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EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

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TRA – UAE Hosting ITU Plenipotentiary Conference (PP18)

H.E. Hamad Al Mansoori
Director General
TRA-UAE

THIS MONTH

DIGITAL ECONOMY AND ITS IMPACT

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Digital Economy and Its Impact

Digital economy, as we know it today, is majorly a function of how fast, effectively, and how far electronic goods and services are delivered through electronic commerce. The latter has been enabled with rising levels of access to the Internet, in which telecom operators have invested heavily, and in which governments have had a formidable role as well.

How the rising digital economy is going to impact our lives is both very interesting and challenging. But we need to admit that how we know digital economy today is very broadly defined as being centered on the exchange and movement of data across borders, for whatever intended transactional and commercial purposes. In the years to come, real digital economy will be much more than just e-commerce; albeit the latter will continue to be its major pillar.

What digital economy needs to accomplish for all of us is to help balance the current trends in urbanization and the population load on urban resources. Digital economy thus cannot and should not remain limited to business trading and services, but also impact every aspect of life, ranging from healthcare, education, financial management, travel, tourism, hospitality, and business.

Human population, of which over half of the world's 7.5 billion people now live in urban areas, will continue to see a surge. By 2050, according to analyses, global population is expected to reach nine billion, and two-thirds of all people will live in cities. Specifically, over the next three decades, more than 500 million people or more are expected to be living in the world's 25 largest cities alone, of which some are in the SAMENA region, including Karachi - Pakistan, Kabul - Afghanistan, and Khartoum -Sudan, to name a few. Dubai - USE itself has seen urbanization pressures rise due to the level of opportunity which exists here. However, what is different about Dubai is the speed of adoption of digitization and exploitation of data-driven capabilities, which are happening in this great city; among the smartest in the world.

As the region's digital economy develops and efforts to accelerate it are harmonized, we need to endeavor to address the urbanization and allied environmental challenges that are innate to human population expansion, and thus we should help spread the load to non-urban areas where digital infrastructure development is being proliferated through private and public sector efforts. Here, once again, the role of telecom operators, technology providers, regulators, and policy-makers is commendable. Interestingly enough, it may be so that the key solutions to future challenges, many of which will be overcome by the rising digital economy as well as winded by it, will come not from national governments, but from municipal tiers of the government and from regional-level policymakers and change makers.

Keeping this in mind, this year, during SAMENA Council's Leaders' Summit, the focus will be on building the digital economy of the Middle East and many private and government-sector leaders, including regulators and regional-level policymakers, from all around the region will congregate in Dubai. As they do, SAMENA Council hopes that the key issues of digital economy and technological revolution underway, will be discussed through open communication and that a new foundation of progress-making endeavors would be defined on tackling three fronts: environmental change in the new period of urbanization in the age of new data economics; need for innovative policies that will help leverage new digital technologies in this digital or sharing economy; managing security challenges as human populations converge in urban areas; and fostering digital development in non-urbanized areas so that the positive impact of data-driven economics can also reach inhabitants at the last mile.

Without future-centric policies and means to making the most of digital economy, achieving smart sustainability may not be possible.

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

TRA Hosting PP18 in Dubai in 2018

H.E. Hamad Al Mansoori
Director General
TRA-UAE

This year in the last quarter, from 29 October to 16 November, the United Arab Emirates will be proudly hosting the 20th ITU Plenipotentiary Conference (PP18). These Conferences, which run for three weeks after every four years, are the supreme organ of the ITU and more than 3000 participants from 193 Member States and 41 Observer Organizations are invited which are usually attended at the Ministerial level.

ITU Member States at these Conferences decide on the future role of the organization, thereby determining the organization's ability to influence and affect the development of Information and Communication Technologies (ICTs) worldwide. Moreover, the management team of the ITU, Member States of the ITU Council and the RRB are also elected at these Conferences.

The Plenipotentiary Conference, which is held regularly every four years, is the most important Conference in the ITU's journey, during which strategic decisions regarding the future policies of the sector are taken, as well as the election the ITU's Secretary-General, the Deputy Secretary-General, the Directors of the ITU's three sectors -- namely the Radiocommunication, Standardization, and Development -- members of the ITU Council, and members of the Radio Regulations Board.

H.E. Hamad Obaid Al Mansoori, Director General of the TRA has said: 'Having the honour of hosting the PP18 by the UAE reflects the confidence that the global community has in the UAE, and demonstrates the solidity of the relationship between the UAE and the ITU. This relationship has been enhanced through many joint events and UAE's contributions to global projects organized under the ITU umbrella. This hosting also reflects the country's leading position in the ICT field on the global level, and its role in developing and enhancing the ICT sector worldwide.

ITUPP
DUBAI 2018
29 October - 16 November
Dubai, United Arab Emirates

Al Mansoori confirmed the TRA's confidence in its ability to achieve the success of the conference due to its extensive experience in hosting major events and its leadership in ICT, which are key to developing other sectors. "We are advancing rapidly towards the application of the Artificial Intelligence in all fields of life and, as before, the ICT sector will remain to be the backbone of the developments in our societies. Hence, it is imperative that we spare no effort to confer and communicate with our counterparts in the world in order to explore the horizons of the future, and find out ways of collaboration to overcome the challenges and maximize the benefits of the new transformation", he said.
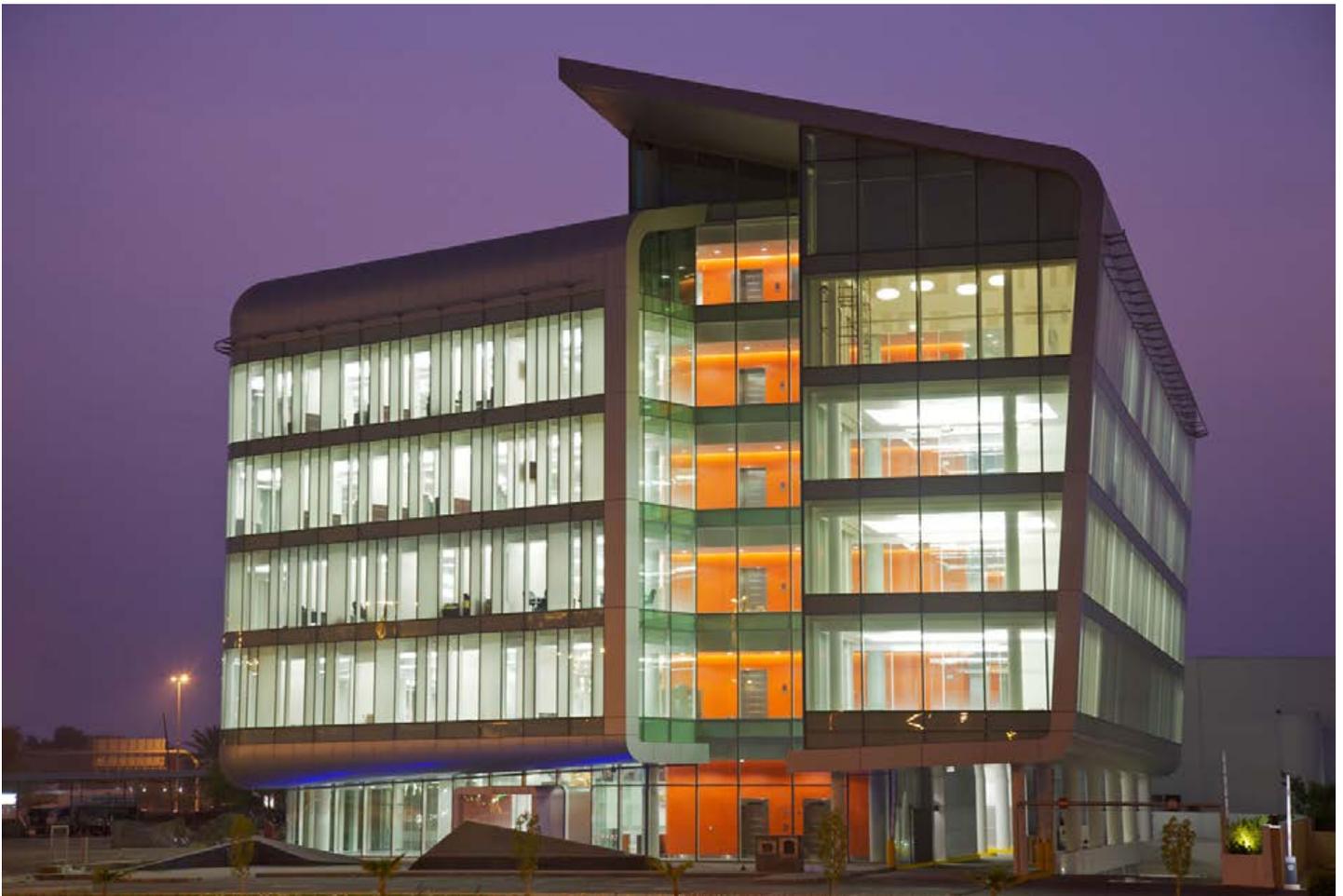
5G in the Spotlight at SAMENA Telecom Leaders' Summit 2018

Charles Yang
President
Huawei Middle East

Q. Why is the rise of 5G causing such a sensation in the global ICT industry?

A. While the switch from 3G to 4G was mostly a matter of increased speed, the rise of 5G will unlock the potential of a flood of new technologies. To give a better idea of the impact of 5G, in November Huawei Wireless X Labs released a white paper on the Top Ten 5G Use Cases. The paper showed that 5G will be the foundation on which a range of groundbreaking technologies will be built, from cloud VR/AR to connected cars to smart manufacturing to connected drones, personal AI assistant, and Smart Cities, and more. As we approach 2020, the growth of 5G-based enhanced mobile broadband networking (eMBB) and IoT applications will skyrocket, including VR/AR apps, industrial Internet, driverless technology, and the Internet of Vehicles. This is why organizations – and consumers – are so excited to see 5G coming.

Q. Why was the announcement of 5G NR specification important to the ICT industry?

A. The recent announcement of the 5G NR specification caused a great sensation in the ICT industry for a simple reason: having an official standard for 5G is a leap forward in allowing the widespread commercial deployment of 5G technologies since it enables vendors to use these specifications to build 5G equipment. The notice was well-timed given the challenge telecom operators have been recently facing to increase their revenue and the pressure they are under to progress on their digital O&M transformation. The arrival of 5G will enable them to formulate a comprehensive new strategy to drive progress based on the revolutionary potential of the network. After the release of these standards, Huawei made ICT history by unveiling 3GPP-compliant 5G product solutions. This means the arrival of 5G-compliant user devices is just around the corner.

Q. What challenges do you think lie ahead before 5G become widely available, and what new challenges will 5G create for telco operators?

A. The 5G era is fast approaching, but we still have work to do. For operators, further preparation is necessary to build up network spectrum, transport, sites and business case, etc. Yet we believe our efforts over the past years have put us in a good position today, and Huawei is ready with an end-to-end portfolio of product solutions and end-to-end layout in cross-industry. Though is still some work to be done, we are in a good position to support our telecom customers as we work together to launch 5G networks. Huawei strives to be a strategic partner of digital transformation for carriers, and enable carrier success through innovative products, solutions and professional services that addresses business needs and creates new revenue streams.

Of course the 5G era will bring new challenges too: in particular, the fact that services will no longer only be B2C; there will be many new services and vertical industries, which will bring new challenges to telecom vendors unused to operating in these areas. Here Huawei has an advantage thanks to our broad portfolio of capabilities – we are a leader not only in the telecom equipment and service business, but also in consumer business, enterprise business, and cloud business. We have deep expertise of both B2B and B2C businesses and look forward to helping operators navigate the new challenges of the next step in digital transformation.

Q. What impact will 5G have on the Middle East?

A. 2018 will be the year of 5G. Middle East operators and government agencies are working to support spectrum neutrality, use test-driven development to construct Mobile Broadband networks, and rollout 5G as fast as possible.

5G technology is necessary for Middle East to progress in its digital transformation. Already the development of 4.5G is making an impact in key regional initiatives: 4.5G Narrow Band-M2M is enabling the development of smart cities. The technology can provide smart intelligence within the city to optimize the daily use of energy (for example through remote control of public transport systems), guarantee better public safety (through video surveillance in streets) or leverage an efficient smart metering system.

At Huawei, we firmly believe that 5G has the potential to transform the landscape of the Middle East, drive forward digitalization, increase revenue for telecom operators, enhance capabilities for organizations, and improve the lives of the population. And as we saw at SAMENA Telecom Leaders' Summit 2018, the gains of 5G are not far – we are closer than ever to turning this vision into reality.

Q. What are you looking forward to at SAMENA 2018?

A. Driven by our desire to create an open and collaborative environment between ICT stakeholders, we are committed to supporting the SAMENA Telecom Leaders' Summit on an annual basis. This is our fifth consecutive year as a co-host of the event, and we are delighted at this occasion to meet with other ICT industry leaders and discuss key challenges and opportunities in our field. This year our focus is on 5G. As the commercial deployment of fifth generation networks grows nearer, it is vital for telcos and ICT organizations to collaborate and prepare for the new opportunities they will bring in order to reap the full benefits of 5G.

At Huawei, we believe that partnerships are a big driver of the 5G ecosystem. A lot of the traditional barriers have already fallen and that will continue to be the case, so operators will have to partner with each other to come up with very innovative ways to share infrastructure. A simple example is street furniture, lamps, cabinets, that can all be used by operators, made available by governments to provide better curbside services to their citizens. Connected street lights, for example, can incorporate surveillance, charging ports for electric vehicles, rentable ad space for businesses, and motion detection for on-demand lighting, which can cut energy use by up to 80 percent. The SAMENA Telecom Leaders' Summit is a rare opportunity to meet with all the big players in the ICT industry and discuss face-to-face how together we can build out the 5G ecosystem.

