing and resolving all consumer-related issues to ensure that all rights and interests of consumers are protected.

(July 3, 2018) tra.org.bh



Bangladesh Telecommunication Regulatory Commission (BTRC) has invited companies willing to offer telecommunication value added services (TVAS) to apply for registration. The invitation notice, signed by BTRC director (Licensing) MA Taleb Hossain, also asked mobile phone operators to get certification for providing TVAS. Any Bangladeshi entity holding a valid trade license is eligible to apply for TVAS registration. However, the Bangladeshi entity may have Non-resident Bangladeshis (NRBs) or a foreign entity as a partner. A consortium of NRBs or a foreign

entity without a Bangladeshi partner would not be registered. In case of a consortium, the entity shall have to set up a company as per Bangladeshi law to receive the certificate. The commission, however, gave priority to foreign companies. The invitation notice said that in case a foreign entity applied along with a Bangladeshi partner, the foreign equity would be limited to maximum 70 per cent. BTRC may increase the equity for a reputed foreign partner, if required, it added. The foreign partner will have to invest in foreign currency directly equal to his percentage of ownership.

## Bangladesh

Moreover, no loan from any Bangladeshi scheduled bank, financial institution or leasing company could be raised for the foreign part of the investment. In case an NRB applied along with a Bangladeshi partner, there would be no limit on the percentage of foreign equity. The NRB shall directly invest in foreign currency. No loan from any Bangladeshi scheduled bank, financial institution or leasing company could be raised for his part of the investment. As per the conditions of the Cellular Mobile Phone Operator (CMPO) license, CMPOs are eligible for providing TVAS. After the issue of this guideline, they will also be entitled as "CMPO-TVAS" and would be allowed to provide TVAS within their own network area only after getting a "CMPO- TVAS" registration certificate from BTRC. The commission has finalized the guideline on TVAS by setting the ratio of revenue sharing between mobile phone operators and VAS providers at 40:60. The guideline titled "Regulatory Guidelines for Issuance of Registration Certificate for Providing Telecommunication Value Added Services in Bangladesh" was issued by the BTRC Director. In its draft guideline issued on December 31, the BTRC had allowed a foreign equity to have a maximum of 49 per cent share. However, the final guideline gave priority to foreign companies. (July 10, 2018) [theindependentbd.com](http://theindependentbd.com)

The government plans to introduce a uniform call rate for mobile phones to establish a level playing field for the country's telecom operators. Currently, for each minute the operators charge Tk 0.35 to Tk 0.40 on an average for on-net (same network) calls and Tk 0.91 to Tk 1.05 for off-net (other network) calls. The abolishment of the different call rates will create pressure on the mobile operators to improve their service quality to attract customers, Mustafa Jabbar, telecom and ICT minister, told The Daily Star. The move will also save the customers from getting bill shocks when mobile number portability (MNP) is made available following its launch in August this year, the minister said. With the MNP, people will not be able to identify whether they are making on-net or off-net calls as the service allows users to switch to a different operator without changing existing mobile phone numbers. The

plan has been taken in response to a directive given by Sajeeb Wazed Joy, prime minister's ICT affairs adviser. The adviser made the call in a meeting in April with the officials of Bangladesh Telecommunication Regulatory Commission (BTRC), government high-ups and mobile phone operators. Banglalink recommended the rate be fixed at Tk 0.45 a minute while Robi wants it to be Tk 0.55 a minute but the largest operator, Grameenphone, opposed the whole idea. Grameenphone, which has over 6.70 crore customers, said on-net and off-net tariffs have been part of the industry for years. Moreover, customer telephony usage patterns and the company's investment plans are based on the existence of such tariffs, said Mahmud Hossain, chief corporate affairs officer at Grameenphone. "Such decisions should not be made arbitrarily, rather through a consultative approach to ensure that repercussions can be managed properly and customer problems can be minimized." However, Banglalink also proposed that the telecom regulator bring down the upper ceiling for mobile call rate to Tk 1.25 a minute from Tk 2 a minute. The uniform call rate would not hurt the earnings of the operators and the government, Robi said in its presentation to the BTRC. The gap in the on-net and off-net charges of different operators are distorting market competition and taking toll on the smaller market players, said Shahed Alam, executive vice president and head of regulatory affairs at Robi. The MNP will further intensify market imbalance if the uniform call rate is not introduced, he said. Md Jahurul Haque, acting chairman of the telecom watchdog, said they have received the operators' proposals. "We will send our recommendation to the government soon to take a final decision," he said. Haque also thinks that customers would get bill shocks in absence of a uniform call rate once the MNP is introduced. Last year, the BTRC conducted a study and recommended setting per minute off-net charge at Tk 0.45 and Tk 0.35 for on-net calls but the government did not pay heed to the call. Among the neighbors, Sri Lanka was the last country to come out of the regime of different call rates in 2016 and Bangladesh might be the only country in the world now to use such rates, the BTRC officials said. (June 25, 2018) [thedailystar.net](http://thedailystar.net)



There are between 42 to 45 million social media users in Iran and the number of users on Iranian messaging apps has reached 7.5 million, Tchrassa said citing a statement by the ICT Ministry. Major social networks such as Facebook, Twitter, YouTube, and Telegram are blocked in the country. Meanwhile, the First Deputy Prosecutor of Iran issued a statement that brought blocking speculations for Instagram. This is due to the activities of some Iranian celebrities on Instagram who have collected money from their followers to help the poor. This has led to some scams,

the prosecutor said. Mohammad Javad Azari Jahromi, the ICT Minister, has mentioned a few times that he's against blocking social networks, and there are even some chances that Twitter might get unblocked in the country. In May, it was announced that eight out of the twelve members of Iran's Filtering Committee have written a letter to the Deputy State Prosecutor in charge of Cyberspace Crimes in favor of removing the ban on Twitter.

(July 10, 2018) [telecompaper.com](http://telecompaper.com)

## Iran



## Iraq

The Council of Ministers approved the launch of the fourth license for mobile networks. The council decided to form a committee headed by the Prime Minister, the Minister of Finance, Dr. Haidar Al-Abadi, the membership of the Communications and Media Commission (CMC), the Ministry of Communications, the Ministry of Higher Education and the Financial Control Bureau. The committee will manage the public auction process to ensure the transparency of the procedures and the selection of the most suitable applicant. The Communications and Media Commission (CMC), has already embarked on strategic steps to implement this crucial task. It has contracted with one of the four major

international companies (PWC) to prepare for the bidding process, including developing a study of the Iraqi market. This will consider how to improve services, increase the penetration rate and increase competition. This would ultimately benefit the consumer in terms of quality of communications and prices by creating new investment opportunities and increasing employment opportunities. PwC will also support the Communications and Media Commission (CMC) with further pre-qualification and tendering activities to support the new license process.

(July 1, 2018) [cmc.iq](#)



## Jordan

Jordan jumped 11 spots on the IMD World Digital Competitiveness Ranking 2018, according to a report released by the International Institute for Administrative Development in the Swiss city of Lausanne. The kingdom, landing in the 45th place globally, is the only country to record a double digit hike and is the highest upward mover, with Japan and South Korea climbing five spots respectively. In this year's edition, Jordan was placed 45th out of the 63 countries ranked globally and last among the four Arab nations on the list. The kingdom is preceded by Saudi Arabia by three spots (42), while the first Arab country on the list is UAE, occupying the 17th place, followed by Qatar at 28. This crucial progress in Jordan's digital competitiveness is made as the Kingdom embraced plans to achieve a more digital

society, simultaneous with the government's announcement of the introduction of the Digital Transformation Strategy (Digital Jordan). According to the study, improvements and declines occur across continents, with 29 experiencing improvement, 26 decline, and eight remained in the same position. The USA jumped two spots and leads the ranking, followed by Singapore, Sweden, Denmark and Switzerland. The study assesses digital competitiveness based on 50 criteria of the economy under three factors- knowledge, technology, and future readiness. In order for countries to adapt, explore and make the most of the digital transformation, the center issues the ranking in order to encourage the transformation of government practices and society in general. (June 27, 2018) [en.ammonnews.net](#)



## Kuwait

Kuwait has signed a memorandum of understanding (MoU) with Huawei Company to implement the smart cities strategy in the country, CEO of the Communication and Information Technology Regulatory Authority, Salem Al-Othaina said. On the sideline of His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah's official state visit to China, Al-Othaina told KUNA, the memorandum was divided into four sections connected with the development of intelligent infrastructure networks, security, virtual systems and the digital transformation of various industries and central managements in Kuwait. He also explained that the memorandum had touched on the implementation of smart cities in Kuwait, including the Silk (Al-Harir) City and Kuwaiti islands development projects. He added that both sides discussed the Mubarak seaport, proposed to be built in Bubyah Island northeast of Kuwait, as an initial starting point for smart cities projects,

noting that the MoU will include a joint strategy in this regard. The MoU also aimed to exchange expertise, technological innovation, general design and consultancy to transform Mubarak seaport project into an intelligent facility. The cost of this consultation and design will be on Huawei Company, Al-Othaina said. The signing of the MoU came during the official rounds of talks between His Highness the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah and Chinese President Xi Jinping. (July 11, 2018) [kuna.net.kw](#)

The Chairman and CEO of the Communications and Information Technology Regulatory Authority, Eng.Salem Al- Ozainah, announced that The National Centre for Cybersecurity, with British expertise, will be established within three years. He stated to Kuwait News Agency (KUNA) on the sidelines of the 12th session of the Joint Guidance Committee's meeting, that establishing The

National Centre for Cybersecurity will contribute to limit the risks of cyber-attacks and will aid in insuring the country's institutions through a number of technical standards and regulations. Al-Ozainah reflected to last year, which witnessed a productive cooperation with the British counterparts, where a study was conducted on 43 government entities in the State of Kuwait to

measure the cyber threats and shortcomings which may expose these entities. Al-Ozainah clarified that the establishment of The National Centre for Cybersecurity in Kuwait is a result of the cooperated efforts of Kuwait and Britain, expressing his gratitude and appreciation to the British side for providing this knowledge and modern technologies. (June 27, 2018) [citra.gov.kw](#)



Minister for Communications and Information Technology Gokul Banskota has said that the internet cost will be gradually lessened even though the internet service cost was cheaper here in comparison to other countries. While responding to the queries from lawmakers during deliberations on the appropriation bill under the CIT Ministry on Tuesday, Minister Banskota opined for developing telecommunication infrastructures for quality service. Minister Banskota also shared that the Ministry was ready to provide information even during an emergency. Government was committed to ensuring job opportunities to the IT students, Banskota said. On another note, he clarified that the government will not exempt NCell from the due tax payment. He also stressed on developing and reaching quality telecom services to every nook and corner of the country. Minister Basnet said that the government was preparing to add 738 telecom towers in the country. Minister Banskota further shared that the Ministry was providing public welfare advertisement to the media houses, based on an evaluation process that is impartial and neutral. He also claimed that the fund allocated for advertisement will not be misused adding that the practice of providing advertisement to electronic media was in place since long which could not be discontinued. Banskota said the government will give due consideration to the recommendation made by the minimum wage determination committee for the wage, insurance and other facilities for the working journalists. He expressed the commitment to enforce clean feed in the Nepali media. The CIT Minister also expressed the confidence that there would be free WIFI zones available across the country after mobile application is developed for the same. Every province shall have a 'smart school' with the establishment of computer labs in 500 schools in the current fiscal year. "The government has plans to provide digital education with a focus on the youth. He also made it clear that additional budget has been provided for running inclusive language programmes through the state-run radio Nepal. Minister Banskota also made it clear that the government does not have

a policy to intervene in public media. During the deliberations, 21 MPs had put forth questions to the CIT Minister.