On the sidelines of the summit we will hold three sub-forums on the topics of 5G, All-Cloud Transformation in the 5G era, and the Global Connectivity Index, which assesses the digital readiness of nations across the globe. We look forward to fruitful discussions with key regional leaders and this opportunity to hear ideas from others about how to meet the challenges facing our industry head on.

Q. What do you hope organizations will take away from your presentation at SAMENA Telecom Leaders' Summit 2018?

A. This year we are focused on the three key issues of better connections, better business growth, and better experience to drive forward digital transformation and unlock revenue for solutions providers and telcos. We hope that organizations see the value of this approach and walk away with an idea to focus on these areas as well. By building better connections, we mean organizations must build more connections and expand data pipes in order to drive forward industry-wide digitization and help carriers fully leverage the power of 5G and cloud-network synergy. We want to enable better business growth by helping carriers dig deeper into their installed base to maximize network value. We also aim to help carriers develop video and IoT services to enable new business growth. Finally, we hope to provide consumers with a better experience through our digital operation & maintenance solutions which enable agile business and intelligent and efficient operations. This helps carriers deliver a Real-time, On-demand, All-online, DIY, and Social (ROADS) experience.

SAMENA COUNCIL ACTIVITY

Beyond Connectivity 2018: Operators' Enablement at the Heart of SAMENA Council's Digital Transformation-Centric Activities and Collaboration Enablement Role within the Industry

In the context of digital transformation, the debate in the SAMENA region revolves much around sustainability of telecom operators and the expanding digital ecosystem; more particularly so in consideration of a multi-faceted competition, evolving industry dynamics, focus on digital transformation, and expectations from both end-users and Administrations. It is thus paramount to help telecom service providers to digitally transform and grow in non-traditional services in an environment where the velocity transformation must be high.

In the recently held SAMENA Council's Beyond Connectivity - In the Future conference, held in collaboration with Tech Mahindra, one of the Council's newest members to join during 2018 and an emerging name in the Middle East region as regards enablement of Telecom Operators through technology and managing change, it became avidly clear why SAMENA Council believes in and strives to encouraging technology providers lead discussions on visualizing an AI, VR, AR, IoT, and software-led future. Such dimensions of the future have signification implications for Telecom Operators, which must not only adopt to change but must quickly undergo transformation at multiple tiers within their networks, operations, strategy, and overall organization.

A major networking and thought leadership event for the industry, the Beyond Connectivity - In the Future conference made possible participation of industry executives as well as private-sector decision-makers from within the SAMENA region to gain new perspectives on the future of the Digital Communications ecosystem and how new technological designs, innovative digital services, software, and business approaches will integrate themselves to define how the Industry operates and contributes to the development of smart societies.

Beyond Connectivity - In the Future conference also made it clear that, while most operators have a digital footprint and digital services already in existence, growing and evolving to cater to non-traditional services in an OTT environment are central to their sustainability and future contributions in the age of digital economy. Networks at the moment are not agile and flexible enough and transforming them is very expensive. Therefore, technology enablers, such as Tech Mahindra, have to come forward and are ready and equipped to become the enablers of enablers; a role that SAMENA Council deems is necessary for developing a 5G ecosystem. Such a role also underpins SAMENA Council's own enabler's and sector-development partner's role

in helping fulfill communication gaps not only Telecom Operators and Regulators but also among Telecom Operators and Technology Providers.

Digital development, given its central role in the development of digital economies and the realization of smart digital societies, and with its myriad of private-sector and public-sector stakeholders and complexities across all dimensions, now demands an unprecedented level of co-operation, innovative partnerships, and leadership roles, including from women ICT leaders, in order to encourage digital transformation at all tiers, across the society, and across economic sectors.

Held in Dubai on April 5th, Beyond Connectivity - In the Future, substantiated the need to re-think and re-imagine the future, and corroborated the need for Telecom Operators to be agile and Technology Providers to be more resourcefully involved not only as technology vendors but also as facilitators of change.

The one-day Beyond Conference provided a strategic knowledge-sharing platform for SAMENA Council's members and leaders in the Industry, with participation of regional telecom operators as well as globally renowned technology companies, including Oracle, PTC, and Redhat, which are directly contributing to building the digital future and are enabling telecom operators to re-define their roles through

innovation-driven advancements on both network and en-user sides.

Beyond Connectivity had numerous panel discussions focusing on AI, IOT, AR, VR, software-driven infrastructure, and the role of technology in the industry. There was agreement that there is a lot of hype around some technologies and the industry should be agile enough to assess what new technology is good enough for operators to deliver the experience to their customers. Discussing the future, which includes hyper-connectedness that Telecom Operators are finding both a challenge and an opportunity, smart manufacturing, connected products,

smart cities, fields, worksites, connected services/maintenance and more, it was deliberated that 5G might give the control back to Telecom Operators, provided Operators timely adapt to the emerging change. In this regard, as emphasized by the participating panelists, the enabling role of SAMENA Council was hailed, and it was expressed that the Industry requires SAMENA Council's ability to catalyze and drive collaboration among industry stakeholders, including among Technology Providers and Telecom Operators.

Some Takeaways from Beyond Connectivity Discussions:

- Data is central and can help drive customer satisfaction and new revenue streams. In the context of data processing technologies, customers should be the focus, so that technologies can predict problems and preempt them.

- Attempts to achieve business efficiency so far has not made customers' lives much easier. There is a dire need now to truly focus on the customer. Data processing technologies should allow us to preempt customers having problems, i.e., technologies should predict problems and solve them before they happen.

- Operators have to be able to anticipate the need of consumers with the use of new technologies. While most operators have a digital footprint and digital services already, it is paramount to help service providers grow in non-traditional services in an environment where the speed of transformation has to be quick, given the fast pace of technological change.

- Telcos have the pressure to come up with the next big thing that will revolutionize the world. There is a need to be agile and nimble enough to adopt technology.

- As digital transformation catches pace, it is essential that the use of AI and software is made customer-centric and platforms created should be usable and useful for customers. Current AI-based use-cases as employed by operators pertain to customer-facing apps to personalize services, including chatbots and virtual agents.

- Legacy operators hold a lot of assets and do not want to part with them, given the huge investments made to acquire them. However, there should be more use of the Greenfield Model for legacy operators: 60% efforts should be exerted on managing current business, 20% on retiring things that are not essential for the future, and the remaining 20% focus should be on acquiring what is required and desired in the future.

- The combination of AI and 5G and Blockchain will make a new network IoT infrastructure and will pose significant disruption. So AI needs to be understood as it maps to 5G and blockchain.

- For 5G and Digital Service and enhanced data and customer experience to become a reality, data centers and platforms must be built and operators must shift from hardware to software. Adequate policies must be in place to enable technologies such as network slicing. "Consumption as a service" and "network as a service" are put forward as preconditions to achieving sufficient agility and flexibility for 5G and IoT services and efficient content distribution. Cross-sector partnership models should be pursued.

- Data privacy is fundamental to a sustainable digital economy. There will be convergence toward the stricter standard, possibly to GDPR, as companies that deal with multiple regions cannot implement different security and privacy standards. In the operator proposition, security is a key differentiator and operators believe that they are key drivers to achieve appropriate data protection.

However, there is a need for government to set appropriate regulations that are conducive to digital transformation.

- Women are still underrepresented in the ICT sector, including Internet use, access to technology and -adoption and in STEM subjects. Women need to have role models from early childhood on and women should help young girls leverage women's achievements so that gender discrimination becomes a thing of the past for future generations. It is important for the private sector to undertake initiatives at the local level. But governments need to set policies and hard targets and thereby provide guidance on how to push gender equality in the digital age.
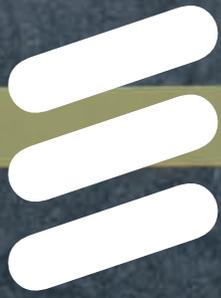
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ARTICLE

Ericsson: Unlocking 5G's Revenue Potential

The industries' focus on 5G has shifted from viewing it as a disruptive technology to now embracing it as a central part of their strategy. In its latest 5G-IoT report, Ericsson lays out a roadmap for operators to unlock the revenue potential of 5G-enabled industry digitalization.

As 5G becomes increasingly vital to industries, there is a rise in the opportunity for new 5G-enabled revenues for operators. Of the total 5G-enabled value in 2026, up to 47 percent is addressable by operators.

In 'The guide to capturing the 5G industry digitalization business potential' – a sequel to the '5G Business Potential' report – Ericsson delves deeper into how operators can potentially grow revenues up to 36 percent by addressing 10 key sectors.

The previous 5G Business Potential report found that operators can add a revenue of USD 204 to 619 billion (12 to 36 percent) to their forecast service revenues of USD 1.7 trillion in 2026. They can do this by targeting the digital transformation of other industries, such as automotive and manufacturing, using 5G-IoT technology.

In its latest 5G-IoT report, Ericsson examined more than 400 industry digitalization use cases across 10 industries: energy & utilities; manufacturing; public safety; healthcare; public transport; media and entertainment; automotive; financial services; retail and agriculture. Of the 400 use cases, over 200 are where 5G is expected to play a vital role. These were grouped into clusters to boost revenue opportunities and overcome deployment challenges. Through extensive operator engagements and a carefully chosen analytical framework, Ericsson created a comprehensive guide for operators to address a range of challenges. The report also highlights how use cases can be evolved to reach the full 5G-enabled industry digitalization business potential. Lastly, the report looks at various operator initiatives and shares some of the lessons learned so far.

Harnessing 5G-enabled revenue opportunities
Digitalization revenues for ICT players between 2016 and 2026 are set to grow by 13.6 percent annually, while current operator service revenue growth is forecast at 1.5 percent. As 5G becomes increasingly vital to industries, there is a rise in the opportunity for

Rafiah Ibrahim
Senior Vice President and Head of Market Area Middle East & Africa
Ericsson

The major drivers for taking the next step to 5G from a strategic perspective are: create a first-mover advantage (73 percent); position themselves as an industry innovator (54 percent); leverage digital transformation enablers (53 percent); and build a solid base for IoT (46 percent).

new 5G-enabled revenues for operators. Of the total 5G-enabled value in 2026, up to 47 percent is addressable by operators. Through the evolution of use cases and clusters, operators can already begin to maximize the possibilities of 5G-IoT and industry digitalization to capture their full business potential.

Ericsson has identified nine clusters covering almost 90 percent of the addressable 5G business potential opportunity. Real-time automation is the largest cluster, with a revenue potential of USD 101 billion by 2026. Enhanced video services are a close second, with revenue potential of USD 96 billion by the same year.

Thomas Noren, Head of 5G Commercialization at Ericsson, says: "Our case studies have shown that operators employ strategic and operational activities to address challenges facing the success of their offerings. Even though they're not yet 5G offerings, these activities – such as go-to-market channels and trial and experimentation – will be equally important, if not more, when evolved towards 5G."

Earlier this year, Ericsson also released The industry impact of 5G report sharing 5G insights from over 900 companies with more than 1000 employees across 10 different industries.

The report revealed that trials of 5G use cases will start in 2018, after which activities will ramp up quickly, with over 70 percent of companies aiming to have use cases in production by 2021. Manufacturing, energy and utilities, public transport and financial services are the industries most likely to have use cases in production by 2020.

The major drivers for taking the next step to 5G from a strategic perspective are: create a first-mover advantage (73 percent); position themselves as an industry innovator (54 percent); leverage digital transformation enablers (53 percent); and build a solid base for IoT (46 percent).

MEMBERS NEWS

STC is no Longer a Conventional Telecom Provider, but an Enabler of Digitization: Al Nasser

Nasser Al Nasser, STC GCEO, confirmed that STC is working on Digitization through huge investments in infrastructure within Broadband project, in cooperation with Ministry of CIT. Al Nasser, stated in a discussion during (CIT Indices) that STC is no longer a conventional telecom Provider, but an enabler of Digitization. Its strategy focuses on growth and digitization of services, investing in the biggest fund in the region, which will support innovation.

Batelco and Huawei Partner to Work towards National Broadband Network and Deploy Safe City Solutions in the Kingdom of Bahrain

Batelco, the leading digital solutions provider in the Kingdom of Bahrain and Huawei, a leading global ICT solutions provider, have signed a Memorandum of Understanding (MoU) to strengthen their cooperation on collaborative business initiatives and to work together on the development of Safe Cities and the National Broadband Network in Bahrain. The MoU was signed during the 2018 Mobile World Congress (MWC 2018) in Barcelona, Spain. This MoU between two leading ICT companies aims to assist the government of Bahrain in achieving the targets outlined in its Fourth National Telecommunications Plan, which calls for 100 percent access to reliable, secure and affordable ultra-fast broadband by 2019 for all businesses, as well as 95 percent for private households. Under the terms of the agreement, Huawei and Batelco will work together to promote the development of the National Broadband Network in the Kingdom. The two companies will also combine their expertise to explore how to promote the development of Safe Cities in Bahrain. Huawei has a wide portfolio of solutions in the field that can be deployed to enhance the safety and living standards of urban areas by increasing road safety, infrastructure security and sanitation as well as decreasing pollution and the risk of terrorism and cybercrime. Safe City solutions can also decrease the response


time of police and first responders to crises through the deployment of a digital platform that aggregates inputs from multiple data sources (sensors, mobile devices, cameras) for actionable and immediate intelligence. Under the terms of the agreement, Huawei and Batelco will explore how to best deploy cutting-edge Safe City solutions to increase the wellbeing of the population. Shaikh Mohamed Bin Khalifa Alkhalifa, Chairman of Batelco, said, "Batelco is delighted to partner with Huawei to explore how ICT can be deployed to enhance the safety and overall environment of the Kingdom. We strive to assist our government in promoting the growth of a robust National Broadband Network and nurturing a secure atmosphere that will empower the Bahraini people to live fearlessly to their full potential. We believe that deploying Huawei's Safe City solutions across the Kingdom is a step in the right direction to creating such an open and relaxed atmosphere." Charles Yang, President of Huawei Middle East, commented, "We are excited to enter into this strategic partnership with Batelco, which will enable us to better assist the leadership of the Kingdom of Bahrain in reaching the targets outlined in its Fourth National Telecommunications Plan. We also look forward to working with Batelco to explore how Safe City solutions can be used to enhance the safety and wellbeing of the Bahraini population."

Batelco Gulf Network Launched to Support Innovation in the GCC Region

Batelco, Bahrain's leading digital solutions provider has announced the launch of Batelco Gulf Network (BGN), the new international cable system that provides the GCC region with an additional option for regional and international connectivity solutions. The BGN also supports the Kingdom of Bahrain's vision toward positioning Bahrain as a major hub for ICT and data movement in the MENA region. The BGN cable runs over the state-of-the-art Optical Transfer Network (OTN) and meets the demand for reliable high bandwidth connectivity and capacity serving the different needs of international services and supporting up to 8.8Tbps and beyond. Batelco Bahrain

CEO Mohamed Bubashait said that Batelco's strategic plans to develop a world class advanced infrastructure is in line with the Kingdom's vision and aspirations to maintain Bahrain's position as a leader in the region's ICT industry. Moreover, the BGN offers customers a new choice for international connectivity solutions to and from the region. "Batelco chose to invest in the BGN as a fully owned and operated international fiber optic cable system, thus providing the country and region with a new state-of-the-art cable system that will enable meeting the growing demand for data services and applications." Batelco Chief Global Business Officer Adel Al-Daylami added, "As part of its comprehensive plans Batelco was keen to establish a robust national and international infrastructure and this network is one of the initiatives which supports the Company's vision toward building a cloud-centric foundation to foster innovation in the Kingdom and region." The BGN will facilitate the introduction of new and innovative services which will greatly boost Bahrain's and the GCC's communications capabilities and enhance the development of businesses as well as provide opportunities for new businesses in the region. "We are also confident that this superior network will boost Bahrain's presence as a key hub for telecom services and look forward to building on this strong platform to ensure its success," concluded Mr. Bubashait.

Batelco Receives ISO 27001:2013 Certification in Information Security

Batelco, Bahrain's leading digital solutions operator has been presented with a new ISO Certificate in Information Security (ISO 27001:2013) that covers a wider scope, following a thorough and vigorous auditing process conducted by Certification Bureau Veritas. The Certification was received for the following Units:

- Technology Units: Telecom Network and IT
- Retail Operations
- Data Centers
- Wholesale Operations
- Cyber Security Operations

Batelco has expanded its existing Information Security Certification ISO 27001:2013 to include a wider scope following a thorough auditing activity. A number of Batelco teams, headed by the Information Security team, worked together to complete the comprehensive process to meet all standard requirements which was verified by the Bureau Veritas auditing team. Being a certified organization, Batelco applies international security standards

in protecting the data of its customers and fulfilling TRA (Telecommunications Regulatory Authority) regulation as part of its integrated Risk Management program within the organization's strategic plan. Gaining the new expanded certification proves Batelco's due diligence in protecting and securing corporate confidential data and supports the Company's efforts for compliance with relevant laws and regulations. Additionally the certification demonstrates Batelco's credibility and trust and shows its commitment to information security at all levels throughout the organization. Batelco Bahrain CEO Mohamed Bubashait extended his gratitude to all the teams who participated in the achievement which supports Batelco's commitment to the protection of its customer data. He also said that the company is keen to raise the competencies of its employees in various fields of work, especially information security. Batelco GM Cyber & Corporate Security Shaikh Khalid Al

ISO 27001:2013
INFORMATION SECURITY
MANAGEMENT SYSTEM

Khalifa noted that Batelco's ISO 27001: 2013 certification confirms that Batelco is committed to ensuring the confidentiality of its customers' information in all operations and that it takes information security seriously. "Furthermore, Batelco is also keen to comply with international standards and regulations announced by the TRA," he added.

## du Expands Smart Home Product Portfolio with TP-Link

TP-Link Technologies Co Ltd, a global provider of SOHO, SMB networking products and wireless LAN solutions, has announced that the UAE telco, du will offer the company's range of smart home, smart bulb and smart IP camera products to its customers across the UAE. The products will be initially available at du's flagship shops at Al Salam Tower and Hamdan Street in Dubai and Abu Dhabi respectively. Lucas Jiang, general manager, TP-Link MEA FZE, said the company has already rolled out TP-Link store-in-store stands across seven du outlets, including one at the Mall of Emirates (MoE) and at du's

headquarters at Al Salam Tower in Dubai. "We are displaying IP cameras, smart bulbs and smart switches, which can be controlled by KASA and TP-Link camera application on a smartphone," he said. "This will let customers have a feel of how to use the smart products and how user friendly and secure our devices are." Fahad Al Hassawi, deputy CEO, Telco Solutions, du, said:"At du, we are excited to be able to offer these products to customers, so they can turn their home into a smart home and help them live a smart lifestyle. These products will fulfil the dynamic and existing needs of customers, converting

people's homes into a more comfortable, convenient, and advanced hub, which can be controlled from anywhere." Jiang added that the company has partnered with du to cement its presence in the telecoms retail space by bringing quality smart home products and accessories, and smartphones to consumers. "We are confident that with our association with du, through our distribution partner, we will continue to grow our smart home business in the UAE and increase the reach to serve more consumers across the country," he said.

du Launches its First Emirati Startup Challenge in the UAE

du, from Emirates Integrated Telecommunications Company launched its first Emirati Startup Challenge, in partnership with Zayed University. The nationwide challenge will give Emirati university students who have a creative drive the opportunity to showcase their ideas in front of a live audience and a judging panel in a competition to win prizes and a chance to work with a local business mentor. In celebration of the Year of Zayed, this initiative is co-organized by E11 Global, a global start up platform that provides entrepreneurs with the necessary tools to successfully develop their own businesses, and Step Group, a Dubai based media and events company responsible for launching STEP Conference in the UAE. "We have always expressed our trust in the immense potential of the UAE youth. Now, and in alignment with the UAE Vision 2021 that directs the transitioning to a knowledge-based economy, we are delighted to launch this initiative. We look forward to meeting candidates who foster creative ideas and are interested in being a part of the local startup ecosystem." said Abdulwahed Juma, the Executive Vice President of Brand and Corporate Communications in du. "Through this university-driven initiative, we want to encourage and inspire UAE Nationals to pursue and develop their business ideas by being bold and well prepared to pursue their dreams," he added. The Emirati Startup challenge is a nationwide competition that aims to empower Emirati youth with an entrepreneurial drive and prepare them to successfully contribute to the UAE's startup ecosystem. The competition is open to Emirati students from universities across the UAE, who have an innovative startup idea in the fields of technology, social entrepreneurship and digital solutions. Dr. Reyadh Almehaideb, Vice President of Zayed University, said, "We, at Zayed University, are delighted to be part of this unique initiative. We are working on empowering the new generation and encourage Emirati students to submit their creative ideas and innovations to participate in beneficial workshops and the competition challenge, to develop solutions and disrupt the ecosystem with fresh ideas. We invite
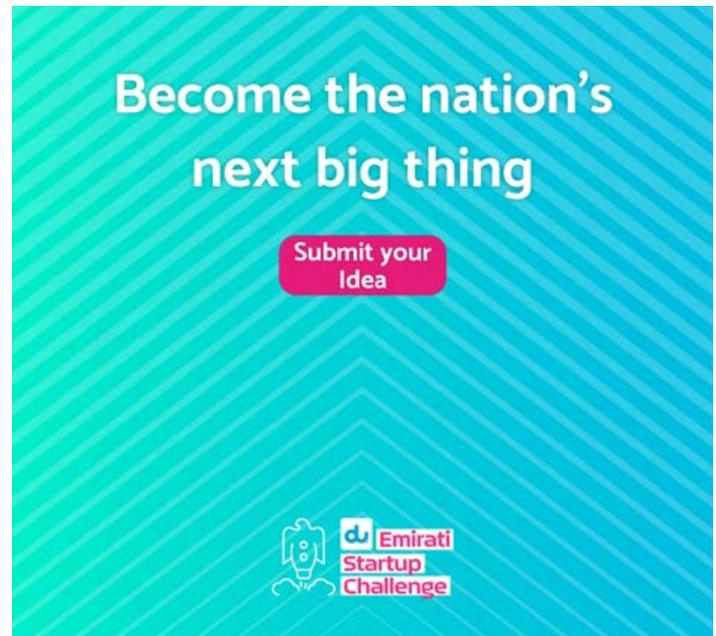
students to apply to the Emirati Startup Challenge from du and take advantage of the compelling opportunity to be mentored by top professionals and experts in the field." As the UAE 2021 vision endeavors to set up an entrepreneurial culture in schools and universities, du will work closely with Zayed University to inspire generations to adopt a skillset that includes leadership, creativity, responsibility and ambition. Through engaging workshops, du aims at equipping Emirati Nationals who qualify to enter the challenge with the necessary expertise and market knowledge that will empower them to turn their ideas into real business ventures. This initiative is also designed to unlock the potential of nationals and enable them to be a driving force of the UAE's development.

Etisalat Teams Up With Indra to Enhance its Digital Solutions Portfolio

Etisalat announced its partnership with Indra to enhance and widen its digital solutions portfolio in multiple sectors. In a statement released on WAM, the company said the agreement would allowing both parties to share best practices and training, industry expertise, explore business opportunities, and strengthen their position in the markets they operate. Indra, offers a comprehensive range of proprietary solutions and specializes in the development of end-to-end technology solutions in fields such as defense and security, transport and traffic, energy and industry, telecommunications and media, financial services, public administration and health care. Etisalat signed a teaming agreement with the company to further develop innovative solutions and accelerate its business across these multiple industries.

Etisalat Digital Shortlists 6 Global Companies for Dubai Future Accelerators Program

Etisalat Digital announced the shortlisted scale-ups to foster digital innovation and entrepreneurship and to bring new solutions to the market as part of 'Dubai Future Accelerators Program,' the world's largest government supported accelerator. The program pairs top scale-ups from across global markets with the Dubai government entities allowing them to build, test and deploy solutions for 21st-century challenges. The shortlisted startups were announced during the opening ceremony of the 4th cohort of 'Dubai Future Accelerators' held in Dubai. Etisalat Digital launched two challenges as part of the program to companies across the world in January this year, and out of all the applications received, six companies were chosen to work with Etisalat Digital in addressing these challenges. The companies will have the opportunity to network with a number of key stakeholders and have access to resources and expertise from Etisalat Digital. Francisco Salcedo, Senior Vice President, Etisalat Digital, said: "The success of Dubai Future Accelerators program is a testimony to the efforts of the government in nurturing entrepreneurship and providing the right platform to accelerate and innovate. As a partner of the fourth cohort, Etisalat is looking forward to working closely with these startups to bring these futuristic solutions to reality to help transform our visitor and customer experience. These challenges are also in line with Etisalat's overall strategy to realize our country's

leadership vision of building smart cities and bringing in digital transformation." The first challenge aims to transform the experience of visitors, like students, residents, leisure and business tourists, of city attractions, such as Expo2020, museums, libraries, and landmarks by leveraging extended reality, augmented/virtual reality, and artificial intelligence at every stage of the visitor journey by 2021. The selected companies that will address this challenge with Etisalat Digital for the next two months are Mobiliya, Digicomm, and Sturfee. The second challenge seeks to accelerate Etisalat's transformation to a digital telco by increasing customer adoption of digital self-care channels thereby enhancing customer experience and reducing 50% calls to Etisalat customer care over the next one year using artificial intelligence, analytics and insights, and machine learning. CogTalk, KocharTech, and Votek were chosen for this challenge. The companies were shortlisted based on their capability to build and launch their core technology, and be able to demonstrate traction and/or substantial use cases. Towards the end of the program, Etisalat Digital will sign a commercial agreement with selected startups who will then be on boarded in the Etisalat Scale-Ups Program where they will receive access to Etisalat Digital resources and experts, office space, and support needed to deliver joint projects. Dubai Future Accelerators was launched in 2016 by His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and the Chairman of Dubai Future Foundation under the directives of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Ruler of Dubai. The program is a government initiative that aims to bring the world's most exciting and transformative technology start-ups to Dubai to collaborate with local entities and find solutions for future challenges.

Etisalat's Data Centers Acquire PCI/DSS Ensuring Maximum Safety of Customer Data

Etisalat announced that it has secured Payment Card Industry Data Security Standard (PCI DSS) certification for its Data Centers in the UAE, which guarantees maximum safety of customer data at all times, and improved quality and service. Etisalat's data centers at Khalifa City, Jebel Ali and Al Ain are now PCI DSS certified. The certificate of compliance ensures centers to tighten their already stringent security processes and procedures. Other benefits include increased credibility, prevention of data breaches, and a reduction of business risks. Miguel Angel Villalonga, Vice President, Cloud and Data Center,

Etisalat Digital, said: "We understand that security is increasingly important for our clients as they have entrusted us with their sensitive and confidential information. The PCI DSS certification is another validation of Etisalat's capability and commitment to implement international standards and develop advanced data systems to keep our clients' data safe and secure. "As technology continues to advance, so do threats facing digital security. It is imperative that our clients have access to the best network of certified, reliable and secure data centers. The compliance certificate will be valuable to our customers,

who can now benefit from enhanced and security standards." The three data centers complied with the requirements of PCI DSS version 3.2. PCI DSS certificates are mandatory for a number of customers by a government authority or a third party. The PCI DSS standard is an information security standard that governs how organizations that handle payment cardholder information should protect data. The wide-ranging standard includes criteria on how to create and secure the network, data storage, and security policies.