(July 1, 2018) [kathmandupost.ekantipur.com](#)

In a move addressing internet-related concerns locally, the Government of Nepal is planning a regulatory framework that brings fairness in the delivery of internet and data services across the nation. The government is coming up with the 'net neutrality' policy to be considered while issuing licenses to local telecom operators and Internet Service Providers (ISP). The new policy upon implementation will regulate the way ISPs deliver services with regard to speed-based discrimination and pricing of internet traffic. This decision makes Nepal Telecom Authority (NTA) second such authority in South Asia after India's Telecom Regulatory Authority of India (TRAI) to formulate such a policy that enforces regulation for fairness in internet service delivery. Nepal is consulting TRAI for finalization of the policy. Net neutrality is the policy that mandates ISPs to ensure fairness in all the services they deliver across web-based platforms. Though the concept of net neutrality has been under discussion across the globe, Nepal Government is coming up with such legal framework for the first time in its history. Till date, Nepal has no legal rules protecting the existing net neutrality process. At the start of 2018, NTA opined that 'net neutrality' is not a serious concern for Nepal, however changed its decision after some local ISPs reported violation of net neutrality creating the need for the same. Nepal's move towards such policy gains significance in view of the growing demand for the same, globally. On a global scale, TRAI and European Regulators of Electronic Communications have signed a deal for exchange of information on net neutrality, and the United States has also recently reviewed protection of its net neutrality policy upon demands from the activists and local legislatures. NTA will soon make the regulation public, NTA Spokesperson Min Prasad Aryal said in a statement.

(June 26, 2018) [nepalisansar.com](#)

## Nepal



Oman's internet subscription base was up by more than 10 per cent at the end of May 2018 compared to the end of last year, according to data from the National Centre for Statistics and

Information (NCSI). According to the Monthly Statistical Bulletin released by the NCSI, the number of internet subscriptions in Oman at the end of May 2018 stood at 387,689, up 10.3 per

## Oman

cent from 351,335 at the end of December 2017. The number of subscribers of fixed broadband services, which offer speeds of more than 256kbps, stood at 385,350, while the number of subscribers of narrowband services, with speeds of less than 256kbps, was 2,339. Postpaid mobile usage rose 4.5 per cent in May, according to the NCSI. Data showed Oman had 679,974 postpaid mobile users in May, up from 678,415 in the previous month. Total fixed telephone lines also showed an increase of 9.2 per cent, reaching 543,708 in May compared to 527,113 in April. Meanwhile, total mobile subscriptions in May fell 3.7 per cent to 6,686,814. The new figures illustrate the exceptional growth of the country's telecommunications sector since the advent of the Renaissance in 1970, which has allowed it to play a key role in the nation's efforts to boost connectivity, inclusiveness, and economic growth. At the heart of the Sultanate's strategy to boost telecom usage are its five-year plans, which created an ecosystem that allows mobile and internet use to thrive in the way it does today. In 1976, communications infrastructure was adopted courtesy of Royal Decree No. 32/76. By 1990, the General Telecommunication Organization expanded the scope of the Public Telephone Service within Muscat and the governorates by installing 350 additional public telephones and implementing other expansion efforts in the north and south of the Sultanate. This period of expansion continued from 1991 to 1995, which saw the growing development of telephone, telex, telefax, global networks, and ground station services, as well as the burgeoning rise of local radio and TV programmes. Since then, telecommunications in Oman has grown by leaps and bounds, playing a key role in the Vision 2020 and 2040 policies. The use of new technologies laid the foundation for the current digital landscape characterized by widespread mobile phone and internet usage. These developments were supported by the double station system, a new numbering plan, optical fiber cables, introduction of roaming data services, as well as the launch

of an Omani data center. The e-Oman strategy was adopted in 2009, paving the way for the comprehensive development of basic telecommunications services for all residents of the Sultanate.

(July 18, 2018) timesofoman.com

The sultanate, represented by the Information Technology Authority (ITA) and the Telecommunication Regulatory Authority (TRA), participated in the ITU Global Symposium for Regulators, which was under the theme 'New Regulatory Frontiers', (ITU) held in Geneva, Switzerland, with the participation of a number of specialist, experts and decision makers from all member states in the union. The symposium aims at promoting dialogue between organizers, policy-makers and industry leaders in the field of ICT, and exchanging views on the main current issues related to this field such as Artificial Intelligence, Internet of Things and Cyber Security. In addition to attending the symposium, the sultanate participated by presenting a working paper, which discussed digital identity and its role in raising information security in the provision of eServices in the sultanate and the relevant legislations and regulations. Through the paper, Yahya Nasser Alazri, Director of ITA/National Digital Certification Centre, shared the sultanate's experience in establishing an integrated and comprehensive system for the national digital identity within the Public Key Infrastructure (PKI) project along with highlighting the challenges associated the project implementation. Alazri also talked about the role of the national digital identity in enhancing information security and confidence and providing protection in making electronic transactions, reducing misuse cases and fraud and facilitating the delivery of eServices for residents and citizens. Azri also explained the procedures for obtaining the digital identity in the sultanate and how to protect personal data and ensure its confidentiality, in addition to the role of digital identity in providing privacy and confidentiality when using eServices.

(July 17, 2018) muscatdaily.com



The growth rate of Pakistan's telecommunication sector has been impressively fast-paced during the last four years as telecom sector revenue reached US\$15.35 billion during July 2013 to June 2017. The Ministry of Information Technology and Telecommunication has indeed contributed a lot by bringing Mobile Broadband services – 3G, 4G, LTE, to the country and has contributed US\$4.42 billion to National exchequer during July 2014 to June 2017. Statistics issued by Pakistan Telecommunication Authority (PTA) have showed that number of mobile phone users reached 150 million by May 2018, as compared to 145.99 million by end of January 2018. Telecom sector revenues during the first two quarters of FY 2017-18 touched Rs. 235.5 billion, revealed the Economic Survey 2017-18. Due to the enabling of telecommunication policies and spectrum auction for next-generation mobile services, broadband penetration rose from 3.7 million to 52 million, said the Economic Survey 2017-18. The Ministry official told APP to promote telecom industry in 2014, 3G

licenses were awarded to Jazz, Telenor, Ufone, and Zong while the last one was also given the license of the 4G service. Later on, in 2016, Telenor received the 4G license and after that Jazz was awarded the same license in 2017. He said, the Telecom Policy 2015 had been taken as a standard of reviewing and integration of numerous telecom sector policies into one National Telecom Policy and Abolishment of ICH regime. (July 2, 2018) breccorder.com

Ministry of Information Technology and Telecommunication is fully committed to providing telecom services to under and un-served 'Mauzas' across the country to bring the nation on the path of Technology evolution and prosperity. Ministry of Information and telecommunication (MoIT) would utilize funds being generated under Universal Service Fund for providing IT and Telecom services in un-served and far-flung areas on priority, Ministry official said. He said through the projects 3G mobile broadband services would be provided in the areas of Mohmand, Bajaur,

## Pakistan



and Malakand, having the population of 1,599,500 residing in 684 muzas. While giving details, he told that in Khyber lot, 3G mobile broadband services were being provided in the areas of Khyber Agency, FR Kohat (Tribal Area Adjacent Kohat), FR Peshawar, Kohat, Karak and Hangu, the areas consist of the population of 1,751,600 residing in 503 muzas. An un-served population of about 196,177, covering 269 un-served mauzas and an un-served area of 39,434 sq km will get modern broadband facilities through this project. The project would cover Awaran, Jhal Jao and Mashkai tehsils/sub-tehsils of Awaran district and Bela, Lakhra, Liari, Uthal, Dureji, Hub, Sonmiani and Kanraj of Lasbel district, he added. Ministry of IT has also started projects for Balochistan worth Rs 26 billion to provide the 3G service to the people of the province to connect the unconnected. In the history of IT of Pakistan, this is the biggest investment that is for Balochistan, which aims to target hundreds of villages to connect with 3G service. Due to the provision of

3G services in Balochistan, other services like Careem would be started in Balochistan which is a great achievement of Ministry of Information Technology. He said, Ministry has taken Balochistan as a priority to provide telecom services and these services will include the provision of both voice and data facilities under 3G licenses. The telecom sector is the most important one for speedy development, particularly for rural areas. 1.5% of telecom licensed companies contribute to the country's revenue through the USF. Among the telecom operators of Pakistan, Ufone was able to win the most from the 12 projects. Ufone has been awarded projects worth Rs. 14.2 billion in various cities of the province which includes Sibi, Kalat, Khuzdar, Chagai, Awaran, Kharan-Washuk and Dera Bugti districts. Government is making all-out efforts to introduce 5G technology in Pakistan by 2020 to bring it at par with Developed economies in term of technology advancements.

(July 1, 2018) en.dailypakistan.com.pk



The Communications and Information Technology Commission (CITC) has released an update to regulate the quality of services by telecommunications service providers (TSP) in the Kingdom. The update includes standards and indicators that assess the quality of service and enables consumers to view comparative quality-of-service information on the following services: Internet, mobile phones and landlines, while the CITC categorizes providers on the volume of complaints that subscribers bring to the commission. The CITC shared a sample complaint report for the fourth quarter 2017 that indicates a variation in the number of complaints posted on all services. Two crucial businesses elements are on the line: Reputation and customers' loyalty. The new indicator should encourage all carriers in Saudi Arabia – STC, Mobily, Zain, Go, Lebara and Virgin – to strategically build customer-centricity across the sector by creating a new unit for customer quality management and connect it to all other departments. Telecommunication providers who intend to invest in enhancing the quality of service and problem-solving strategies will gain a broader market share than what they have today, and possibly increase their rates. Providers not able to compete in service quality enhancement due to lack of know-how or resources will try new approaches to attract and retain clients from a marketing angle such as decreasing rates, promotions and offering new plans. Disseminating a comparative data of service providers highlights two new significant values in the Saudi corporate market – transparency and quality customer service. The emergence of these two values will empower users, individuals and establishments to make informed decisions before purchasing any of the providers' services listed on the indicator. The new regulation aims to meet the following objectives: Develop services in telecommunication and information technology, provide consumers with a high quality of telecommunication services, and to motivate competitiveness among service providers, along with urging transparency among their registered users. The telecommunication and information sectors play a significant

## Saudi Arabia

role in all aspects of a country, and legislating a service quality indicator as part of the digital transformation in Saudi Arabia will create an environment that attracts new international service provider to enter the Saudi market. Saudi Arabia is capitalizing on information technology. Dashboards to deal with challenges and monitor businesses performance, starting with the TCC execution plan to use data by the fourth quarter of 2018, will set the bar for quality of service in the telecommunication sector and force providers to be more customer-centric. (July 22, 2018) zawya.com

The Saudi Communications and Information Technology Commission (CITC) has issued new regulations governing deployment of telecommunication networks to construction sites. The rules cover the development stages of land plots, residential, commercial and governmental projects, and are aimed at making sure telecom installation works are better coordinated with the introduction of other utilities. In a statement sent in Arabic by CITC to Zawya, it said the aim of the new rules was to reduce the frequency of drilling, and to achieve economic efficiency in line with international best practices. The regulations cover the rights and obligations of property owners, developers and ICT providers related to infrastructure for the implementation of external and internal telecommunications networks and access to networks, the statement added. CITC said that by implementing telecom network deployment regulations in the early stages of a development, it would reduce the cost of early delivery and the provision of ICT services to users. It argued that this would help to stimulate investment in telecom infrastructure in the kingdom, promoting the adoption of 5G networks and smart city infrastructure. What do these regulations cover?

- Details on broadband and fiber optic services provision into buildings
- Provision of options for users to select the appropriate service provider
- Enabling modern services and advanced technologies

- Providing quality telecommunication services
- Readiness of new buildings for broadband services

Last year, the volume of spending on telecommunications and information technology services in Saudi Arabia reached more

than 136 billion Saudi riyals (\$36 billion). The revenues from telecommunications services also amounted to about 70 billion Saudi riyals in 2017.

(July 10, 2018) [zawya.com](#)



The Tunisian parliament has approved an agreement with the African Development Bank (ADB) worth €71.56 million (\$85.1 million) on a loan to fund the Digital Tunisia 2020 project. The vote on the loan agreement was made during a plenary session of the parliament followed by Anadolu. The loan agreement received the approval of 97 deputies, the retention of 26, and the objection of 28 of the 151 deputies who attended the session out of 217, which is the total number of deputies in the parliament. On December 21 the Tunisian government signed a loan agreement with the ADB to contribute to the Digital Tunisia 2020 project. The aim of the project is to move towards electronic management, which offers quality digital services and contributes to the creation of job opportunities in the digital field and the transfer of services.

Tunisian Minister of Communication and Digital Economy Anwar Maaroufi said in a press statement on the sidelines of the parliamentary session that "the project has important benefits for the country". Maaroufi added: "Digital Tunisia 2020 will enable the country to become the first at the African level to invest in the digital economy." He went on: "The cost of the Digital Tunisia 2020 project, which will be accomplished in the next four years (2018-2022), is estimated at 400 million dinars (\$153 million dollars)." The ADB will finance the project with a loan of €71.56 million Euros (\$85.1 million), while the Tunisian Ministry of Communication Technologies and Digital Economy will bear the rest of the project expenses.

(July 18, 2018) [middleeastmonitor.com](#)

## Tunisia



The number of subscribers to telecommunications services in the UAE rose to around 24 million during the first five months of 2018, a growth of around 2 per cent compared to the end of 2017, a media report said. All relevant sectors registered growth since the start of the current year, highlighting the availability of telecommunications services offered to clients by the operators Etisalat and Du, reported Emirates news agency Wam, citing the latest statistics issued today by the Telecommunications Regulatory Authority (TRA). The number of mobile phone penetration increased from 226 to 230 lines per 100 subscribers while for landlines, this figure reached 26.4 lines for the same number of residents and around 15.3 lines per 100 subscribers for broadband internet services. The statistics also showed an increase in the number of mobile phone subscribers to 20.254 million at the end of May 2018, a growth of around 2 per cent compared to December 2017. (July 22, 2018) [zawya.com](#)

The Telecommunications Regulatory Authority (TRA) has recently launched the Emirates Cyber Ambassadors initiative as part of its information security awareness campaigns, which aims to train elite students in UAE schools to represent the team

as ambassadors in promoting and spreading cyber security awareness across the UAE. The "Cybersecurity" ambassador initiative was launched to build a secure e-culture as it is considered a competitive initiative to empower Emirati students as cybersecurity ambassadors. The initiative focuses on three focus areas: to provide safe e-culture training for selected 14 to 18-year-olds in selected UAE schools; to improve presentation skills; and raise awareness of best security practices among the public. "In line with the UAE Vision 2021 on promoting a secure electronic lifestyle in the UAE, we began the pilot phase of the Cybersecurity Ambassadors Initiative in February of this year. Training workshops were offered to students to evaluate their performance and readiness to join the list of cybersecurity ambassadors. The results were promising, which led us to complement the revision and selection of 30 male and 30 female students to represent the initiative," said Mohammed Gheyath, Executive Director Information Security Regulatory Affairs. The four-day selection process is divided into two stages, pre-training and post-training. Each stage included 30 questions to evaluate candidates' level of cybersecurity awareness, presentation skills and finally discussion skills. (July 9, 2018) [gulftoday.ae](#)

## United Arab Emirates



BubbleTone

# BLOCKCHAIN

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## ARTICLE

# Blockchain Technology in Telecom: The Revolution is Coming



**Oleg Pravdin**  
 Managing Director  
 Blockchain in Telecom



Perhaps each of us has found themselves in a situation when we have to purchase roaming services, which are rather expensive, in order to stay in touch with relatives and colleagues while travelling. Those who prefer not to spend money on roaming remain silent or communicate using Wi-Fi at hotels or restaurants. Research shows that 71% of all roaming users remain silent, with just 1% of subscribers consuming 80% of all traffic. This results in billions of lost revenue for the telecom industry. Operators' revenues fell 11% globally in 2017, with average revenue per user being less than 75% of its 2015 value.

**Blockchain implementation into the telecom industry implies building a decentralized ecosystem that allows mobile network operators, phone users, and service providers to interact directly. Mobile operators' interactions get conducted through smart contracts – computer protocols that allow the performance of credible, trackable and irreversible transactions without third parties.**

In addition, collaboration between mobile operators from different countries to make roaming possible involves huge expenditures on infrastructure support. In fact, provision of services to a network subscriber in another network requires complex interactions between various equipment of the providers. The amount that the inter-operator charges for entering the roaming market now exceeds \$20 million. Developing countries suffer the most from exceptionally high roaming prices in a market dominated by a few telecom giants.

Therefore, international roaming means prohibitive expenses both for telecom companies and subscribers around the world. Luckily, the blockchain can take care of this concern by making it possible to eliminate the outdated roaming technology.

**What is a blockchain?**

You've probably heard the word 'blockchain' get thrown around the media, yet a lot of us are still fuzzy on the exact meaning of this term. Meanwhile, blockchain technology is becoming more and more popular. Today, it serves as the basis for cryptocurrencies and implementing ideas that only yesterday seemed too bold. Cryptocurrency is gradually being used as a payment vehicle in everyday life, for instance, to purchase jewelry or real estate, and blockchain technology itself is being used to provide traditional government services (identity verification, notarial functions, land cadaster, etc.).

In simple terms, a blockchain is a growing list of records, called blocks, which are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. It is an open distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. This technology opens up new opportunities wherever a reliable way of storing data and secure transactions are needed. The telecom industry is no exception.

**Blockchain in telecom**

Blockchain implementation into the telecom industry implies building a decentralized ecosystem that allows mobile network operators, phone users, and service providers to interact directly. Mobile operators' interactions get conducted through smart contracts – computer protocols that allow the performance of credible, trackable and irreversible transactions without third parties.

**Here is how it works:**

Mobile operators publish their own offers as smart contracts at a blockchain-based marketplace. These offers are available to all other operators. Home operators

choose offers that they would like to provide their subscribers with. They also have total control over these offers and determine prices in local currencies for subscribers.

A subscriber chooses the most suitable offer and pays for it. By selecting the offer, a new "request" smart contract is created, with the digital identity of the subscriber and payment transaction going with it. The user's money is transferred to the home operator and the visited operator – the one whose service package they purchased. The offer issuer, i.e. the visited operator, identifies the user, receives the money and starts servicing the subscriber directly at the local price with high quality. In addition, the subscriber uses their existing SIM card while traveling abroad. Thanks to blockchain technology, operators can interact with each other as equal partners and the concurrence procedure between operators is greatly simplified. All calculations between them are made using SDR tokens, which are tied to a basket of five currencies, and performed instantly. Therefore, blockchain allows us to leave expensive roaming agreements behind.

**What are the benefits for the telecom companies?**


This decentralized system of equal participants will allow even the smallest mobile operators to get access to the global telecommunication services market without any complex network integrations. Small operators will be able to provide services at the same level as large operators and large operators will be able to expand their client bases. Moreover, the system implies absence of any intermediaries or commissions when making mutual settlement of payments. In addition, interaction with service providers via smart contracts grants multiple value-added services for the mobile operators' subscribers.

**This decentralized system of equal participants will allow even the smallest mobile operators to get access to the global telecommunication services market without any complex network integrations. Small operators will be able to provide services at the same level as large operators and large operators will be able to expand their client bases.**

Therefore, telecom companies will be able to increase their revenue without making any investments.

**Bubbletone**

To get access to services of this kind, subscribers will be provided with a new generation mobile application – Bubbletone. Thanks to this application, users will be able to make calls and use data at local rates using their home SIM-cards and phone numbers while travelling worldwide.

The market for using this technology is huge – 1,000+ small and medium-sized operators, 10,000 online service providers and 1.3 billion travellers a year. The technology is ready for use. We invite all mobile operators who want to bring these significant changes to the industry to join the ecosystem. More information available here: <https://blockchaintele.com/> 

## REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



### Albania

The Electronic and Postal Communications Authority (Autoritetit Te Komunikimeve Elektronike Dhe Postare, AKEP) has issued a tender for 4G LTE-suitable 800MHz mobile operating licenses. Under a decision taken on 5 July, AKEP is offering three 2x10MHz concessions in the 790MHz-862MHz band with duration of 15 years and a minimum bid value per-license of EUR7.44 million

(USD8.69 million). According to the announcement on AKEP's website, 800MHz license winners should begin utilizing the frequencies within two months of individual license authorization. Vodafone, Telekom Albania and ALBtelecom – offer 4G LTE services, currently utilizing the 1800MHz and 2600MHz bands.

(July 16, 2018) [telegeography.com](http://telegeography.com)



### Argentina

After an exhaustive ten-month review of the merger between Cablevision and Telecom Argentina, Argentina's National Commission for Defence of Competition (Comision Nacional de Defensa de la Competencia, CNDC) has approved the takeover, albeit with a number of caveats. The CNDC has assessed that the merger will generate competition problems in locations where Cablevision and Telecom are the only companies operating fixed line networks. As such, the merged company must agree to divest 143,464 customers across 28 locations in five provinces, namely: Cordoba, Buenos Aires, Entre Rios, Misiones

(including Posadas) and Santa Fe. In addition, the CNDC ruling requires Telecom to offer wholesale broadband connectivity through a reference offer, so that other operators can provide fixed line services using the Telecom network. As per the initial approval issued by the National Entity for Communications (Ente Nacional de Comunicaciones, ENACOM) on 21 December 2017, the combined entity is also obliged to hand back an 80MHz block of spectrum, as the enlarged telco's frequency holdings will surpass the current 140MHz spectrum limit.

(July 2, 2018) [telegeography.com](http://telegeography.com)



### Australia

A final set of rules designed to help customers move to the National Broadband Network (NBN) has been published by the Australian Communications and Media Authority (ACMA). In unveiling the new rules, the regulator claimed that it had sought to formalize the process after research had found that almost one in six households moving to an NBN-based service had been left without a working connection for more than a week, while almost one in ten had seen an interruption of more than two weeks. Under the new rules, Australian operators will be required to: conduct a line test to check their customer's new NBN service is working after installation; verify that any existing copper line used to connect a customer to their new NBN service is capable of delivering the maximum data speed specified in their chosen plan; and offer an interim service or make another acceptable arrangement to customers where their new NBN service is not working and cannot be fixed within three days. These new rules will be directly enforceable by the ACMA and, where breaches are found, allow the regulator to commence court proceedings seeking remedies such as injunctions and civil penalties of up to AUD10 million (USD7.4 million). Commenting on the development, ACMA chairperson Nerida O'Loughlin was cited as saying: 'These new rules will give consumers greater confidence that their telco will make sure their new NBN service will work

as expected and provide options if their connection doesn't work.' (July 23, 2018) [telegeography.com](http://telegeography.com)

Australian telcos will have their current spectrum holdings assessed to see how much additional spectrum they can purchase at the country's forthcoming 5G auction. Australia is set to auction spectrum in the 3.6GHz spectrum range later this year, with a limit of 60MHz for urban areas and 80GHz in regional areas expected to come into play. "These limits account for existing spectrum holdings in the broader 3400-3700 MHz band, meaning that carriers which already have significant holdings in this band would be limited in the amount of new spectrum they could bid for, or may not be able to participate in the auction," said Australia's Communications Minister, Mitch Fifield. Fifield said that he expected demand for spectrum to be high at the forthcoming auction, as Australian telcos look to kick start their 5G offerings early next year. "Australians have a voracious appetite for mobile data, and our competitive telecommunications market means that Australians already enjoy some of the fastest mobile broadband speeds in the world," he said. "These auction limits promote competition in the telecommunications industry while ensuring this scarce spectrum is put to its highest-value use." Australia is set to proceed with its 5G spectrum auction in October this year.