Digital Resilience Significant to Safeguard a Digital Nation

Digital resilience is key to enabling digital transformation as it empowers organizations, governments and defense authorities to manage security risks at acceptable levels, opined senior Etisalat Digital executives at the recently concluded International Exhibition of National Security and Resilience (ISNR) in Abu Dhabi, UAE. The two-day global event dedicated to homeland security, safety and national resilience at ADNEC highlighted the significance of sharing organizations' digital risks with trusted partners and presented its uniquely positioned portfolio of Digital Security and Defence Solutions. The demonstrations of solutions and theatre sessions at the Etisalat Digital stand included a wide range of innovative offerings covering areas of Network Security, Cyber Security, Security Operations, Video Surveillance, Defence and Public Safety. During ISNR, Etisalat Digital senior executives were part of interactive discussions moderated by global and regional experts in the industry. Kamran Ahsan, Senior Director, Digital Security Solutions, Etisalat Digital, was a keynote speaker on day 2 of the event. His keynote presentation titled 'Building Digital Resilience, Defending the Digital Nation' highlighted Etisalat Digital's end-to-end value proposition for Digital Resilience in areas of cyber security, physical security, defense and public safety. The talk

identified UAE's incredible potential and progress in digitalization, and shed light on digital risks as one of the major roadblocks in digital growth. Increased dependency on cyber leads to circumstances affecting national defense that demands for Digital Resilience as a long-term solution. The talk also identified an industry agnostic four-quadrant approach to build and maintain continuous digital security and defense for sustained digital resilience. Paul Park, Director, Defence, Security & Public Safety, Etisalat Digital, participated in a panel discussion on 'Defining a country's critical infrastructure'. The panel discussion focused on how governments should rate

each critical infrastructure (CI); the role of the Center for Protection of National Infrastructure as a guide' the common pitfalls to avoid when categorising CI; and how does this decision-making process work, who should be involved and how to ensure it evolves over time. ISNR Abu Dhabi 2018 spans the entire scope of homeland security sectors, such as digital crime management, forensics, critical infrastructure protection, border control, policing, counterterrorism, disaster management, ICT and digital security, crime and offender management, and safety and security at major events and crowded places.

Etisalat Group Reports Consolidated Revenues of AED 13.1 Billion in First Quarter of 2018

Etisalat Group today announced its consolidated financial statements for the three months ending 31st March 2018.

Financial Highlights and Key Developments of Q1

- Aggregate subscriber base reached 144 million, representing a year over year increase of 3%.
- Consolidated revenues amounted to AED 13.1 billion, representing an increase of 5% year over year.
- Consolidated EBITDA totaled AED 6.5 billion, representing an increase of 2% year over year and resulting in EBITDA margin of 49%.
- Consolidated net profit after Federal Royalty amounted to AED 2.1 billion resulting in a net profit margin of 16%.
- Etisalat and Microsoft form a strategic partnership to deliver the comprehensive, trusted Microsoft Cloud from their first datacentre located in the Middle East.
- UAE Ministry of Interior signs agreement with Etisalat to link Emirati homes and establishments to a fire alarm system connected to the civil defence control room.
- Etisalat has partnered with key industry peers to form the Global Telco Security Alliance, which offers Enterprises a world-class cyber security service across a global footprint.
- Etisalat's data centres acquire PCI/DSS certification guaranteeing maximum safety of customer data at all times
- Etisalat receives the prestigious TL9000 certification, an International Quality Standard for the telecom industry.
- Etisalat launches 'Hello Business Hub' in UAE, a one-stop place for all start-ups and SMBs
- Etisalat launched two new challenges with Dubai Future Accelerators, focusing on Digital Customer Care and Transformation of Visitors' Experience using Artificial Intelligence and Augmented/Virtual reality.

GCEO's Message:

Eng. Saleh Al Abdooli, Etisalat Group CEO said: "Etisalat's first quarter results are a continuation of previous quarters' solid performance, and a promising start for the current year, alluding positive prospects for both customers and shareholders."

"As we continue to encounter evolving industry dynamics, innovation and successful partnerships remain relevant and integral in sustaining our leading market position and assuring our profitability. Engaging the customers and allowing them to experience and probe our solutions potential has proven to be rewarding as we expand our products and services portfolio and introduce more value adding choices."

"Adoption of cutting edge technologies is a strategic imperative that will always be a cornerstone in etisalat agenda, and while we operate in multiple markets with varying levels of technological maturity, our home market remains a driving force; as we witness the government adopting futuristic technologies, like AI and Blockchain, and leading the digital transformation of the society as a whole"

"Etisalat has continued its efforts to align its business with its digital initiatives which has enabled us to develop a healthy business portfolio. Moving forward, we will stay focused on realizing our strategic and operational goals and on materializing our digital transformation. We will continue to push technological boundaries and tap on non-traditional revenue streams that will augment our core services revenues and maximize the return on investment of our networks and platforms."

Subscribers

- Aggregate subscriber base reached 144 million, representing a year over year increase of 3%
- In the UAE the subscriber base grew to 12.9 million subscribers in Q1 of 2018 representing a 3% year on year growth.

Revenue

- Etisalat Group's consolidated revenue for the Q1 of 2018 amounted to AED 13.1 billion, representing an increase of 5% in comparison to the same period last year.
- In the UAE, revenue in first quarter increased year on year by 3% to AED 7.8 billion.

144 million
GLOBAL SUBSCRIBERS
INCREASED **3%** FROM LAST YEAR

12.9 million
UAE SUBSCRIBERS
INCREASED **3%** FROM LAST YEAR

Q1 2018
2.1 billion AED
CONSOLIDATED NET PROFIT
WITH A NET PROFIT MARGIN OF **16%**

Q1 2018
13.1 billion AED
CONSOLIDATED REVENUE
INCREASED **5%** FROM LAST YEAR
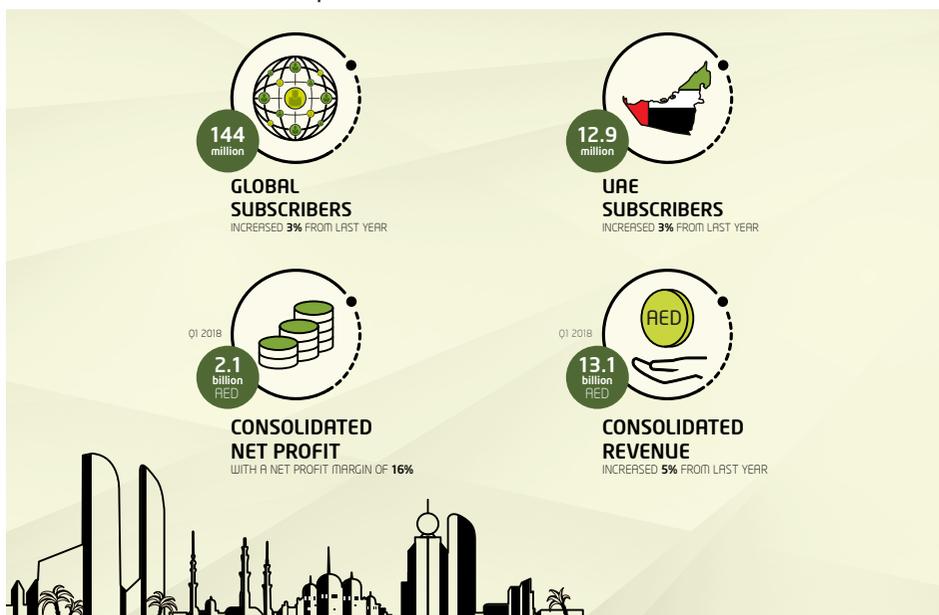
Omantel Inks Strategic Pact with Muriya

Muriya, Oman's largest and most diversified private real estate and tourism developer, has signed a strategic partnership with Omantel, the premier provider of integrated telecommunications services in the Sultanate. The two companies plan to offer Hawana Salalah and Jebel Sifah destinations with Omantel's suite of voice and data offerings for homeowners, hotel guests and visitors. The partnership will provide the latest high-speed fiber-optic networks for fixed and mobile voice calls and data, as well as high-speed broadband services. "This is another step in ensuring that the visitors, homeowners and hotel guests of both our destinations are getting the best internet, TV and telephony services. We're very proud of our partnership with Omantel, the leading telecommunications provider in Oman, as their aims align mutually with ours to provide the best telecoms services for visitors as well as homeowners," Ahmed Dabbous, CEO of Muriya said. "So far, our partnership has provided top-of-the-line connectivity services to all villages along the road from Muscat to Sifah, which comes as part of our corporate social responsibility to ensure safety for travellers along the Sifah road through a

reliable and uninterrupted network," he added. Talal Al Mamari, CEO of Omantel said, "We are glad that Muriya has chosen us as their trusted partner in keeping their customers connected and further fuelling the development of the tourism sector in the Sultanate. Our commitment remains to provide service standards that exceed customer expectations, keeping with our digital transformation strategy 3.0." With 10 years of solid presence, Muriya is committed to contributing to the development of the Sultanate. Through

a successful partnership between the internationally acclaimed builder of fully-integrated towns, Orascom Development Holding (ODH) and Omran, the leading government arm for tourism development in Oman, Muriya to date has invested $650 million. The company's contributions include 1000 operating hotel rooms in 5 years, 420,000 hotel guest nights in 2017, 100s of homeowners and creating 1000s of direct and indirect jobs.

Orange Jordan Enhances its Network in the Southern Governorates to Provide Advanced 4G+, Fiber Services

As part of its network enhancement in different governorates across the Kingdom, Orange Jordan's CEO Jérôme Hénique announced the company's rollout of the advanced 4G+ service in different areas in the south governorates, and the launch of the revamped Home Broadband offers. The announcement was made during a press conference held in Aqaba, in the presence of Chief ITN & Wholesale Officer Waleed Al Doulat and Chief Consumer Sales Officer Samer Al-Haj, along with a number of executives from Orange Jordan, and media representatives. During the press conference Hénique stated that the rollout of the advanced 4G+ for mobile service and the launch of the revamped broadband offers came this year as part of Orange Jordan's overall network plan enhancement in different cities and governorates across the Kingdom. This step stems from the company's continuous efforts to remain the provider of the strongest internet for mobile

and home, which will result in the best customer experience, through providing high-quality telecommunication and internet services, while stressing the company's determination to make tangible digital progress in all regions of the Kingdom. Hénique

added: "Since the launch of our five-year corporate strategy "Essentials 2020" in 2015, we at Orange Jordan have made substantial investments that will reach up to JD 300 million by the year 2020, as we remain committed to the development of the ICT sector, and to the increase of internet penetration across the Kingdom. For the past few years, we have been concentrating on the development of New Generation Networks (NGNs), including, Fiber-To-The Home (FTTH), Fiber-To-The-Business (FTTB), as well as extending the coverage of 4G and 4G+ (LTE advanced Pro) networks to all areas in the Kingdom. More than JD 100 million were allocated to acquiring new frequencies from the TRC, upgrading the existing network, installing new towers across different governorates, and to the rollout of the latest version of the fourth generation network (4G+) for mobile service, hence providing customers with faster and better connectivity with the highest quality at affordable prices. Chief ITN & Wholesale Officer at Orange Jordan, Waleed Al Doulat, offered more details about the network enhancement

achievements, saying that company has recently added 44 new mobile towers in the southern governorates, with 14 sites in Aqaba, 9 sites in Ma'an, 10 sites in Tafileh, 11 sites in Karak, and more sites are still under construction. Al Doulat also said that a new 2.6GHz frequency has been added to increase the capacity on the existing 4G network to accommodate the increasing traffic at 31 sites, including 9 sites in Aqaba, 10 sites in Ma'an, 6 sites in Tafileh and 6 sites in Karak. He also highlighted the 55% increase in speed for fixed broadband network that was achieved since the installation of 21 new ADSL sites in the southern governorates to improve the ADSL network. He explained that a new 4 areas are being covered now with fiber (FTTB) service to provide the latest technologies and internet service for the business segment Chief Consumer Sales Officer Samer Al-Haj presented all the special offers and packages designed to complement the network enhancement, including Orange 7 and above, as well as the "Humat Al Watan" golden line, offering subscribers 500 minutes to call

all networks and an extra 5 GB of internet for free. He also highlighted the recent launch of the new Yo platform targeting the youth with the best offers that respond to their needs, where "Jama3ty" lines are offered up to 80% discounts on the first month subscription with a new SIM card. This offer is available now in Alhusein bin Talal University in Ma'an. Al-Haj said: "We have also revamped our existing Home Broadband offers by adding new devices that offer high speeds, such as the ADSL internet offer; which includes the new "Orange Home Box" offering high-internet speed reaching up to 24 Mbps with unlimited downloads, starting from only JD 10 per month, the 4G IEW offer with "Orange Flybox" which also offers very high-internet speed and download capacities for the entire family, and is easy to install, from JD 13 per month. Orange Jordan currently covers 92% of the Kingdom's areas with 4G/LTE and has deployed 6,000 kilometers of FTTB cable, and is currently in the process of installing more than 700 kilometers of additional fiber cable.