(July 11, 2018) [totaltele.com](http://totaltele.com)



## Belgium

Belgium is planning a mobile frequency auction for late 2019, and wants to encourage the entry of a fourth mobile operator to compete with Proximus, Orange Belgium and Telenet's BASE, the government said. The country will hold an auction to renew frequency bands in the 900, 1800 and 2100 megahertz range, and also auction new frequencies in the 700, 1400 and 3600 megahertz range. The frequencies are set to be auctioned in late 2019 for a duration of 20 years.

"The conditions are such that, in case there is interest, a fourth operator can enter the market on good terms, which allow for a level playing field with existing operators," the Belgian ministry for telecoms and the digital agenda said in a statement. "The possible entry of a fourth operator will allow for lower prices, more innovation and a faster roll out of 5G," the ministry said, referring to a new faster mobile broadband technology.

(July 24, 2018) [telecom.economicimes.com](http://telecom.economicimes.com).



## Brazil

The National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has confirmed that the 700MHz band has now been vacated by analogue TV providers in Sao Paulo – the country's most populous city – paving the way for domestic cellcos to launch 700MHz 4G networks. The watchdog notes that the band has also been freed up in the nearby municipalities of Santo Andre, Sao Bernardo and Sao Caetano do Sul, all of which are located in Sao Paulo State. According to Anatel, the 700MHz band has now been freed up in a total of 3,803 municipalities, or 68% of the total. The Brazilian government auctioned

off 698MHz-806MHz (700MHz) frequencies on September 30, 2014, generating a total of BRL5.85 billion (USD1.51 billion), well below the BRL7.71 billion target. The country's three largest mobile operators by subscribers – Vivo, Claro and TIM Brasil – all picked up nationwide spectrum blocks, while Oi, Brazil's fourth largest mobile operator by subscribers, opted to sit out of the auction. The band – which was previously used to transmit analogue TV signals – is being freed up on a rolling basis, and is expected to be fully cleared by November 2018.

(July 24, 2018) [telegeography.com](http://telegeography.com)



## Canada

The Canadian Radio-television and Telecommunications Commission announced plans to phase out nearly \$116 million in subsidies for local telephone service in high-cost service areas over the next three years. This stems from a 2016 decision to label broadband as a basic service, a move that shifted the CRTC's focus to funding internet connections in rural and remote areas. Its preliminary view was that if a person can reliably access the internet, over which they can use voice services, there is no need to subsidize residential phone lines. As it stands, telecommunications providers with more than \$10 million in annual revenue must contribute to a national fund that is distributed to incumbent local exchange carriers serving rural and remote areas where the monthly costs to provide service are higher than revenue. The fund reached nearly \$116 million in 2017, up from about \$107 million in 2016, according to CRTC documents. The CRTC still plans to collect the revenue, but it will go towards funding broadband services instead through a \$750-million fund, the details of which have yet to be determined. The subsidies will be phased out semi-annually starting Jan. 1, 2019 until Dec. 31, 2021. Carriers that receive subsidies

include BCE Inc.'s Bell Canada and Saskatchewan Telecommunications Holding Corp. For Northwestel, which serves most of the Yukon, Northwest Territories and Nunavut, funding will dry up at the end of its 18-year-old service improvement plan on Dec. 31, 2020. The regulator ended the subsidy despite opposition from some providers including SaskTel, Telus Corp. and Eastlink. They argued that they have the obligation to serve customers in high-cost areas, but without the subsidy could not do so with rates that are just and reasonable. They asked for compensation to offset any losses. But the CRTC wasn't convinced. It determined the parties did not provide sufficient data to prove significant financial losses and noted the incumbents can use the same wires to earn additional revenue from internet access. "These services were not available at the inception of the local service subsidy and, all things being equal, due to the revenues they generate, subsidy amounts are likely overstated," the CRTC stated, though it also launched a process where the companies will have a second chance to argue for compensation.

(June 27, 2018) [calgaryherald.com](http://calgaryherald.com)



## Chile

Chilean operators Entel and Claro have filed a motion with the Court of Appeals against last month's decision of the Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) to suspend usage of the 3.5GHz frequency band. In June Subtel ordered Claro, Entel, Grupo GTD, Movistar and VTR to halt commercial use of the 3.5GHz band after ruling that the spectrum was not being used efficiently. Subtel found that Movistar, VTR, and Grupo GTD – holding concessions covering two regions apiece – were not using the band, whilst Entel and Claro were underutilizing their nationwide licenses. Subtel instructed Entel and Claro to provide operational continuity by migrating customers currently using the 3.5GHz band to other technologies and bands. Entel and Claro have called the decision 'illegal and arbitrary', arguing that the law does not support Subtel's actions in suspending concessions and forcing a migration of users. Entel also disagreed with Subtel's assertion that its 3.5GHz spectrum (which is earmarked for future 5G use) is underutilized, countering that 'service obligations under the concessions have been fully complied with'. (July 18, 2018) TeleSemana

The Supreme Court has ruled in favor of consumer rights group the National Corporation of Consumers and Users (Corporacion Nacional de Consumidores y Usuarios, Conadecus), upholding its complaint that Movistar, Claro and Entel had engaged in anti-competitive practices in the process of bidding for 700MHz spectrum in 2014. The resolution found that the trio had not respected the 60MHz cap on spectrum holdings and requires them to return the amount of spectrum that they won via the tender (2x10MHz for

Movistar and Claro, 2x15MHz for Entel), in any band of their choosing. The Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) was ordered to ensure 'timely compliance' with the ruling and adopt necessary measures to carry it out. Finally, if Subtel wishes to review the spectrum cap, it must do so through a consultation process with anti-monopoly watchdog the Antitrust Tribunal (Tribunal de Defensa de la Libre Competencia, TDLC). The apex court overturned a previous ruling from the TDLC which had rejected Conadecus' complaint in July 2015. Explaining its position, the Supreme Court highlighted that the all players concerned had ignored the 60MHz spectrum cap in bidding for airwaves and, as such, were violating the law by hoarding excess frequencies. If the sectoral authorities had deemed the 60MHz limit insufficient for the changing needs of the market, the court added, those agencies should have altered or removed the cap via the existing regulatory framework prior to the auction. Further, the defendants were fully aware of the limitation – having been part of the process that had established the cap – but chose not to comply with the rule, either via limiting their bidding or by returning spectrum in other bands. Addressing the decisions made by the various authorities involved in the case, the Supreme Court rejected the opinion that the requirements of hoarding behavior had not met because there is no one to exclude as 'erroneous reasoning', noting: 'The circumstance that no other competitor submitted offers to the 700MHz contest is due, precisely, to the fact that operating a market without limits on radioelectric spectrum holdings makes it even more difficult for new participants to enter'. (June 27, 2018) telegeography.com



## China

China's Ministry of Industry and Information Technology (MIIT) said it is working on policies to accelerate the commercialization of 5G, including issuing spectrum plans and licenses. Chen Zhaoxiong, vice minister of Industry and Information Technology, told the newspaper: "We will unveil a radio-frequency spectrum map and grant licenses to telecom carriers in time, so as to meet the demand for 5G network construction and increasing efforts to widen applications". MIIT representatives previously indicated 5G licenses would be allocated in the second half of 2019 at the earliest. Wang Zhiqin, head of the IMT2020 (5G) Promotion Group, set up by the ministry to speed up 5G development in the country, said: "5G devices will be mature for commercial applications in China in 2019.

We will be among the first batch of nations to issue 5G licenses in the world, most likely between the second half of 2019 and the first half of 2020". The country's mobile operators are targeting commercial 5G rollouts by 2020. China Mobile, the world's largest mobile operator, recently started large-scale 5G trials in 17 cities offering 11 types of services and applications. Equipment vendor Huawei announced earlier this week it completed the full range of the country's third-phase 5G R&D tests based on 3GPP's non-standalone (NSA) 5G specifications, which were approved in December 2017. CCS Insight forecasts China to quickly take the lead in 5G with 100 million connections in 2021 and surpass the 1 billion mark in 2025, accounting for 40 per cent of global 5G connections. (June 26, 2018) China Daily





## Colombia

The government's plan to offload its 32.5% stake in Telefonica Colombia (Movistar) has taken another step forward, with the Ministry of Finance issuing Decree 1215 on July 13, setting the price of its total shareholding at COP2.3 trillion (USD800 million). A total of 1.108 billion shares will be sold via a two-step public offering, with the price set at COP2,075 per share. In the first instance, shares will be made available to employees, retirees, unions and pension funds affiliated to the telco, while the second stage of the process will see shares sold to the general public. However, the Ministry of Finance has warned that the share sale could take up to a year to come to fruition, and the government reserves the right to suspend or terminate the process at any time. The stake sale

was prompted a COP4.8 trillion joint fine in July 2017, which was levelled at Movistar – and rival Claro – for breaching the terms of their original 1994 licenses. The two mobile operators were required to return all wireless network infrastructure to the state after a ten-year period (subsequently extended for a further ten years), but failed to do so. As the co-owner of the cellco, the government was duly obliged to participate in a capital increase of approximately EUR1.37 billion (USD1.64 billion) to pre-pay all commitments in relation to PARAPAT, the consortium that owns the telecoms assets and manages the pension funds of the former companies that resulted in the creation of legacy operator Colombia Telecomunicaciones (CoTel, now Telefonica Colombia). (July 19, 2018) [telegeography.com](#)



## Costa Rica

The Superintendency of Telecommunications (Superintendencia de Telecomunicaciones, Sutel) has approved the takeover of Cabletica, Costa Rica's third-largest broadband provider by subscribers, by US-based Liberty Latin America (LLA). The final stage of the transaction will see the Ministry of Science, Technology and Telecommunications (Ministerio de Ciencia, Tecnologia y Telecomunicaciones, MICITT) transfer Cabletica's existing concessions to the new owner. According to *El Financiero* the deal is expected to be completed by September this year. In February 2018 LLA agreed to purchase an 80% stake in Cabletica in an all-cash transaction worth CRC143 billion (USD245.7

million). The current owner, Teletica (officially Televisora de Costa Rica), will retain the remaining 20% stake in Cabletica, along with the company's content assets, some of which will be provided to Cabletica on an exclusive basis. LLA was established in December 2017, following a 'split-off' from Liberty Global plc. The new company comprised Liberty Global's assets in Latin America and the Caribbean, the bulk of which previously belonged to UK-based Cable & Wireless Communications (CWC). The new company intends to increase its operational footprint further via M&A, and the Cabletica takeover represents its first transaction of note. (June 28, 2018) [telegeography.com](#)



## Cuba

The state-owned telecoms operator Empresa de Telecomunicaciones de Cuba (ETECSA) has begun providing mobile internet access for select users, including journalists at state-run news outlets, reports Reuters. Certain customers, such as companies and embassies, have also been able to buy mobile data plans since December. The monopoly operator is aiming to roll out the service nationwide by the end of the year. A 3G platform has been available for visitors roaming in Cuba from foreign networks since 2012, providing coverage of the main tourist

areas and provincial capitals. In early 2017, however, ETECSA began launching pilot 3G networks, utilizing the 900MHz frequency band, in locations including Havana, Matanzas, Villa Clara, Ciego de Avila, Santiago de Cuba, Camaguey and Isla de la Juventud, although customers were reportedly only able to use the 3G platform to send MMS and access the Nauta mobile e-mail service, rather than to surf the internet. A total of 279 3G base stations were installed in 2017, increasing the total to 409 and providing coverage to 47% of the population. (July 18, 2018) [telegeography.com](#)



## Denmark

The Danish Energy Agency said that it has made its final decision on the specific rules for the auctions of spectrum in the 700 MHz, 900 MHz and 2300 MHz

bands. The 700 MHz and 900 MHz bands will be offered as blocks, to be combined in nationwide licenses based on the result of the auction. (June 26, 2018) [telecompaper.com](#)



## European Union

More than three quarters of homes across the 28 European Union nations (EU28) had access to high speed broadband services by the end of June 2017, according to new data released by the European Commission. Fiber optic cable 27 June 2018 For the first time, 4G LTE availability matched 3G HSPA networks, in terms of the number of households covered, said the IHS Markit and Point Topic study Broadband Coverage in Europe 2017. LTE is increasingly being trialed to deliver IPTV and accessing mobile TV services, particularly live events, over the mobile network seems set to increase. "VDSL was the fastest-growing fixed broadband technology for the sixth consecutive year, supported by the rapid rollout of VDSL networks in Italy and the Czech Republic. Both countries reported double-digit increases over the previous year," said James Joyner, senior research analyst, IHS Markit. "Fiber-to-the-home (FTTP) coverage increased at a faster rate than in the previous iteration of the study, aided by deployments in France and Spain. However, growth in DOCSIS 3.0 networks has slowed, with the most densely populated areas already reached." The study found that by the end of June 2017, 176 million EU households had access to broadband delivered by next-generation access networks such as VDSL, DOCSIS 3.0 and FTTP, equating to 9.9 million households more than a year earlier. By mid-2017, high-speed fixed broadband services with at least 30Mbps download speeds were available to 79% of EU households. At a national level, 80.1% of households had access to NGA broadband, compared to 46.9% of rural households.

This difference was 3.5 percentage points lower than last year's study, "but the difference remains sizeable," the report highlighted. VDSL remained the most widespread NGA technology in the EU28, passing 53.4% of homes. DOCSIS 3.0 networks covered 44.7% of EU28 households, with FTTP availability reaching 26.8% of homes by mid-2017. Malta was the only country to record complete coverage for the NGA technology category, while Switzerland, Belgium, the Netherlands, Iceland and Portugal recorded coverage levels above 95%. Greece was the lowest-ranked country in terms of the proportion of households covered by NGA networks. In Bulgaria, Romania, Croatia, Poland and France, NGA networks covered less than 75% of households, in the first half of 2017. In terms of FTTP availability, Portugal, Latvia, Lithuania and Spain led the EU28, where FTTP networks reached more than 70% of households. In contrast, fewer than 3% of households in Belgium, Greece and the UK had access to FTTP networks at the end of June 2017. "Operators in Belgium and the UK have prioritized VDSL upgrades over FTTP deployment, therefore both countries are ranked in the top four EU member states in terms of VDSL availability," Joiner said. "With VDSL upgrades near completion, operators in Belgium and the UK have announced plans to accelerate FTTP deployment, which will begin to be reflected in next year's study." In addition to the EU28, the Commission's report also covered broadband infrastructure in Iceland, Norway and Switzerland.

(June 26, 2018) rapidtvnews.com



## Finland

FICORA has invited applications for licenses in the 3.5GHz band, which will be allocated following an auction. It said applications will be limited to one of the three licenses on sale, which will be sold for a minimum of €21 million. Companies must file their application by August 17, with the auction scheduled to take place the following month. In a statement, the regulator said: "The aim of the auction is to facilitate the development of new 5G technology into a high-performance wireless communications platform. 5G boosts digitalization and meets the future wireless communications needs of user groups in a variety of sectors." Both Switzerland and Belgium have recently

announced their own spectrum auctions but Finland has been racing ahead as it looks to secure 5G bragging rights. Last month, Elisa said it had launched the world's first commercial network in Tampere, Finland and Tallinn, Estonia. However, with no compatible devices built, it is unable to offer the use cases many expect from 5G. The operator is hoping to complete its 5G network infrastructure rollout during this summer. Rival Telia has identified 5G as a means of powering critical communications and Nordic PMs recently announced a collaboration in implementing 5G. Earlier this month, Ericsson held a 5G trial in the Åland Islands in the south west of Finland. (July 13, 2018) mobileeurope.co.uk



## France

France will have its first 5G City by 2020 and its major transport routes covered by 2025, as the country's regulator Arcep outlined its plans to foster next generation technology. The regulator revealed its roadmap for 5G yesterday (16 July), describing it as "strategically vital to France's industry, the competitiveness of our economy, innovation and revitalized public services". Among its immediate

plans are the distribution of the correct frequencies for 5G use, with work already underway. Last month, Arcep announced it was exploring the possibility of using 26GHz for nationwide 5G coverage. It has also opened up spectrum bands to encourage 5G pilots. Other focuses in Arcep's roadmap is to help drive the development of new use cases, support infrastructure deployment and ensure the public is kept up to speed

with the French government's 5G strategy. Arcep revealed that 11 new trials have been launched in the Ile-de-France region involving Bouygues Telecom, Nokia, Orange and SFR. Three of the trials will explore connected car applications while the other will test autonomous vehicles. Arcep did not give any details about the remaining eight. Bouygues Telecom and Orange are among the operators already holding 5G trials across France. In addition to researching connected cars, Orange has previously said it is building an end to end 5G network in partnership with Ericsson and exploring fixed wireless access in Romania. Arcep is holding a consultation later this year about which bands should be allocated permanently for 5G use. It will start the auction process in earnest with a call for applications in the middle of next year.

(July 17, 2018) mobileeurope.co.uk

Telecom regulator Arcep has published a report on mobile coverage and quality of service across the French overseas territories, coinciding with the announcement that its enhanced network mapping tool (<https://monreseauemobile.fr>) has been expanded to include these markets (Guadeloupe, French Guiana, Martinique, Mayotte and Reunion). The online interactive tool was first introduced for mainland France to give consumers more detailed information on the availability of voice and SMS services. Since its launch in September 2017, it was updated to show availability of LTE mobile data services, as well as 3G services. The regulator said that the report is based on over 350,000 mobile service quality measurements recorded between April to June. This is part of its monitoring campaign aiming to ensure that operators comply with the obligations set in their LTE licenses, including the coverage targets due to be met by November (their first rollout deadline). For Guadeloupe, Martinique, Mayotte and Reunion, the report found that at least two competing network operators have deployed LTE services extensively, with population coverage ranging from 96 and over 99 percent. In Guiana, while Orange and SFR have reached a substantial portion of the population (84% and

85%, respectively), coverage of the territory remains substantially lower than in the other markets, standing at around 3 percent. (July 12, 2018) telecompaper.com

Telecoms regulator Arcep has warned Orange and SFR that they need to sharpen up their FTTH rollout plans if they are to meet new commitments to bring the technology to less densely populated parts of the country. The operators have pledged to pass 13.7 million premises with the technology over the next five years, amounting to 30 percent of the French population. Orange will connect 92 percent of premises by the end of 2020, with the remainder connectable on request. It said it would complete the project by the end of 2022. Meanwhile, SFR said it would connect a minimum of 92 percent of premises by the end of 2020, with the technology available on request to the remainder. It has already committed to connecting 22 million premises in high density areas by the end of 2022. The commitments mark a breakthrough in Arcep's attempts to widen the spread of the technology. However, the French regulator warned yesterday that both operators could be fined if they do not meet their commitments. Operators must inform local authorities of their plans at least six months before work starts. Arcep also knocked back unspecified proposals from SFR to upgrade its existing cable networks to FTTH, arguing they would be economically inefficient and ultimately hamper deployments. Meanwhile, the French regulator has finalized plans to reallocate spectrum from the 900MHz, 1800MHz and 2.1GHz band to fuel demand for LTE services. The so-called New Deal for Mobile was first proposed in April and aims to enable ubiquitous 4G coverage across metropolitan France by 2020. Each of France's four operators will have to build 5,000 new sites and could face fines if they fail to meet infrastructure requirements or the terms of the spectrum reallocation. Arcep will also publish a quarterly scorecard, starting from June that will track each operator's performance in a variety of areas, including widespread LTE coverage, indoor coverage, and 4G along transport routes. (June 28, 2018) mobileeurope.co.uk



## Germany

The telecom regulator reiterated its conviction that US Web giants like Google and Facebook should be subject to the same regulations as operators. The Bundesnetzagentur is in the midst of a protracted legal battle with Google after it ordered the company to register Gmail as a telecoms service, which would require Google to provide access to law enforcement agencies. In a report Bundesnetzagentur President Jochen Homann insisted that in the age of OTT services like WhatsApp, consumers don't distinguish between communicating over the Internet or via traditional telco services. The Google case is currently being heard by the European Court of Justice; Homann said if the decision goes his way, Bundesnetzagentur will

order other OTT communication providers to register as telcos too. "It cannot be right that a company providing traditional telecommunications services has to meet certain regulatory requirements, like those concerning data protection, while a company providing comparable services over the Web does not," he said in the report. Echoing the oft-repeated sentiments of European telecoms incumbents, Homann invoked the now-legendary "level playing field" between telcos and OTTs. "We want these companies to meet the same regulatory requirements in principle as conventional telecommunications companies," he said.

(July 6, 2018) The Financial Times



## Greece

The shortlist of bidders lined up to take a controlling stake in Greek telco and pay-TV provider Forthnet has been reduced to just two. A report from financial news site Capital says that a joint bid from rival telcos Vodafone-Wind and one from media firm Antenna Group are now the two offers on the table, with a third

potential buyer – Odyssey-Athena – not making the cut. The shortlisted players now have until the end of July to submit their final offers. Forthnet is currently 32.8%-owned by a group of four local banks – Piraeus, Ethniki, Alpha Bank and Attica Bank. Both Vodafone and Wind are existing minority shareholders in Forthnet. (June 28, 2018) [telegeography.com](http://telegeography.com)



## India

Taking a leaf out of the General Data Protection Regulation (GDPR) rulebook drawn up by the European Union, the telecom regulator on Monday proposed strong data protection laws aimed at ensuring that Indian telecom users have the right to their own digital data. If the recommendations are accepted by the Centre, digital service providers such as Google and Facebook, application developers like WhatsApp, government entities like UIDAI, device-makers such as Xiaomi along with telecom operators will have to make sure that users' data can be collected only with their explicit consent. Once collected, the user data can be used only for the limited purpose of providing the service for which the user has signed up. The proposed rules also have provisions for revoking the consent at a later date. A user will also have the right to be forgotten, which means that the service provider will be mandated to erase all personal data related to that consumer. "The Authority is of the view that the individual must be the primary right holder qua his/ her data. While the right to privacy should not be treated solely as a property right, it must be recognized that controllers of personal data are mere custodians without any primary rights over the same," the TRAI said while issuing its recommendations. The regulator has also questioned the practice of pre-loaded applications on mobile phone and application developers seeking unnecessary permissions from users as a pre-condition. For example, an application that activates a flashlight as a torch on a mobile device may seek permission for access to the camera, the microphone, and the contact list. The flashlight application simply creates a logical circuit between the battery and the camera flashlight, and does not require access to the camera, the microphone or the contact list for its operation. "After obtaining explicit consent of the user, only bare minimum data, which is essential for provisioning of a particular service, should be collected. Collection of unrelated or unnecessary data by service providers in the digital ecosystem must be barred," the regulator said, adding that all entities in the digital ecosystem, which control or process the data, should be restrained from identifying the individual users. Pushing for the 'Privacy by design' principle, the TRAI said a framework, on the basis of the electronic consent framework developed by Ministry of Electronics and IT (MeitY) and the master direction for data fiduciary (account aggregator) issued by

the Reserve Bank of India, should be notified for the telecommunication sector also. The rules proposed by the TRAI come at a time when questions have been raised on the lack of data protection for Indian users of digital services. It has been found through recent data breaches on platforms like Facebook that the user is forced to part with his personal data with very little information about the scenarios/ uses that his personal data would be put to. "He has no facilities to access, view, amend, or delete his data submitted. In case of any data breach, he may not even be informed about it till it gets reported," TRAI said. While the US and Europe have enacted robust data protection laws, Indian policymakers have so far moved slow on this aspect. A white paper on data protection across all sectors by a high-level government committee headed by Justice BN Srikrishna was released in November 2017, but there has been no significant movement towards bringing in a comprehensive policy. In this context, the rules proposed by TRAI are significant, although they are limited only to telecom-related services.