Telecom Egypt Confirms No Immediate Plans for Vodafone Egypt Stake Sale

Telecom Egypt has no immediate plans to divest its stake in Vodafone Egypt, Bloomberg reports, citing the telco's senior investor relations director. With Telecom Egypt reportedly focused on growing its share of the local mobile market to as much as 15% by 2022 following its entry into the sector in September 2017, Sarah

Shabayek was quoted as saying that a decision to sell its 45% holding in Vodafone Egypt could not be made 'blindly'. Further, Telecom Egypt reportedly believes that there is no conflict of interest in holding onto the stake, despite now being in direct competition with mobile market leader Vodafone Egypt, with Ms. Shabayek noting

that the company is not privy to the latter's plans during board meetings. Speaking on the matter, the executive added: 'Vodafone Egypt is a very good investment … A sale would only be considered if we reach a critical mass in the mobile market to the extent that we start cannibalizing on such investment.'

Viva to Upgrade Mena Telecom Infrastructure in Partnership with Huawei

Viva Bahrain has signed a System and Network Transformation contract with Chinese vendor Huawei to upgrade the network infrastructure of Mena Telecom (Menatelecom). The contract comes after Viva Bahrain reached an agreement in January 2018 with Kuwait Finance House (Bahrain) to acquire 100% of the

shares of Menatelecom. In the agreement made between Viva and Huawei the two companies will aim to enhance the experience of Menatelecom subscribers by upgrading all elements of its network. The project is estimated to last for a period of six months and will cover core, RAN, transport network and IT infrastructure. Viva stated

that the project will also include a series of network expansions and will introduce 'the latest wireless radio technologies as part of Viva's 5G readiness strategy.' In addition, Viva says it aims to make various upgrades to its VoLTE technology.

Viva Bahrain in Deal to Upgrade Menatelecom Network

Viva Bahrain, a top telecom provider, and Huawei, a global ICT solutions company, have signed a system and network transformation contract to upgrade Menatelecom's network infrastructure. This contract comes after Viva Bahrain completed its recent acquisition of Menatelecom in January, said a statement. As per the agreement, Viva and Huawei aim to substantially enhance Menatelecom's customer experience by upgrading all elements of its network. The project is expected to be completed over a span of six months and will cover Core, RAN, transport network and IT infrastructure. The project will include investments in a series of network expansions for both Menatelecom and Viva in order to maintain focus on improving the home user's experience and introducing the latest wireless radio technologies as part of Viva's 5G readiness strategy, it added. Furthermore, Viva also aims to elevate its own voice users' experience by deploying various upgrades to its Voice over LTE technology. Viva Bahrain CEO Ulaiyan
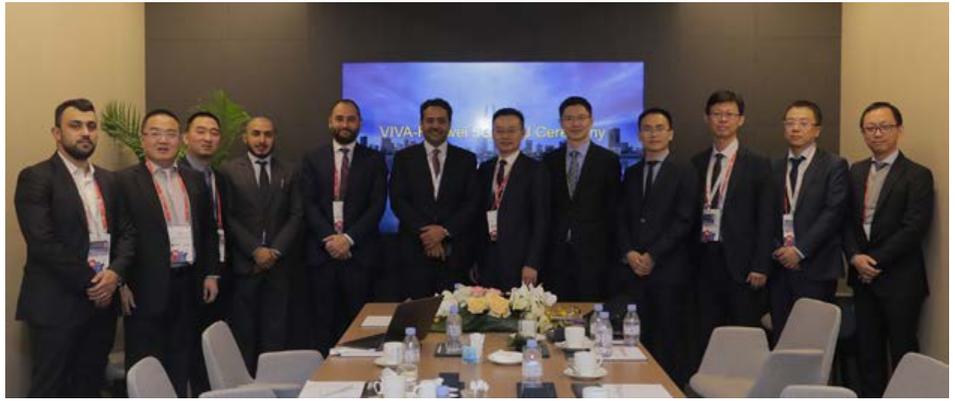
Al Wetaid said: "We have always strived towards investing and deploying the most innovative ICT infrastructure in Bahrain and we remain committed to providing the best-in-class customer experience to our commercial, corporate and home customers." "The partnership with Huawei will enable us to accelerate ours and as well as Menatelecom's network transformation and generate opportunities for deploying newer technologies in the kingdom," he remarked. "This collaboration marks yet another key milestone for us in our journey

to expand our footprint in the kingdom, provide best-in-class customer experience, and prepare to offer 5G services across the country," he stated. Huawei Bahrain CEO John Luyuedong said: "We are proud of our long-term strategic alliance with Viva." "Today, we are very excited to be part of Viva's growth and expansion plans and we aim to leverage our global experience and capabilities towards delivering the best in class service to our strategic partner," he added.

Zain Bahrain among First to Achieve New ISO Standard

Zain Bahrain, a leading telecommunications provider in the kingdom, has become one of the first operators in the region to upgrade its Quality Management System (QMS) to meet the new ISO 9001:2015 standard, as well as to successfully conform to the existing ISO 27001:2013 standard. Awarded following an audit by international certification firm DNV GL, this exercise confirms the operator's compliance to the certification's requirements including customer satisfaction, continuous improvement of processes and practices, and information security and confidentiality. Zain Bahrain has held both ISO certifications since 2005. "The ISO certification is a testament to our efforts in applying effective policies and procedures across all our operations. It is also an assurance that our operations are managed in accordance with international industry benchmarks, supporting Zain Bahrain's commitment to providing superior service to its customer base. I would like to take this opportunity to thank each team member who has contributed to Zain Bahrain's attainment of this international accreditation," said Zain Bahrain general manager Mohammed Zainalabedin. Zain Bahrain has been certified since

2005 against ISO Quality and Information Security Management System standards, and Zain Bahrain employees have contributed to achieving the new ISO 9001:2015 standard and are certified internationally. This plays an integral part in Zain Bahrain management System.

Cisco to Launch Smart City Initiative in Riyadh

A smart city initiative will be inaugurated in Riyadh in the coming weeks after it piloted for nine months by networking company Cisco as part of the government's digital transformation plans. The pilot is being tested in Olaya district, the city's busiest area, and plans to extend to other neighborhoods once the initiative succeeds, according to Cisco executives. The district is currently set with smart parking, lighting, cleaning services, and networks of sensors "for a more sustainable way of living", according to Haytham Al-Ohali, Cisco's managing director in Saudi Arabia. Working with the Riyadh Municipality and ministry of municipal and rural affairs, Cisco seeks to address the challenge of setting up a smart ecosystem amid heavy traffic and congestion. Cisco, the Kingdom's digitization partner, is going by an agenda called the Country Digitization Acceleration program launched nearly two years ago in line with the Kingdom's National Transformation Program and Saudi Vision 2030. For Cisco, it has been working with the Saudi government to roll out several digitization initiatives, namely in education, healthcare, broadband and city WiFi, and plans to work on others in the coming years, including smart hajj, energy, transportation, and cloud storage. Cisco introduced an innovative virtual education solution to remote areas in different provinces in collaboration with the Ministry of Education. Since the beginning of the current academic year,

some fourteen virtual classrooms have been set up in seven cities around the Kingdom, with three broadcasting centers in Jeddah, Tabouk, and Sihat. "In some schools located in remote areas, there's a shortage of teachers to fill in for certain subjects, such as math, biology, chemistry, and such," says Basel Tashkandi, project development manager at Cisco. "Virtual learning allows access to teachers across the Kingdom to meet those needs." He added "teachers encounter a significant safety risk when traveling long distance to and from remote schools that often have five to six students per class. Virtual learning solves this issue." Teachers use a virtual board from one of the centralized broadcasting centers that is synchronized with a board in the classroom. A video camera is set up in both locations for students to see the teacher and vice versa, creating a seamless interactive educational environment. Cisco developers say this model can be extended to other parts of the country, including large cities where there are shortages in teachers in certain schools. Moreover, in healthcare, a pilot testing telemedicine was launched across remote hospitals. Telemedicine eliminates the problem of patients and their families traveling long distance to main cities, saving them cost and time to receive treatment. Doctors and specialists from King Fahad Medical City are treating patients in remote hospitals, namely King Fahad Central Hospital in Jazan and

Qurayyat General Hospital in the Northern Region. In collaboration with the Ministry of Health, the telemedicine scheme seeks to reduce waiting times for patients and improve healthcare through the use of new technologies. The pilot has applied tele-consultation in internal medicine, pediatric, neurology, cardiology, ophthalmology and rehab. "There are several results from this pilot," says Faisal Alkhateeb, managing director of Kaizen Medical Technology, presenting a telemedicine room kit with connected devices. "There's an immediate impact in decreasing the number of patient visits, saving costs in travel, and better quality of healthcare because patients are treated by specialized doctors without waiting times." Cisco has signed a Memorandum of Understanding (MoU) with Saudi Arabia to support its plans towards digital transformation aligned with Vision 2030. Earlier this year, STC signed a MoU with Cisco to collaborate on the developing 5G communication systems and networks. The transition to 5G prepares for future solutions including smart city, IoT and other vertical services. During an earlier visit of Deputy Crown Prince Mohammed bin Salman to the United States in 2016, Cisco signed an MoU with the Saudi Ministry of Commerce and Investment that sets a roadmap for an accelerated pace of digital transformation in the Kingdom.

Huawei Six-Country Middle East Roadshow 'Leading New ICT, the Road to Digital Transformation' Kicks Off in the Region

Huawei, a leading global ICT solutions provider will conduct a six-country roadshow across the region from April to May 2018. Under the theme 'Leading New ICT, The Road to Digital Transformation', the roadshow puts the spotlight on advanced ICT technologies that are driving digital transformation in the region and helping to achieve the development agendas in Saudi Arabia, UAE, Kuwait, Oman, Bahrain and Pakistan. Held for the first time in the Middle East, the New ICT Roadshow 2018 will be a collaborative platform that will bring together leading Huawei experts form the region who will share their insights into technical topics and best practices in multiple fields, such as all-cloud network, cloud-managed campus, convergent campus, all-flash storage, and Intelligent Video Surveillance (IVS). Huawei will gather enterprise leaders across a number of key verticals including Safe City/Public Safety, Utilities and Oil & Gas. The roadshow will include several keynotes, solution exhibition

and technology workshops that cover Campus Networks, Data Centers, and Video Surveillance by Huawei experts. The initiative is designed to support regional governments to achieve their national vision agendas, and enable them to build better connected, intelligent ecosystems. "Digitalization is transforming both business models and personal lifestyles and this change is happening at a lightning speed", said Terry He, President of Enterprise Business, Huawei Middle East. He continued, "Developing digital strategies has become a core priority for countries in the region, as governments and enterprises face overwhelming challenges in adapting to this fast changing world. Increasingly, business models are being driven by digital innovation, where 'New ICT' is the key driving force. Huawei has been operating in the region for more than three decades. Our enterprise business only started in 2011, only to become one of the market leaders in 2018. This is because we have aligned with major governments

in the Middle East who have taken an ambitious effort in making digitization a national priority. In addition, our R&D efforts have given Huawei a global and regional leadership position in the digital transformation."

The New ICT Roadshow 2018 will be held on the following dates:

- Kuwait City, Kuwait: Took place on April 9, 2018 at Jumeirah Messilah Beach Hotel & Spa
- Abu Dhabi, UAE: April 16, 2018 - Rosewood Abu Dhabi, Al Maryah Island
- Riyadh, KSA: April 18, 2018 - Four Seasons Hotel Riyadh At Kingdom Center
- Manama, Bahrain: April 24, 2018 - Four Seasons Hotel Bahrain Bay, Bahrain
- Dubai, UAE: April 30, 2018 – FIVE Palm Jumeirah, Dubai
- Muscat, Oman: May 1, 2018 - Grand Millennium Muscat, Oman
- Karachi, Pakistan: May 3, 2018 – Pearl Continental Hotel, Karachi

Saudi Mobily Launches 5G Trial for the 1st Time in KSA

Etihad Etisalat Mobily has launched 5G technology trial at a special stand in Riyadh Gallery mall. Eng. Ahmed Aboudoma, Mobily Chief Executive Officer, confirmed by saying, "The 5G technology trial, which is the first in the Kingdom, comes in line with the company's strategy to support and develop its technical capabilities and implement the best and latest international Telecom technologies in order to place the Saudi market at the forefront worldwide in adapting such technologies in line with Kingdom Vision 2030." Noteworthy, Mobily is the first company in the Middle East that allowed smart-devices users the opportunity to experience 5G speeds in a very distinguished trial.