(July 16, 2018) [thehindubusinessline.com](http://thehindubusinessline.com)

India's Department of Telecommunications (DoT) will approve Vodafone India's merger with Idea Cellular if the companies pay a combined cost of INR71.7 billion (\$1.04 billion) in spectrum-related charges, The Economic Times (ET) reported. Its demand includes INR39 billion in cash from Vodafone and a INR33 billion bank guarantee from Idea Cellular. Media reports suggest the terms are likely to be challenged, further holding up the already delayed deal. The sum is more than the DoT was rumored to be seeking. In late June, reports emerged the regulator was set to ask for INR47 billion from Vodafone to settle a long-standing spectrum payment dispute and INR21 billion in bank guarantees from Idea Cellular, also for spectrum costs. ET's sources said at least the Idea Cellular portion of the charge was likely to be challenged: a similar levy slapped on Bharti Airtel as a condition of its Telenor India acquisition was later quashed by the country's Supreme Court. The deal between Idea Cellular and Vodafone India, struck in March 2017, is already beyond the original deadline of 30 June following delays getting the agreement through regulators. Over the last year, all other required authorities have passed the merger, which would create a new market leader by connections in India. (July 10, 2018) [mobileworldlive.com](http://mobileworldlive.com)

Telecom Minister Manoj Sinha has claimed that the Department of Telecommunications (DoT) has not delayed the long-awaited merger of Vodafone India and Idea Cellular, stating that the ministry is simply following the previously-determined process for approval. The Economic Times cites the official as saying that the two cellcos need to complete all formalities and that 'if those are completed there will be no delay of even a second from the department'. The merger had been previously been expected to be

finalized by June this year, but the tie-up is still awaiting its final green light, from the DoT. The ministry sought legal opinions on raising a fresh demand against the two firms in late June and is now expected to add a requirement for the duo to clear contested spectrum charges as a condition for the approval. The DoT is reportedly prepared to exhaust 'all legal options' to enforce the dues, potentially dragging out the approval process further.

(July 4, 2018) The Economic Times



## Italy

The Ministry of Economic Development (MISE) approved 5G spectrum tender conditions set by communications regulator Agcom in May, the country's industry and labor minister Luigi Di Maio announced. "With the publication of the call for tenders and the tender regulations, Italy is positioning itself as one of the leading countries in Europe for the development of the 5G," he said in a statement. The auction is expected to raise at least €2.5 billion for the government. In a statement in May, Agcom had said MISE will organize the tender, which will cover the auction of frequencies in 694MHz to 790MHz; 3.6GHz to 3.8GHz; and 26.5GHz to 27.5GHz bands. It designed rules to help to create new entrants, focusing purely on infrastructure in the

market. Agcom also said the move makes it the first European regulator to define rules for the allocation of the "pioneer" bands touted for 5G. However, last month Italy's 5G spectrum auction plans were cast into doubt as reports emerged broadcasters had launched a legal appeal against rules for vacating the 700MHz band. Separately the country's mobile operators were tipped to boycott the whole process because they felt the starting price was too high and bidding rules too rigid. MISE has yet to reveal if it will take any of these concerns into consideration. The first tender is scheduled for the end of September, although the sale and allocation of frequencies is unlikely be finalized before the end of 2022. (July 12, 2018) mobileworldlive.com



## Mexico

The Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) has confirmed that it has issued 'participation certificates' to the two parties that have registered an interest in bidding in its long-planned auction of spectrum in the 2500MHz-2690MHz ('2.5GHz') band. The 'tender submission procedure' will commence on July 31, 2018, and bids must be registered by 8 August. The licenses are expected to be distributed in November or December this year. It is understood that Movistar Mexico and AT&T Mexico are the unnamed bidders, after market leader Telcel acquired 60MHz of 2.5GHz frequencies via the secondary spectrum market in July 2017. The spectrum was acquired from Grupo MVS and covers 1,575 localities, equivalent to coverage of 75.41% of

the national population. 120MHz of radio spectrum will be made available in six national 20MHz blocks: four paired 2x10MHz FDD blocks and two unpaired 20MHz TDD blocks. The remaining 10MHz will be reserved as 'guard band' spectrum. All concessions will be issued for a 20-year period; the minimum reference value (valor minimo de referencia, VMR) for each 20MHz license has been set at MXN350 million (USD18.7 million). License winners will be obliged to provide service in at least 200 of the 557 localities with a population between 1,000 and 5,000 inhabitants, which currently lack a mobile service. In addition, they must deliver connectivity to at least ten of the 13 metropolitan areas with more than one million inhabitants.

(July 11, 2018) telegeography.com



## Niger

Niger's Council of Ministers has adopted a draft law establishing a new telecoms watchdog known as the Regulatory Authority for Electronic Communications and Post (Autorite de Regulation des Communications Electroniques et de la Poste, ARCEP). Le Sahel reports that the establishment of the new regulator will make the necessary adjustments to enable Niger to comply with additional directives of the Economic Community of West African States (ECOWAS) and West African

Economic and Monetary Union (WAEMU), in order to contribute to the creation of a common market for ICT in the community area. Among other things, the new law strengthens the sanctioning power of the ARCEP by giving it the option of reducing the duration and/or the scope of operating licenses and authorization. The bill will now be sent to the National Assembly for final approval and adoption.

(June 26, 2018) telegeography.com



## Norway

The National Communications Authority (Nasjonal kommunikasjonsmyndighet, Nkom) has launched a public consultation on its plans to allocate new spectrum in the 700MHz and 2100MHz bands. Ahead of a sale process for the frequencies, which is expected to take place in the first quarter of 2019, the Nkom has confirmed it will make available a total of 2x30MHz in the 700MHz band and 2x15MHz in the 2100MHz band. With the 700MHz band currently used for digital TV broadcasting, it is expected that targeted frequencies will be released for use by mobile services

from November 1, 2019. In terms of the proposals put forward by the Nkom, these relate to the overall framework for the auction, including inter alia frequency limitations, coverage obligations, minimum prices for resources and the auction format itself. A deadline of September 14, 2018 has been set for submissions to the consultation. Meanwhile, detailed rules for the implementation of the auction itself will be subject to a separate public consultation, the Nkom noted, with this expected to get underway in Q1 2019.

(July 9, 2018) [telegeography.com](http://telegeography.com)



## Peru

Peruvian telecoms watchdog the Osiptel) has introduced new rules to improve fixed and mobile number portability services. With effect from the end of August, subscribers can repeatedly port their phone number between networks with a minimum gap of one month between ports, whilst the porting process (currently operating Monday-Saturday excluding holidays) must now be effective Monday to Sunday including holidays to speed up transfers. Also this week, Osiptel published for comment a proposal to modify the General Tariff Regulation to force cellcos to introduce a 'fairer' range of end user tariffs. In particular, the watchdog pointed to the multitude of subscribers on mobile tariff plans effectively superseded by more competitive newer packages – wherein subscribers to the new packs pay similar fees to the 'old' tariffs yet receive significant additional benefits including higher internet speeds and access to applications without data consumption charges. Osiptel's proposed measures include a requirement for operators to adapt their commercial offers within 18 months to fit revised guidelines designed to eliminate 'unjustified discrimination in which some pay more than others for the same service', plus the compulsory introduction of an app to inform users about the best mobile plans available according to their consumption habits (with a six-month implementation deadline), and changes to existing marketing rules to prevent encouraging users to purchase 'unwanted services'. Osiptel also proposed removing an existing rule which restricts the

term of mobile service promotions to six months, with the aim of generating greater competition by giving operators 'adequate flexibility' and fostering customer loyalty. A public hearing on the proposals is scheduled for August 14. (July 17, 2018) [telegeography.com](http://telegeography.com)

The Ministry of Transport and Communications (Ministerio de Transportes y Comunicaciones, MTC) has issued a new ruling, altering the definition of broadband connection from a 256kbps download speed to 4Mbps, applicable to both fixed and mobile technologies. Ministerial Resolution No. 482-2018 MTC/01.03 grants companies 180 days – i.e. until December 24 – to adapt and update their commercial offers to reflect the new definition. After the grace period, operators will not be able to market as 'broadband' any connection that does not provide a download speed of at least 4Mbps. The MTC notes that providers may continue to offer slower speeds, but must not use the term 'broadband' in doing so, as this would 'as this would generate a serious distortion when consumers make their purchasing decisions'. Commenting on the resolution, Deputy Communications Minister Virginia Nakagawa said that the move: 'is framed within international regulatory practices and was a pending issue in favor of consumers, which couple with the efforts being made in the face of greater penetration of broadband, should lead us to improve digital inclusion throughout the country.'

(June 29, 2018) [telegeography.com](http://telegeography.com)



## Philippines

Eliseo Rio, Jr, the acting Secretary of the Philippines' Department of Information and Communications Technology (DICT), has said that the naming of the much anticipated 'third telco' could take place by the end of September or early October this year, barring unforeseen setbacks. DICT published its draft terms of reference (TOR) for the selection of the Philippines' so-called New Major Player (NMP) to challenge PLDT Inc. and Globe Telecom on 26 June, a long-time pledge of President Rodrigo Duterte. The selection process has been delayed for months – an original March 2018 deadline proved unrealistic – but DICT has now

released details on how it plans to assign valuable 3G, 4G and potential 5G mobile frequencies to allow a newcomer to challenge the status quo. Pursuant to the above, DICT held public consultations on 6 July – a process that seemingly concluded that of those that expressed an interest in the selection process, 75% prefer a points-based allocation system, using the highest committed level of service (HCLoS) method. Only 8% of potential bidders preferred the second set of draft rules which entailed auctioning the frequencies with a minimum bid of PHP36.58 billion (USD583.4 million). (July 12, 2018) [telegeography.com](http://telegeography.com)

The Manila Standard reports that many of the groups interested in becoming the Philippines' New Major Player (NMP) do not back the Finance Department's frequency auction proposals. The paper cites the results of a survey published by the Department of Information and Communications (DICT) which found that, when questioned, only 17% of the participants backed the auction plan, compared to the 75% figure for an alternative plan that focuses more on the highest committed level of service (HCLoS) for the selection of the NMP (or so-called 'third telco' to challenge PLDT and Globe Telecom). 8% abstained from the survey, it said. It is understood that at least 15 potential bidding groups participated in the informal survey at a public hearing last Friday (6 June). The results of the survey will now be presented to an oversight committee, composed of the DICT, the National Telecommunications Commission (NTC), the Department of Finance, the National Security Adviser and the Office of the Executive Secretary.

(July 9, 2018) telegeography.com

The Department of Information and Communications Technology (DICT) published its draft terms of reference (TOR) for the selection of the Philippines' so-called New Major Player (NMP) to challenge PLDT Inc. and Globe Telecom, a long-time pledge of President Rodrigo Duterte. The selection process has been delayed for months – an original March 2018 deadline proved unrealistic – but DICT has finally released details on how it plans to assign valuable 3G, 4G and potential 5G mobile frequencies to allow a newcomer to challenge the status quo. With the final content of the TOR still subject to a round of public consultations, DICT posted on its website the draft 'Rules and Regulations on the Selection of a New Major Player in the Public Telecommunications Market', outlining: the relevant criteria for a telco to qualify to participate in the process; the frequencies it plans to award; the scoring system the government will use to assess bid applications; other obligations that will be placed on the NMP; and details on any penalties that could come into play should it fail to comply. Described by Acting DICT Secretary Eliseo Rio as a 'hybrid' selection

process, the TOR seemingly sets out its stall to establish high service quality and a robust financial rollout plan as core priorities. Specifically, the new draft memorandum would currently require the successful third telco to meet the following three thresholds: committing annual capital and operational expenditure of PHP40 billion (USD747 million) over a five-year period (attributed 40% 'weightage' in the assessment criteria); achieving 30% population coverage (also weighted at 40% in the criteria); and delivering a minimum 5Mbps average broadband speed (weighted 20%). The selection committee will use a point system based on the documents submitted by the potential players, with the memorandum circular confirming: 'A participant's annual point score shall be multiplied by the corresponding 'weightages' ... reflecting the government's policy priority of encouraging rapid network rollout and the difficulty of deploying the NMP's networks and facilities in the shortest possible time'. In addition, the TOR dictates that any prospective bidder have a net worth of at least PHP10 billion with a Congressional franchise to operate telecom services, while in the case of a consortium bid, Filipinos should control at least 60% and at least one of the members should be a holder of a Congressional franchise. Furthermore, prospective bidders should not be a related party to any existing telecom group and have no outstanding liabilities, it says. The National Telecommunications Commission (NTC) meanwhile, will be tasked to assign spectrum in the following frequency bands to the new player: 700MHz, 850MHz, 2100MHz, 2010MHz, 2.5GHz, 3.3GHz, 3.5GHz and 10.5GHz. Selection documents can be purchased by prospective participants from the NTC for PHP1 million. Several companies have already expressed an interest in participating, including Philippine Telegraph and Telephone Co (PT&T), NOW Telecom, Converge ICT Solutions, Easycall Communications Philippines and a group led by the businessman Dennis Uy. In addition, the foreign telcos that have previously shown interest are China Telecom, South Korea's LG Uplus, KDDI of Japan and Vietnam's Viettel Group.

(June 27, 2018) telegeography.com



## Poland

Poland's Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE) has opened a consultation into the allocation of spectrum for future 5G mobile services. The regulator is proposing the sale of spectrum in the 700MHz, 3.4GHz-3.6GHz, 3.6GHz-3.8GHz and 26GHz bands. Parts of the bands

in question are currently in use for various telecoms and TV services, with the watchdog proposing a reorganization and reallocation of some spectrum prior to the auction. Comments on the plans are being accepted until August 8.

(July 9, 2018) telegeography.com



## Portugal

The National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) has approved the proposed 'roadmap' for the distribution of 700MHz spectrum, which it hopes will support future 5G wireless services. According to the watchdog, the 694MHz-790MHz band – which is currently used for digital terrestrial television services – will be freed up by 30 June 2020. The band is currently being used by some 240 TV stations, which will be granted spectrum in the

470MHz-694MHz range instead. The release of the band will commence in 4Q19, ANACOM notes. In March 2018 ANACOM unveiled a public 5G consultation, highlighting a number of spectrum bands which it was considering making available to cellcos for 5G use. Alongside the 700MHz band, other frequencies under discussion include the 450MHz, 900MHz, 1500MHz, 1800MHz, 2100MHz, 2.6GHz, 3.6GHz and 26GHz bands. (July 4, 2018) telegeography.com



## South Korea

South Korea's three mobile network operators (MNOs) – SK Telecom, KT Corp and LG Uplus – have reportedly agreed to commercialize 5G on the same day. A deal between the MNOs was said to have been struck at a meeting held yesterday (17 July), and was taken in part with a view to avoiding excessive competition at the launch of the next generation of mobile broadband technology. Minister of Science and ICT Yoo Young-min confirmed that the trio had come to an understanding on plans to inaugurate their respective

5G networks simultaneously on what has been dubbed 'Korea 5G Day', with a March 2019 launch date believed to be the target deadline. Commenting on the development, the minister was cited as saying: 'Korea will become the world's first 5G mobile communication commercialization country, and in order to pre-empt the 5G global market initiative, it is necessary to avoid the first competition between operators and to make Korea 5G Day.

(July 18, 2018) Korea IT Times



## Spain

The Ministry of Economy and Enterprise (Ministerio de Economia y Empresa, MINECO) has confirmed that the country's auction of 5G-suitable spectrum in the 3.6GHz-3.8GHz band has generated EUR402.3 million (USD471.2 million) after four days of bidding, comfortably exceeding the EUR100 million starting price established by the watchdog. The identities of the winning bidders will be disclosed after the auction draws to a close. The spectrum has been divided into 40 5MHz blocks, each of which has a starting price of EUR2.5 million. All four mobile network operators (MNOs) – Movistar, Orange, Vodafone and Grupo MASMOVIL – have registered their participation in the auction process, although a 120MHz spectrum cap is in place. All concessions will be valid for 20 years apiece. (July 24, 2018) telegeography.com

divided into 40 5MHz blocks, each of which will have a starting price of EUR2.5 million (USD2.9 million), meaning that the process will generate a minimum of EUR100 million. MINECO notes that all four mobile network operators (MNOs) – Movistar, Orange, Vodafone and Grupo MASMOVIL – have registered their participation in the auction process, although a 120MHz spectrum cap is in place. All concessions will be valid for 20 years apiece. The government agency expects to post daily updates on its website at 6pm, detailing the day's bidding activity. Spanish authorities have long endorsed these frequency bands for 5G use. Vodafone staged what it claimed was the 'first 5G call in the world' with Huawei in February 2018, using 3.7GHz spectrum, while Orange has disclosed plans to launch commercial 5G services in 2019, using 3.5GHz spectrum. Last month MASMOVIL acquired Neutra Network Services for EUR15.5 million, inheriting a 40MHz block of nationwide spectrum in the 3.4GHz-3.6GHz band, which it claimed would support its own 5G ambitions. (July 18, 2018) telegeography.com

The Ministry of Economy and Enterprise (Ministerio de Economia y Empresa, MINECO) has confirmed that the country's auction of 200MHz of 5G-suitable spectrum in the 3.6GHz-3.8GHz band. The spectrum will be



## Sweden

The Swedish Post and Telecom Agency (Post & Telestyrelsen, PTS) has invited applications for an auction of wireless spectrum licenses in the 700MHz band. Applications can be made until November 5, with the auction due to begin on December 4. A total of 60MHz of spectrum will be sold, with a cap of 40MHz per operator to ensure that at least two players have access to frequencies. The auction has been split

into two lots of 2x5MHz and one lot of 2x10MHz, plus four 1x5MHz blocks for supplemental downlink (SDL). The reserve price has been set at SEK50 million (USD5.7 million) per 5MHz, meaning the sale will raise a minimum of SEK600 million. The 700MHz band has been earmarked for future 5G mobile services. Dan Sjoblom, Director General of the PTS, commented: 'The government's goal is to ensure that everyone in



Sweden has good access to stable, high quality mobile services wherever they are by 2023. The auction in the 700MHz band is a way to contribute to that goal.' Sweden also plans to sell off spectrum licenses for 5G services in the 3.4GHz-3.8GHz band in 2019. The regulator intends to offer 300MHz of frequencies on a nationwide basis, while also reserving 100MHz

for regional concessions. The PTS is also looking at auctioning 5G mobile licenses in the 26.5GHz-27.5GHz band, though it is awaiting moves towards the international harmonization of the band before proceeding. The Swedish mobile market is currently home to five network operators: Telia, Tele2, Telenor, Hi3G Access (Tre) and Net 1. (July 6, 2018) telegeography.com



## Switzerland

Switzerland plans to auction off spectrum for 5G mobile services in January 2019, setting a moderate overall base price of around €189 million. Frequencies are available in the 700 MHz, 1400 MHz, 2600 MHz and 3.5 GHz bands (see chart) and companies that wish to bid for them have until 5 October to submit applications to the Federal Office of Communications (OFCOM), Switzerland's Federal Communications Commission (ComCom) announced on Friday. The regulator indicated that it would welcome applications from both the country's existing mobile operators and potential newcomers, but the wording of its documentation suggests that it only expects the three incumbents – Salt, Sunrise and Swisscom – to participate. Spectrum caps are in place. "Assuming there are three bidders, this means that each operator, given a corresponding willingness to pay, has the possibility of acquiring frequencies for a 5G rollout," ComCom said. Participants will be restricted to a maximum of 2x15 MHz of FDD spectrum in the 700 MHz band, 25 MHz of SDL spectrum in the 700 MHz and 1400 MHz bands, and 120 MHz of TDD spectrum. In addition, a

cumulative bidding restriction means that two bidders together cannot acquire more than 2x25 MHz of FDD spectrum at 700 MHz if there is any other bidder interested in a block in that same band. With regard to price, ComCom insists it does not see the sale of spectrum as a cash cow. "It is not ComCom's objective to maximize auction revenue," the regulator said. "The focus is on a good allotment of frequencies to operators and good coverage of the country with high-quality telecommunications services." The reserve prices of all the available spectrum blocks together total 220 million Swiss francs (€189 million). The licenses all have a 15-year duration, again, the regulator says, for the good of the market. "Thanks to a timely award and with a term fixed until the end of 2033, licensees are able to plan their long-term activities and to invest in complete confidence," ComCom said. The regulator said it will not disclose the number or identities of the bidders until after the auction has taken place. It expects to grant the licenses in the second quarter of next year.

(July 6, 2018) totaltele.com



## Tanzania

The Tanzania Communications Regulatory Authority (TCRA) has formally handed over the 700MHz mobile spectrum license won at auction by Vodacom Tanzania, reports Daily News. Last month the South Africa-based cellco acquired 2x10MHz for a total price of USD10.005 million, while Azam Telecom paid USD10.000 million for the remaining 2x10MHz on offer. The new 15-year licenses include the following coverage obligation: population coverage for broadband services meeting the specified quality of service level should be equal to 60% by the end of 2021, rising to 90% by end of 2024.

(July 25, 2018) telegeography.com

The Tanzania Communications Regulatory Authority (TCRA) has announced the results of its recently concluded auction of mobile spectrum in the 700MHz band. A total of 2x20MHz was allocated, with the successful bidders confirmed as Vodacom Tanzania, which acquired 2x10MHz for a total price of USD10.005 million, and Azam Telecom, which paid USD10.000 million for the remaining 2x10MHz. The new licenses include the following coverage obligation: population coverage for broadband services meeting the specified quality of service level should be equal to 60% by the end of 2021, rising to 90% by end of 2024.

(June 26, 2018) telegeography.com



## Thailand

Thai operator Total Access Communication (DTAC) has submitted an official letter to the regulator the National Broadcasting and Telecommunications Commission (NBTC) stating its intention to bid for 2x5MHz of spectrum in the 850MHz band. The Bangkok Post writes that the NBTC has now approved a new timeline and conditions for the auction, scheduled to take place on 18 August. Further, the regulator will also try to sell the 1800MHz frequencies which failed to attract any bids in June; under the revised plans, the available 90MHz in that band is to be divided into ten lots of 2x5MHz, each with a reserve price of THB12.48 billion (USD377.6 million). Each participant can bid

for a maximum of four lots or a combined 40MHz of bandwidth (upload and download). The 850MHz license will come with a reserve price of THB38 billion. The regulator cancelled the tender for three blocks of 2x15MHz spectrum in the 1800MHz band earlier this month as none of the country's three largest mobile network operators (MNOs) submitted bid documents. True Move, Thailand's second largest wireless operator by subscribers, confirmed in May that it would not participate in the auction, claiming that it had sufficient bandwidth in a number of spectrum bands to provide its services. DTAC and AIS followed suit with their respective announcements on June 16.