Microsoft Launches Hybrid-Cloud System in Saudi

Microsoft has launched Azure Stack, its hybrid cloud-computing product, in the Saudi Arabian market, in collaboration with its partners, Sahara Net and Lenovo. Sahara Net is the first certified product provider and Lenovo is responsible for providing hardware that runs the product. With this collaboration, customers from all sectors will have access to Azure Stack, which meets their hybrid cloud computing needs with integrated technical support in record time. Microsoft estimates that the size of the Kingdom's cloud computing market is about SR108.75 billion ($29 billion). This number is expected to increase, driven by a strong trend from government agencies in Saudi Arabia to take advantage of this technology to meet the digital transformation objectives and help achieving the Saudi Vision 2030. The recent regulatory framework for cloud computing, announced by the Saudi Communications and Information Technology Commission, will contribute towards the knowledge economy, and will also lead to more investments in this technology. Dr. Mamdouh Najjar, national technology officer at Microsoft Arabia, predicted that cloud computing in the Kingdom would grow more rapidly than the global average to reach 25 per cent annually by 2020. This growth will foster a clear regulatory environment, an urgent need for updates, and utilizing more sophisticated cloud computing tools, such as artificial intelligence among others, to support the Kingdom's journey to become a hub of technical innovation in the region. Dr. Najjar added: "Microsoft provides its services and solution for more than 2,000 private and public organizations in the Kingdom, and by introducing Azure Stack through our partners, Sahara Net and Lenovo, our customers will get the advantage of using the hybrid cloud computing services, to enhance their businesses and achieve their strategic goals." "This collaboration and investment with our partners, Microsoft and Lenovo,
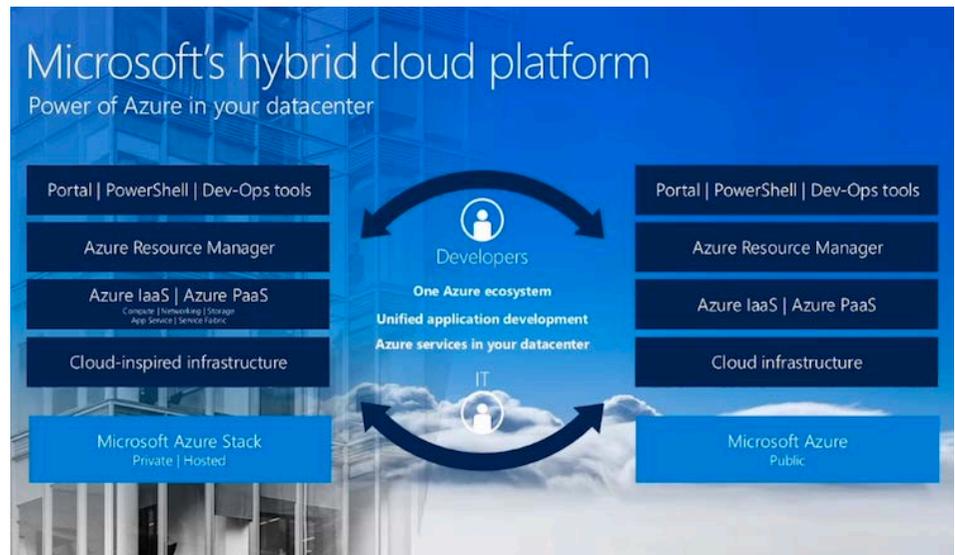
is an exciting move in the Saudi cloud services market," said Kais Al-Essa, vice president, sales and marketing, at Sahara Net. "Since its inception, Sahara Net has been keen on providing a sophisticated and secure cloud services environment inside the Kingdom, to maintain the national information security. We were delighted on the launch of the new cloud computing regulatory, that have implemented some of what we have been advocating for years, with regard to the importance of keeping content within the Kingdom. Adding Azure Stack to the Sahara Net data center reinforces our mission to serve all sectors in the Kingdom, and our support for Saudi Vision 2030. This will enhance our current leadership of this market and enable us to expand regionally to serve more customers". "Today's announcement is a significant signal to Lenovo and Microsoft clients looking to adopt a hybrid cloud infrastructure on a system they can trust," said Abdullah AlQallaf, sales manager for KSA, Lenovo Data Center Group. "We deployed the Azure Stack for Sahara Net for the first time in Saudi Arabia with Lenovo ThinkAgile SX that provides a turnkey, rackscale solution optimized with a resilient, high-performing, and secure software-defined infrastructure."

"It is also supported by Lenovo ThinkAgile Advantage, a unique support service that offers ThinkAgile customers deployment, configuration and training assistance to dramatically increase time to value – from weeks, to just hours. Customers are also provided with a direct line of communication to ThinkAgile support technicians for streamlined hardware and software troubleshooting. Lenovo experts and technicians are available to partner with customers as a single-point-of contact throughout the entire support process," he added. Radwan added: The capabilities of this product are demonstrated by providing cloud computing services through having the storage center inside the costumer data center, and enabling a rapid development of related applications, unifying application development across the entire hybrid cloud environment, and facilitating the transfer of applications and data through private and public storage clouds. Customers in the Kingdom can acquire Microsoft Azure Stack technologies through its partners specialized in providing product-specific computers such as Lenovo, HP, Dell EMC, Cisco and Huawei."

NOKIA

Nokia Supporting Cloud, Virtualization Services for China Mobile

Nokia announced that it will be providing China Mobile with an optical transport network that will enable the operator to become 5G-ready. China Mobile is currently building a new optical transport network that will support improved data center interconnection, consumer broadband services and 4G backhaul. Looking ahead, the new optical backbone will be a key part of the next-generation mobile services, namely 5G. "We are very pleased to work closely with China Mobile to provide the optical technology for its most advanced networks today and in the future. We'll continue to fulfill our mission by making people's life easier as we create the technologies that connect the world," said Yu Xiaohan, head of the China Mobile customer team at Nokia Shanghai Bell, in a press release. Nokia described its solution as a dynamic, programmable optical network that can support virtualization and cloud technologies associated with 5G. According to Kyle Hollasch, head of

marketing for Nokia's optical business, China is the fastest growing region in the optical market. "As the only non-Chinese vendor with significant market share in China, Nokia is thrilled to be part of this strategic build-out for China Mobile," Hollasch said in a statement to FierceWirelessTech. Nokia's aspirations in China are well known. At Mobile World Congress (MWC) 2018 in Barcelona, Nokia CEO Rajeev Suri highlighted the race to 5G, saying it's a battle between the U.S. and China in terms of who gets there first. Both China and the U.S. will move fast and they will be well ahead of pretty much every other part of the world, he said. Nokia and China Mobile used the MWC event to announce that they had signed an agreement under which the companies are jointly investigating how China Mobile can extend its service offerings for vertical markets using 5G. Their research is focused on how industries can benefit from the growth of smart cities, smart

transportation and intelligent video analytics. The companies also are jointly testing use cases using Nokia 5G Future X network architecture as well as NB-IoT and MEC, and they're expanding an existing Car2X trial ecosystem in Wuzhen to advance the use of automated vehicles, as well as technologies that improve vehicle safety. Nokia's Nuage Networks was chosen by China Mobile (Suzhou) Software Technical Company, a subsidiary of China Mobile, as the SDN platform for China Mobile's public and private enterprise cloud services offering. The platform is based on the Nuage Networks VSP and includes cloud implementations on virtual machines, Kubernetes (K8S) containers and OpenStack Ironic-based bare metal servers. Last year, China Unicom said it would use the Nokia Flexi Zone portfolio to densify its network where it isn't possible to add a macro base station due to space or cost constraints.

Nokia and SKT Conduct Trial of LTE-Based Video and Voice applications to Enhance Public Safety in South Korea

Nokia and SK Telecom (SKT) are conducting a major trial of LTE public safety technologies in South Korea to establish the application of first responders in sharing mission-critical voice, video and other data simultaneously in real-time with multiple members of first response teams. Nokia has deployed its ViTrust public safety solution - which includes LTE radio access, Cloud Packet Core and other commercially available technologies in the network trial in the Pyeongchang, Jeongsun and Gangneung areas of South Korea. The trial is being conducted with first responder teams to enhance communications and response time in emergency situations. Working with local vendors to deliver services for the trial, Nokia is deploying its Mission-Critical push-to-talk (MCPTT) technology to allow a single user to simultaneously connect with multiple first response personnel on a network. Using enhanced Multimedia Broadcast Multicast technology, HD-video and other data can be transmitted efficiently to all devices even in high-traffic situations, to give all first responders a clear and complete view of an emergency and its needs. The trial involves one of the world's first public safety networks to interwork with SKT's existing evolved packet core system. This interworking will ensure network reliability, coverage and availability ensuring public safety workers can communicate at all times. Sang-soo Shim, Senior Vice President of Infra Business at SK Telecom, said: "We are pleased to be leading the

way with this important Public Safety LTE trial. Working with Nokia we have been able to ensure fast deployment of technologies and enable the delivery of services that will transform the way public safety workers operate." Andrew Cope, head of Korea at Nokia, said: "This trial with SKT is a breakthrough for Nokia in the South Korean market. Using our innovative ViTrust public safety LTE solutions and field proven Nokia Cloud Packet Core solution we could rapidly deploy the network, to interwork with SKT's existing network and evolved packet core."

ARTICLE

Grasping Opportunities in the Digital Era to Evolve to Telecommunications Sector

Osman Sultan

CEO

Emirates Integrated Telecommunications Company (du)

Telecommunications in the Middle East has become an ever-evolving industry characterised by opportunities arising from new challenges in our increasingly digitalised world. The industry is constantly being disrupted, giving players ample opportunity to demonstrate their agility by quickly adapting their business models to this reality while effectively leveraging their assets. In our region especially, challenging the status quo has opened new avenues for operators to monetise services, streamline operations, and make the necessary investments in creating a sustainable strategy for the future.

First and foremost, it is vital for telcos to have the right tools to protect their network, the integrity and privacy of their customers' data, and the security of their transactions. They must also offer cybersecurity solutions for customers as part of their ICT services – especially those offered to enterprise customers – helping them to achieve more secure and efficient business practices whether they are start-ups, large businesses, or government entities.

Cybersecurity is one of the most glaring challenges faced by operators today as it poses some of the greatest threats to ICT industry players across the region. As such, the ideal strategy for overcoming challenges and maximising opportunities is heavily contingent on effective cybersecurity measures which protect individual operations. First and foremost, it is vital for telcos to have the right tools to protect their network, the integrity and privacy of their customers' data, and the security of their transactions. They must also offer cybersecurity solutions for customers as part of their ICT services – especially those offered to enterprise customers – helping them to achieve more secure and efficient business practices whether they are start-ups, large businesses, or government entities.

New concepts are sprouting every day, as the likes of artificial intelligence and robotics are now well-established, with high potential to impact our businesses. Therefore, it is imperative to promote a culture of change, and create an atmosphere that nurtures cross-discipline dialogues.

Beyond cybersecurity, to achieve sustainability in the ICT industry the development of advanced technologies like 5G and IoT is crucial. Irrespective of current network maturity, moving with the times is a must, and across the region we are witnessing the advancement of network capabilities. In the UAE, for example, the government aims to be at the forefront of digital transformation and is working towards building a smart city. Lebanon, on the other hand, is working towards building a 5G future - we are all at various stages of network development in the region, however, some things remain constant. Use cases must be defined, business models must be adapted, and next generation technologies must be implemented through tangible, actionable plans. Telcos must seek to transform the way companies work and the way people live, with sustainability built on long-term partnerships and collaboration built on the common goal to achieve what's best for the country and its people.

Equally important as external factors like these are internal factors, like corporate culture and workforce competence, in achieving and maintaining business sustainability. Maintaining a strong culture in the workplace hinges on the ability of all employees to embrace the constant change that besets the ICT industry. New concepts are sprouting every day, as the likes of artificial intelligence and robotics are now well-established, with high potential to impact our businesses. Therefore, it is imperative to promote a culture of change, and create an atmosphere that nurtures cross-discipline dialogues.

ICT is becoming more and more complex and by asking the right questions, we can seek the right answers. Since we are moving from unshared certainties to shared uncertainties, the recipe for embracing the culture of change is openness, transparency and collaboration. As part of an innovative industry that will inevitably play a large role in global progress today and in the future, it is critical to embrace change and seek out ways to ensure its success.

Across the region, as I see it - telecoms companies will operate at three different levels over time. The first one will be an increasingly software based infrastructure provider. This is part of the larger ensemble where the government will assume a more dominant role. The second one will be a consumer-focused digital entertainment and lifestyle services business providing music, video and digital services. The third one will be an enterprise solutions business serving B2B customers.

As part of an innovative industry that will inevitably play a large role in global progress today and in the future, it is critical to embrace change and seek out ways to ensure its success.

However, it's not enough to have a vision and ambition to achieve it. ICT players need to start building the right competencies, talent, leadership skills and processes beginning today. They need to have an action plan to turn their ambition into a reality.

REGIONAL NEWS

UAE Tops GCC Nations in 4G Speed

For over a year, the fastest countries in the world seem to remain stagnant, getting close to but not surpassing the 50 Mbps threshold for average 4G speed, according to an industry report. However, latest global report highlighted that 4G availability continues to expand around the world at a steady pace. The study analyzed 50 billion measurements collected in the 4th quarter to compare 4G performance in 88 countries. It placed the UAE as 22nd in the world with 83.78 percent 4G availability. Kuwait ranked first in the GCC, at number eight, with an availability of 88.4 percent. OpenSignal's availability metric tracks the proportion of time users have access to a particular network. The UAE topped its neighboring GCC countries when it came to 4G speeds, where it averaged 27.47Mbps. Singapore topped the global list registering speeds of 44.31 Mbps. 4G speed can depend on many factors, according to OpenSignal. It can vary depending on how much spectrum is devoted to LTE, whether it has adopted new 4G technologies like LTE Advanced, how densely networks are built and how much congestion is on those networks. "In general, though, the countries with the fastest speeds tend to be the ones that have built LTE-Advanced

networks and have a large proportion of LTE-Advanced capable devices," said the study. The study highlighted that for the last eight years, the global mobile industry has relentlessly pushed the limits of 4G technology to tap as much speed out of its networks as possible. Through LTE-Advanced upgrades, improved smartphone technology and new spectrum, mobile operators have elevated average 4G speeds first beyond 20 Mbps, then beyond 30

Mbps, and in the last two years, beyond 40 Mbps. But the industry seems to have reached a limit to what current technology, spectral bandwidth and mobile economics can support on a nationwide level. For the last several State of LTE reports, OpenSignal has found that in the fastest countries average LTE download speeds have stalled at just over 45 Mbps. The industry is still waiting on that spark that will push speeds beyond 50 Mbps on a national level.

4G SPEED (Mbps) 6.07 ────────── 44.31
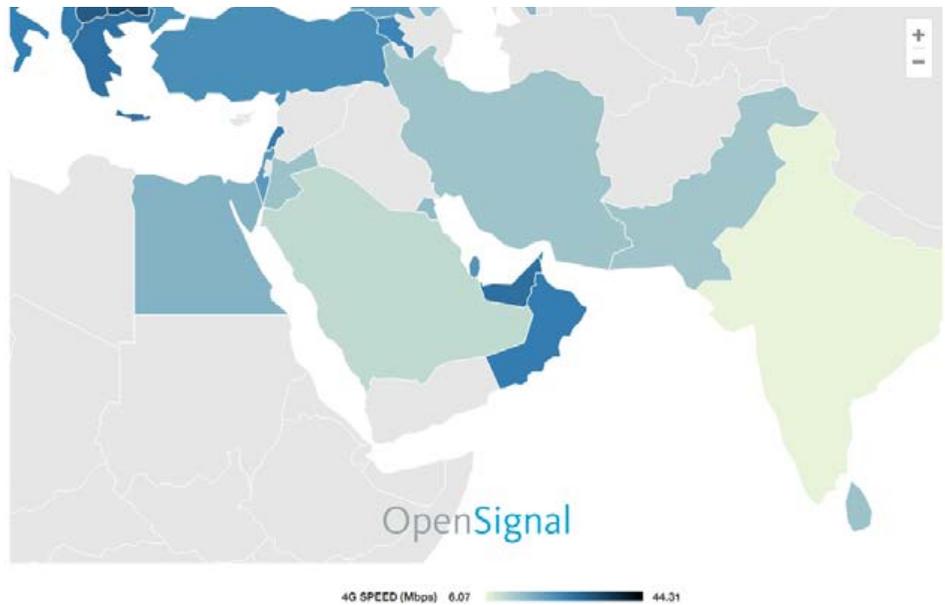
Pakistan to Get its Third Landing Station – a New Cable System

PCCW Global an HKT Telecom group is setting up strategic partnership for Pakistan to bring a New Cable system called Peace Cable with Huawei Marine. Hence, Pakistan is going to witness a new high-speed Cable system soon. On the other hand, Cybernet PVT LTD and JAZZ are the intended/shortlisted landing parties for Peace cable in Pakistan. Peace cable team along with PCCW Global has been very active in recent months in Pakistan to shape this opportunity. In this regard, a high-level conference was organized by Huawei Marine, Peace and PCCW Global in Dubai. All the intended international

landing parties from the world for Peace cable were present at event. According to the recourses, it was an extremely successful event. Currently, PCCW Global, Cybernet and JAZZ have refused to accept or give any remarks on the subject. The best thing about this project is, it will be first of its kind cable system which will truly start from Pakistan with two landing station one in Karachi and another in Gawadar. The upcoming cable system will carry more than 60 TB, starting from Karachi to all the way to Europe. According to our sources, the work has already started by Huawei Marine on different ends on this

project internationally. Hopefully we will able to witness the services of this cable system in Pakistan by at the end of 2019. Furthermore, some international operators are also joining hand with this cable system as it will also land at several international destinations. Let's see, it would be the first time that Telecoms Giants like PCCW Global, Huawei Marine will be able to take the lead in the whole process to build this landing station. It will be very interesting to witness the international players approach coming to the market. This can change the whole lookout on the submarine cable business in Pakistan.

Siemens to Invest US$500 Million on Digital Initiatives in Middle East

Siemens has announced plans to step up its digitalization drive in the Middle East with an investment of $500mn over the next three years. The move, expected to boost the rate of industrial digitalization in the Middle East, was announced on Sunday at the Siemens Innovation Day, held in partnership with EXPO 2020 Dubai and Dubai Water and Electricity Authority (DEWA). With the region expected to require 493 gigawatts (GW) of power generation capacity by 2035, an increase of 277GW on 2016 according to a recent Siemens report, digitalization will play a crucial role in the integration of power from multiple sources. The announced investment will include the establishment of MindSphere application centers, with two planned in the UAE and 20 in 17 countries within the region. Each of the centers spans multiple locations in different countries and specializes in a particular industry in which Siemens is active. At these centers, around 900 software developers, data specialists and engineers work together

with Siemens customers to develop digital innovations for data analysis and machine learning. These new solutions are being developed on MindSphere, Siemens' open, cloud-based operating system for the Internet of Things (IoT). Siemens is also investing in software grants aimed at boosting digital skills among youth in the region; establishing a hydrogen economy with the aforementioned partners; and helping create the most connected expo ever using the MindSphere system. "The Internet of Things has arrived and is set to transform industries and cities. However, many companies are still in the early stages of adopting digital strategies and incorporating them into their business models," said Roland Busch, Chief Technology Officer and Member of the Managing Board of Siemens AG. "Siemens has reinvented itself into one of the world's top 10 software companies and is continuing to expand its digital capabilities. We see vast potential for the adoption of digital technologies in

the Middle East and want to support the region's transformation in various ways, ranging from youth development to setting up our MindSphere Application Centers." As the Premier Partner for Intelligent Infrastructure & Operations, enabled and digitalized by the IoT operating system MindSphere, Siemens is supporting Dubai's ambitions to create the most connected Expo ever with digitalization. With MindSphere at the heart of this partnership, the parties are working closely to create a very unique exposition, in line with Dubai's aspiration to become the smartest city in the world. In co-operation with DEWA and Expo 2020 Dubai, the three parties have taken the first steps to develop a green hydrogen economy in the UAE. In February this year, the entities signed a Memorandum of Understanding (MoU) to kick-off a pilot project for the region's first solar-driven hydrogen electrolysis facility. Planned to be located at DEWA's outdoor testing facilities at the Mohammed bin Rashid Al Maktoum Solar Park in Dubai. The project aims at testing and showcasing an integrated MW-scale plant to produce hydrogen using renewable energy from solar photovoltaic panels at the Solar Park, store the gas, and then deploy it for either re-electrification, transportation or other industrial uses. The use of hydrogen technologies has the potential to accelerate renewable energy integration and deployment in the region and pave the way for the transition to a sustainable and green economy in the UAE. Siemens is also providing software grants to university youth in the UAE, Egypt and Saudi Arabia. The grants seek to develop the skills required to drive the region's digital transformation.

Co-creating local innovation with 2 MindSphere Application Centers in the UAE — SIEMENS Ingenuity for life. Dubai & Abu Dhabi join global network of 20 MACs & 900 software & data experts. MindSphere

RCOM Tower Sale Encounters Setbacks

The planned sale of fiber and tower assets held by Reliance Communications' (RCOM's) infrastructure unit Reliance Infratel has run into further stumbling blocks this week as the courts look to resolve a dispute between RCOM and Infratel's minority shareholders. The Economic Times reports that the Supreme

Court stayed a National Company Law Appellate Tribunal (NCLAT) ruling that would have allowed the transaction to take place, and the NCLAT followed up by withdrawing its previous order. A group of minority shareholders led by HSBC Daisy Investment, is appealing against the sale, accusing RCOM of operational

mismanagement and oppressing minority shareholders by arranging the sale without their consent. Earlier this month the NCLAT had ruled that the sale could go ahead, but the proceeds would be kept in an escrow account until the minority shareholders' claim could be resolved.

Hewlett Packard Enterprise signs MOU with Saudi Arabian General Investment Authority

Hewlett Packard Enterprise met with key decision makers from the Kingdom of Saudi Arabia at the company's headquarters in Palo Alto to discuss the nation's Vision 2030 agenda and to sign a memorandum of understanding with the Saudi Arabia General Investment Authority (SAGIA). The memorandum of understanding – signed during HRH Crown Prince Mohammad bin Salman Al Saud's tour of the United States – will see Hewlett Packard Enterprise (HPE) collaborate with SAGIA to develop a program that helps to realize the Vision 2030 strategic objectives. The program will focus on optimizing the Saudi IT ecosystem, nurturing and leveraging the latest technology innovations, and investing in national transformation – providing citizens with the knowledge and skills to meet the future needs of the labor market.

HPE has been a leading technology player in Saudi Arabia for more than 30 years, partnering with key organizations in the public and private sectors, and is strongly positioned to support the nation to help achieve its growth goals through business diversification. SAGIA firmly believes that leveraging the IT sector will be essential to the success of Vision 2030, by driving the efficiencies required to meet targets, and by opening up the sector to skilled Saudi Arabian nationals, providing fulfilling and rewarding jobs for the future. "With this Special Support Agreement, we look forward to continuing our long term partnership with HPE to support the Saudi Vision 2030 and digital transformation to become the regional ICT hub. Saudi Arabia is going through tremendous social and economic change and at the heart of that change is a desire to be at the forefront of technology," said His Excellency Eng. Ibrahim Alomar Governor of SAGIA. "One of SAGIA's strategic goals is to attract high value companies that contribute to building a sustainable digital economy. HPE will continue to enrich the Saudi economy and to bring jobs to our Saudi local talents and help us achieve our 2030 vision." "We have a deep understanding of Vision 2030 and the wider Saudi market, based on projects we have successfully delivered over the past three decades. We look forward to greater cooperation over the coming years to drive digital transformation across the various sectors of the Saudi Arabian economy as the Kingdom diversifies its sources of income," said Mohammed AlJasser, Managing Director, Hewlett Packard Enterprise, KSA.

Egyptian Telcoms Undergoing Major Transformation

The U.S. Company Avaya has begun working with Intraconsult Telecom, based in Egypt, to help organizations in the North African country achieve their digital transformation objectives. The focus of the partnership is on easing the adoption of Avaya's digital solutions to key industries in Egypt. Here focus is on communications improvements, which fits with Intraconsult Telecom's specialism in multi-service platforms for communication solutions. Intraconsult Telecom is an Egyptian based telecom and information technology system integrator based in Cairo and Alexandria. The company works with both the public and private sectors. With the partnership, Avaya solutions will focus on key industry verticals such as hospitality, government, and oil and gas. There will also be offerings for the as small and medium sized enterprises sector. Avaya specializes in business communications,

such as unified communications, contact center, and services. Commenting on the new plans, Eric Adam, Owner and CEO, Intraconsult Telecom stated: "As a customer-led organization, this strategic partnership will allow us to continue putting the success of our customers at the heart of everything we do."He adds: "By leveraging Avaya's innovative technology, we can offer our customers a wider choice of solutions that address their business needs, while helping them to enhance efficiency and delivering richer communications experiences."The partnership represents another stage gate in the digital transformation of telecommunications. This includes developing omni channels for retail, reflecting a changing consumer culture in terms of accessing products. Telecom companies also need to ensure they offer the fastest speeds, since broadband

penetration will be essential to the growth of e-commerce. Telecoms companies can further assist with the rise of automation, especially improving communications between autonomous vehicles and city controls. Also of relevance is the rise of connected devices in industry; those telcom companies best equipped to offer seamless data transmission and effective connections for the Industrial Internet of Things are most likely to win out in the increasingly crowded and competitive telecom space. Telecom companies themselves need to internally revise the way they offer their services, with a growing customer expectation for e-services and e-care. According to McKinsey, telecom companies that embrace e-services can reduce call volumes and operating expenses by 25 to 30 percent.

LPTIC Reunifies, Sets out USD1.7bn Work Plan

The Libyan Post, Telecommunication and IT Company (LPTIC) has been reunified after years of post-Gaddafi conflict and has begun work on projects worth USD1.7 billion, writes news agency Reuters. Libya has experienced years of unrest that has led to the suspension of investment in the country and numerous instances of power cuts and telecommunications infrastructure damage. LPTIC, which owns mobile operators Libyana and Almadar Aljaded, suspended its restructuring and investment plans in 2014 after fighting in Tripoli led to rival governments being set up in the capital and the eastern city of Benghazi. LPTIC Chairman Faisel Gergab stated: 'We've been working really hard over the last year or so to unify the institution under one umbrella and I can officially declare that we have done that.' Among the LPTIC's plans include a scheme to consolidate its six non-mobile subsidiaries into a single telecommunications company and to improve access and connectivity across Libya. This includes a six-year 'last mile' project aimed at ensuring high-speed internet connections to business and residential areas via Libya's 15,000km fibre-optic network, as well as high-speed mobile wireless projects via Libyana and Almadar Aljaded. Reuters also notes that the LPTIC signed a USD80 million contract in February with Saudi Arabia-based Arabsat to provide satellite backup services in addition to border control and oil facilities services over a 15-year period.

Vodafone Group Completes Sale of Qatar Unit

Vodafone Group announced it has completed the sale of its 51 percent stake in Vodafone Qatar to the Qatar Foundation, which already had a joint stake in Vodafone's Qatar unit. The two companies have entered into a five year agreement, ensuring Vodafone Qatar will continue to use the Vodafone brand and have close ties to Vodafone Group. Qatar currently faces economic sanctions which could explain Vodafone's exit from its joint venture of ownership. Exiting Qatar seems to be part of the British telecom giant's portfolio rebalancing, according to analysts, especially by selling out of businesses that it doesn't fully control or businesses that don't match its long-term goals. Vodafone is exiting Qatar at a time when the island nation has a strained relationship with its Arab neighbors in the GCC. A group of Arab countries led by Saudi Arabia slapped Qatar with economic sanctions in the middle of 2017, and there is speculation that the economic embargo played a role in Vodafone's decision to sell its stake in the Qatar unit. Vodafone Qatar commenced commercial operations in Qatar on 1 March 2009 with around 1.4 million customers now actively using Vodafone's services. Having built a converged IP network, in October 2012 Vodafone Qatar launched a comprehensive range of fiber-based enterprise grade and residential fixed products and services.