(June 27, 2018) telegeography.com



## Uganda

The Uganda Communications Commission (UCC) has helped to resolve a dispute between local 4G provider Smile Communications and tower partner Eaton Towers. According to a report from PML Daily, Eaton Towers had disconnected Smile's access to its tower network after the two companies had failed to resolve a financial dispute, leading to disruption of services for Smile customers. The regulator has now announced that access to the tower network has been restored

while negotiations between the parties continue. Smile operates an 800MHz TD-LTE network, providing fixed-wireless and mobile access in cities including Kampala, Entebbe, Mukono, Jinja, Mbale, Soroti, Tororo, Lira, Gulu, Masindi, Kasese, Fort Portal, Kabale, Mbarara and Masaka. Local press reports have suggested that the telco is experiencing financial difficulties and could be close to bankruptcy.

(July 20, 2018) telegeography.com



## Ukraine

The National Commission for State Regulation of Communications and Informatization (NCCIR) has set a date – May 1, 2019 – for commercial launch of mobile number portability (MNP). Network operators should begin tests of the MNP system from the beginning of April 2019. The Ukrainian State Centre of

Radio Frequencies (UCRF) – which was forced to scrap previous MNP provider tenders due to litigation – last month declared that all legal disputes with suppliers of MNP IT solutions were finished and claimed technical readiness to launch the service.

(June 29, 2018) Liga.net



## United Kingdom

The telecom regulator Ofcom has published a document setting out its decisions and forward plan for spectrum used by fixed-wireless links covering the next five-year period. Ofcom said the move follows what it termed 'extensive engagement and consultation with stakeholders'. According to the regulator, its assessment of how the use of fixed-wireless links is likely to evolve over the next five years was based on a number of factors, including: technological developments, international developments, and the changing requirements of competing uses of the spectrum. Among its findings, Ofcom noted that over the next five years it expects greater focus and take up in the 60GHz/65GHz bands, as well as continued growth in 70GHz/80GHz, while it also said there is likely to be 'strong interest' in complementing these bands with higher-capacity spectrum above 92GHz. As such, the watchdog is taking immediate steps to make changes to the regulatory regime in the 57GHz–66GHz range, as well as making new spectrum available at 66GHz–

71GHz. Pursuant to the above, Ofcom has launched a consultation on implementing its decisions related to the 57GHz-71GHz band. Its proposed new regulations look set to amend the existing technical conditions for the band, while also extending the current license exemption conditions for short range devices and fixed wireless systems. A deadline of August 6, 2018 has been set for submissions to this consultation.

(July 6, 2018) telegeography.com

The telecom regulator Ofcom has launched consultation into a request by UK Broadband, which is owned by mobile network operator Three UK, to vary its existing spectrum license. The company currently holds a concession which authorizes it to use 168MHz of radio spectrum across two separate 84MHz blocks – 3605MHz-3689MHz (the 'lower frequency block') and 3925MHz-4009MHz ('upper frequency block'). UK Broadband has reportedly requested a 'number of changes' to this license concerning the lower

frequency block, including: shifting it down by 5MHz, surrendering its rights to use 4MHz of spectrum in that block, and changing the applicable technical conditions. Ofcom has said its provisional view is that it is minded to agree with the operator's variation request, but it has invited comments from interested parties on the matter before making a final decision. Submissions to the consultation will be accepted until August 8, 2018. (July 2, 2018) [telegeography.com](http://telegeography.com)

Ofcom has begun a consultation process to evaluate the 'localness' guidelines for local commercial radio broadcasters. The media regulator has been reviewing the rules for local radio stations, to make it a lot more flexible to broadcast freely in response to the ongoing pace of changes in the media sector. These guidelines

are designed to help ensure that stations provide an appropriate amount of locally-made programming, and that programs include relevant local material, such as news, traffic and weather reports. Ofcom is looking at two key areas of the proposals including local content during the flagship breakfast show slot. Currently, most stations are required to broadcast a minimum of seven hours of locally made programmes, including breakfast. However, the new proposals, will require stations to broadcast three hours locally made programmes between 06:00 – 19:00 weekdays, if they have a local hourly news bulletin, or six hours locally made programming between 06:00 – 19:00 if they provide hourly bulletins during peak times. Ofcom is inviting views on the proposals, which must be submitted by August 3, 2018. (June 25, 2019) [bizasialive.com](http://bizasialive.com)



## United States

The US Federal Communications Commission (FCC) continues to prepare for nationwide number portability, and has implemented a pair of significant changes this week. Currently, consumers are not able to fully port a number to any wireless or wireline provider, so the watchdog is modifying rules that were designed for an older market structure of separate local and long-distance calling. The changes adopted include:

- Elimination of the last vestiges of the 'dialing parity' rule, which was intended to ensure that consumers could choose and access a stand-alone long-distance provider without dialing extra digits. However, stand-alone long-distance service is disappearing with the rise of all-distance plans, VoIP and wireless, and in 2015 the FCC eliminated the rule for most local providers.
- Providing flexibility in call routing by easing the 'N-1' rule that currently requires the next-to-last carrier in a call – typically the long-distance provider – to query the number portability database. The modification allows other carriers in the chain to query the database. This will open new opportunities for call routing as the industry prepares for nationwide number portability.

(July 13, 2018) [telegeography.com](http://telegeography.com)

The US will auction off high frequency 5G spectrum in the second half of 2019, according to the FCC's Chairman, Ajit Pai. In a blog post following his attendance at the International Telecommunication Union's Global Symposium for Regulators in Geneva, Switzerland, Pai said that the US would look to auction off spectrum in the 37GHz, 39GHz and 47GHz bands in the second half of 2019. "I'm excited to announce my plan to move forward with a single auction of three more millimeter-wave spectrum bands—the 37GHz, 39GHz, and 47GHz bands—in the second half of 2019. To help facilitate that auction on this timeline, I'm proposing rules to

clean up the 39 GHz band and move incumbents into rationalized license holdings. This will help make the 39 GHz band as attractive as possible for new bidders, while consolidating incumbent spectrum licenses into more usable blocks," he said. "As part of the Notice of Proposed Rulemaking we will consider at the FCC's August meeting, I'm also proposing to have 100 MHz license blocks for the 37GHz, 39GHz, and 47GHz bands, so they can more easily be auctioned together. These are important steps that will help solidify U.S. leadership in 5G," he added. The US is pressing ahead with plans to be the first country in the world to rollout fully commercialized 5G services, when it launches 5G networks in 4 major US cities later this year. The high frequency spectrum being referred to by Pai will likely be used to facilitate IoT applications on an industrial scale. (July 11, 2018) [totaltele.com](http://totaltele.com)

The National Telecommunications & Information Administration got a tire-kicking in a hearing in the House Communications Subcommittee on what was billed as rural broadband legislation, including coordinating funding efforts and getting more accurate and granular maps of broadband coverage, as one legislator put it. It has been 25 years since the NTIA was reauthorized, which was apparent from the draft reauthorization bill being considered at the hearing. The bill opened with instructions to strike the "\$17,600,000 for fiscal year 1992 and \$17,900,000 for fiscal year 1993" and replace it with \$50,800,000 for each of years 2019 through 2021. Rep. Marsha Blackburn (R-Tenn.), Chairman of the subcommittee, had signaled to reporters not long after she took over the subcommittee from now House Energy & Commerce Committee Chairman Greg Walden (R-Ore.), that reauthorizing NTIA was one of her priorities. She pointed out at the hearing that an NTIA reauthorization hearing was her first hearing as chair back in February

2017 and that since then the subcommittee has held nine NTIA-related hearings, including an oversight hearing earlier this year. The bill's direction was clearly toward ubiquitous broadband. In fact, Blackburn called the bill a "rural broadband bill," and "a very important one at that." Dems suggested it was She said that there is bipartisan consensus for the bill, as well as for NTIA to come up with a comprehensive and accurate broadband availability map. Rep. Mike Doyle (D-Pa.), ranking member of the subcommittee, put in a plug for the AIRWAVES Act, which he said suggested should get some more love from the subcommittee. He said the authorization bill was a good start, but more money was needed for broadband "shortfalls," including via a \$40 billion LIFT AMERICA Act sponsored by Rep. Frank Pallone (D-N.J.), ranking member of the parent Energy & Commerce Committee. On the broadband front, the bill establishes an Office of Internet Connectivity and Growth within NTIA to do outreach to communities in need of high-speed broadband as well as hold workshops and develop training tools to help expand adoption and access. The office will be required to provide annual reports to the Congress on what the office has done, including how many residents got broadband as a result of federal spending and the economic impact of those deployment efforts. Also testifying was former NTIA Administrator John Kneuer, who put in a plug for making sure the government was not subsidizing broadband where it was already provided by commercial operators. "Scarce resources should be deployed where there are actual gaps in coverage, rather than in competition with private capital," he said. The bill also includes "sense of the Congress" provisions about the need for combating cybersecurity threats and protect the supply chain, both hot-button issues with the rash of breaches, data sharing security threats from Chinese telecoms. The FCC was also reauthorized this year for the first time since 1990 via the RAY BAUMS Act.

(June 27, 2019) multichannel.com

Following up on a Notice of Inquiry (NOI) issued last year, FCC Chairman Ajit Pai issued a draft copy of a Notice of Proposed Rulemaking (NPRM) which solicits comment on proposals to open the 3.7-4.2 GHz band to terrestrial fifth-generation (5G) wireless services. Known as the C-band, the 3.7-4.2 GHz band has long been the domain of fixed satellite service (FSS) space and earth station operations as well as fixed point-to-point microwave services. With the goal of expanding opportunities for 5G mobile broadband services, the FCC adopted a NOI last August on the possibility of opening three mid-range frequency bands—3.7-4.2 GHz, 5.925-6.425 GHz, and 6.425-7.125 GHz—to

flexible use by terrestrial wireless operators. In response to that NOI, Intel first teamed up with global satellite network operator Intelsat and, later, with global satellite network operator SES S.A. in proposing a market-based solution through which wireless broadband carriers would be given the opportunity to reach commercial agreements with satellite operators who would clear portions of the C-band for "flexible terrestrial mobile use." As specified in that proposal, Intelsat and other participating FSS operators would work cooperatively to "identify geographic areas of the country where they could undertake the complicated and costly process of clearing portions of the C-band for terrestrial use." Meanwhile, the market-driven framework through which wireless operators would negotiate with FSS incumbents would ensure that "incumbent FSS operators will be able to facilitate terrestrial mobile use in a manner that fully accounts for their costs," while "ensuring that incumbent FSS operations will be protected from harmful interference." Intelsat and SES further pledged to establish a consortium, to be opened to all U.S. C-band satellite operators, which would "oversee the governance of the initiative, define and implement the methodology for spectrum clearance, and serve as the sole interface for market-based transactions." Acknowledging that "a significant benefit of a market-based approach may be a more rapid introduction of C-band spectrum to the market," the draft NPRM would request comment on "the efficacy of using a market-based approach to transition some or all of the 3.7-4.2 GHz band to flexible terrestrial use" while asking for stakeholder input on the "costs and benefits" of the Intel-Intelsat-SES proposal "vis-à-vis the alternative proposals set forth in this section." To enable the FCC to "make informed decisions about the scope of future satellite, fixed service, and potential terrestrial mobile use" of the 3.7-4.2 GHz band, the agency also issued a draft order alongside the draft NPRM which would require FSS incumbents to provide "additional information about earth stations and space stations operating in the band to obtain a better understanding of the technical characteristics of existing operations." Meanwhile, in addition to requesting input on "how to properly define different classes of incumbents and on steps regarding the future of incumbents," the draft NPRM would seek comment on (1) various proposals for expanding flexible use of the 3.7-4.2 GHz band, including "whether to transition all or part of the band through a market-based mechanism, auction mechanisms, or alternative mechanisms," (2) allowing point-to-multipoint use on a shared basis in a portion of the band, and (3) what service and technical rules should be changed or adopted. (June 25, 2019) lexology.com

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