Pakistan's Industry Vertical Digitization Supports Vision 2025

Digital transformation is the top priority for Pakistan's CIOs to transform industry verticals and daily lives, the global digital transformation enabler SAP announced at SAP NOW Pakistan, one of the country's largest technology events. Pakistan business leaders at SAP NOW Pakistan agreed with global research that shows 84 percent of organizations rate digital transformation as critical by 2022, according to the recent landmark SAP Digital Transformation Executive Study, conducted in partnership with Oxford Economics. "Digital Leaders" are finding 23 percent higher revenue, 85 percent market share, and 80 percent profitability. However, as the survey shows only 3 percent of organizations have undergone a digital transformation, Pakistan's CIOs are accelerating digital transformation; aligned with Pakistan Vision 2025 and China-Pakistan Economic Corridor goals economic growth, smart government, and Smart Cities. "Digitization is the top priority for Pakistan's CIOs to solve real-world challenges, from enhancing healthcare with digital patient records to mitigating climate change by predicting floods," said Saquib Ahmad, Managing Director, SAP Pakistan. "SAP NOW emphasizes how emerging technologies — such as artificial intelligence and machine learning, the blockchain, and the Internet of Things — can make a major mark on Pakistan's society.

PIONEERING THE TECH REVOLUTION

We are proudly working to provide you with the fastest internet yet.

First in Lebanon to Launch 5G Live Trial

Marwan Hayek
Chairman and CEO
Alfa

Q. Last month, Alfa achieved a new milestone in its journey becoming the 1st operator in Lebanon to launch the 1st 5G live trial achieving record speeds. Congratulations to you and to Alfa. How did you reach this milestone?

A. We did promise to make 5G a reality in Lebanon and we are committed to this announcement.

We are very proud to have accomplished this 1st 5G live trial in Lebanon which was done at the Telecom Review Summit on April 13th which took place in Beirut and gathered top telco international and regional executives. In addition to being the 1st trial of its kind in Lebanon, this was the 9th 5G live trial done in partnership with Ericsson in the MENA region. It came as a fruition to the extensive research and work the Alfa team has done together with Ericsson after signing the 5G MoU in 2016. The record speed achieved of 25 gigabit/sec is the highest throughput achieved in Lebanon's history.

Reaching this important milestone was only possible thanks to our "daring" spirit and the dedication of the Alfa team, which is manifested in our rich tech innovation journey as we were the first to launch GSM in the country in 1994, and to commercially enable 3G+ in 2011, 4G in 2013, 4G LTE-A in 2017.

This milestone puts us one step closer to the 5G commercial rollout which we are planning in early 2019 and is part of our commitment of making our infrastructure ready for machine learning and artificial intelligence and hence the next digital revolution which Lebanon and Alfa will be among the first to embrace. With the completion of the 1st 5G Trial, we have also put our network on an evolutionary path to 5G.

Q. What are your other technology milestones and how is Alfa's rich digital transformation agenda contributing to the economic growth in the country and supporting the youth and entrepreneurs?

A. Many milestones to be proud of and which I am very glad to share.

At Alfa, we believe that our mission is not only to provide a reliable service and be at the heart of technology, but also to contribute to the happiness of our subscribers through technology and be "real partners" to our community and especially our youth to help keep them in their land. In Lebanon, we have around 50,000 university graduates per year and millennials represent close to 35 percent of the population and our national role is to offer them employment opportunities that are up to their expectations and ambitions.

I am glad to say that through direct and indirect investments on infrastructure development and network modernization over the past 8 years, we have contributed to the creation of more than 3,500 jobs in the ICT sector in Alfa and in the industry at large. As part of our commitment to youth and innovation, we are also taking a step further where we will be injecting USD48 Million over the next four years in the MIC Ventures Fund, recently-founded with the support of the Council of Ministers and Ministry of Telecom, to support tech start-ups and assist them to grow their businesses.

Our ongoing technology innovation journey, with the latest being this 5G trial, opens the room for tremendous opportunities for local and foreign investors in all sectors.

We are offering one of the fastest 4G connections in the region and worldwide. We have recently finalized the deployment of our 4G LTE-A network which covers today 100 percent of our subscribers with more than 1250 LTE- A connected sites, enabling speeds of 250 Mbps in parallel with the 21.1 Mbps we are achieving on 3G+. We are very proud to see Lebanon ranking second among the Arab States in 4G+ speeds, according to the latest OpenSignal report. Our data subscriptions continue to rise and peaked to 1.5M in 2017, a growth of 57 percent vs. 2013. Our network is enabling huge data consumption levels. Data traffic hit a yearly record of 24 Petabytes in 2017 and smartphone penetration rate reached almost 91 percent, exceeding all expectations. Today, more than three out of four Alfa subscribers are using Alfa network to connect to the internet.

Citizens of all ages, students and investors, all rely heavily on us in all aspects of their lives and needs and we do take that very

seriously. Our aim is to maximize our network capacity further to be ready for all the coming challenges and enable a nationwide access to the fastest internet and latest technologies at affordable rates and best quality.

> **We are Offering one of the fastest 4G connections in the region and worldwide. We have recently finalized the deployment of our 4G LTE-A network which covers today 100 percent of our subscribers with more than 1250 LTE- A connected sites, enabling speeds of 250 Mbps in parallel with the 21.1 Mbps we are achieving on 3G+.**

Since 2013, we have regularly revised prices of our services and especially data services and we managed to introduce with the support of the Ministry of Telecom (owner of the sector) reductions on prices of data bundles. These prices were reduced by 25 percent in 2013, 54 percent in 2014, 24 percent in 2015, 29 percent in 2016 and 37 percent in 2017. We also continuously launch bundles and offers that target all groups of our subscribers, students etc. at affordable prices and I will give as an example our A+ plan for students which offers voice and data services for students at an 80 percent discount.

We also offer device-bundled plans where we enable subscribers' to own the latest mobile devices with payment facilities and easy monthly instalments.

Further to this, and over the next two years, major investments are planned in infrastructure development where 500 new 3G+, 4G and 4G LTE-A sites will be installed to optimize our network quality and coverage. In line with this, we are upgrading our billing capabilities to support IoT, convergent features, real time processing and we are digitizing our legacy archiving activity to optimize our space usage.

Q. In addition to your active role in the Industry, Alfa prides itself for its Alfa 4-Life program. You always emphasize that this program is part of the company's DNA. What makes your commitment to society that solid?

A. Alfa 4-Life showcases "the human side of Alfa" through which we strive to give back to our community and respond to its needs. It is the flagship of our Sustainability journey and a Pledge 4-Life.

Through this 12-year program and ongoing, we continue to actively support the cause of People with Iron Will as part of our commitment to the 2030 UN Sustainable Agenda and particularly SDG#10: Reduced Inequalities. We have launched more than 25 initiatives and art therapy programs to support their integration over the past years and helped more than 1500 child and citizen, and we are very glad to see some of them working actively in

the society and becoming financially independent. I would like to give as an example Ali Tlais, who is a young man with autism whom we supported fully to become today a renowned artist who showcases his paintings in top international exhibitions and makes profits out of his art.

I am very proud to say today that through "Alfa 4-life", we are setting the "culture of inclusion" in Lebanon. We have launched the naming of "People with Iron Will" to completely replace "People with special needs" as these children and people continue to inspire us with their ability to give and create and deserve the recognition and to be given equal opportunities. We also support the employment of People with Iron Will who make more than 3 percent of the Alfa team, and we have proudly and "voluntarily" exceeded the quota stipulated by the law in regards to their employment.

As a responsible citizen who believes in equal opportunities for all, we also support women empowerment and I am glad to say that 42 percent of our team are women.

In addition, and in line with our sustainability journey, one of the major milestones in 2017 was the ISO 39001 in Road Safety Traffic Management which we were the first operator from Lebanon and MENA to acquire as part of our Commitment to the

... one of the major milestones in 2017 was the ISO 39001 in Road Safety Traffic Management which we were the first operator from Lebanon and MENA to acquire as part of our Commitment to the 2030 UN Agenda for Sustainable Development and SDG #3: Good Health and Well-being.

2030 UN Agenda for Sustainable Development and SDG #3: Good Health and Well-being. This certification comes to cement our longstanding efforts on raising awareness on best traffic safety practices and shedding light on the hazardous impacts of using mobile phone while driving. We are happy to be playing a key role in reducing death and serious injuries related to road traffic crashes as a responsible corporation which acts in line with its vision.

Q. Finally, how would you assess Alfa's partnership with the SAMENA Council especially with your recent election as Board Member of the Council in Mobile World Congress? How do you see this election?

A. Our partnership with SAMENA Council goes back to 2013.

We were the first operator from Lebanon to join the Council and for the past 5 plus years, our journey together has been very rewarding. As you know, the telecoms sector is the backbone of the economies in Lebanon and the region and it is a key driver of job creation. Hence, having an official and strategic body which gathers us all under its umbrella is vital for all of us as members' to voice our points of view and work together with SAMENA's leadership on strengthening mutual cooperation and further advancing the industry in the region and bringing more innovation to our "thinking" and "initiatives".

With my election as Board Member of the SAMENA Council, our partnership took a leap forward and has been strengthened further. I consider it a tribute to me and to all the Alfa team, and a manifestation of trust in Alfa and Lebanon's telco sector. I am keen on working with the Board members in setting a shared agenda on how we can leverage our expertise on benefiting the Industry and synergizing our efforts for the welfare of our societies and building a vision for the future of telecoms in the region especially in regards to supporting entrepreneurs and start-ups, which is a common concern between us all.

SATELLITE NEWS

Dubai Municipality's satellite to be launched in 2019

DMSAT1, the Environmental Satellite of Dubai Municipality, DM, is scheduled to be completed by the end of this year and will be launched in Q2 of 2019, Alia Abdul Rahim Al Harmoudi, Director of the Environment Department at the DM, said. "The manufacturing of the environmental satellite, which commenced in July 2017, is continuing as per schedule," Al Harmoudi announced during her presentation of the latest environmental monitoring systems in DM such as the DMSAT1 Environmental Satellite and the Mobile Environment Monitoring Station at the Dubai International Exhibition for Government Achievements. "It is one

of the latest generations in the global satellite systems and represents an important step towards the future in the field of environmental monitoring. The Municipality has employed the latest environmental monitoring techniques to monitor the air pollutants and greenhouse gases causing the phenomenon. "Climate change is one of the most important environmental challenges facing the people across the world as it threatens the sustainability of ecosystems and natural resources on Earth as well as the health and safety of communities. This satellite provides a wide range of important and multipurpose data for environmental

research and studies," she pointed out. The Nano metric Environmental Satellite has large features covering large areas of land and sea, especially as it orbits the Earth 14 times per day and re-observes the same monitoring site within five days, she said. "The satellite has the ability to provide spatial data for the monitoring process, even during sandstorms, which are value-added given the importance of obtaining such data in such circumstances," she said. As for the nature of the satellite's technical capabilities and the data it provides, she confirmed, "One of the most important usages of the environmental satellite is the monitoring and measurement of aerosols in the atmosphere." This type of data provided by the satellite is important in the environmental monitoring of the pollutants emitted to the air and threaten the health and safety of the community. It is also associated with the studies and research on the results of exhaust emissions of vehicles, marine devices, industrial sites and dust. Therefore, there is a high possibility of employing such data in the study and analysis of many environmental phenomena, including the phenomenon of the growth of moss and red tide, due to the ability of the satellite to cover large areas during the monitoring process, Al Harmoudi said in conclusion.

Chunghwa May Have to Change Satellite Frequency as NCC Starts Examining 5G Spectrum Options

Taiwan's National Communications Commission (NCC) has suggested that the earth terminal for Chungwha Telecom's ST-2 satellite may have to use a different frequency. According to the Taipei Times, NCC chairperson Nicole Chan last week told a meeting of the legislature's Transportation Committee that the government was considering using frequencies in the 3.4GHz and 3.6GHz bands for 5G technologies; spectrum

within these bands is currently used by Chungwha to transmit signals between its satellite and the earth terminal. With a final decision on the spectrum plans expected to be made by the state by June 2018, the NCC is also reported to have established a task force to establish the rules for auctioning 5G-suitable frequencies. Commenting on the matter, NCC spokesman Weng Po-tsung said. 'We will have to first conduct experiments to determine what we would

need for Chunghwa Telecom's satellite system and the 5G system to coexist and not interfere with one another … The Executive Yuan will review the results of the experiments and make a final decision.' Weng also noted that the operator may be eligible for compensation for the costs of relocating to a new frequency, should such a course of action be necessary.

Government Support to Accelerate Telesat's LEO Deployment

As part of its 2018 federal budget, the government of Canada has committed to providing $100 million for the country's Strategic Innovation Fund. This investment will largely focus on supporting upcoming Low Earth Orbit (LEO) satellite projects. Telesat, which is just months away from its first customer demonstrations with its own constellation, will also receive a $20 million investment from the government of Ontario, helping accelerate the company's efforts to be one of the first LEO broadband players to emerge in the market. The investments seem to reflect the government's confidence in LEO constellations as a solution to bridging Canada's digital divide. There, the issue of rural broadband is a salient one due to the country's distinct, often harsh geography and population distribution. At least half of its approximately 36 million citizens live south of the Washington-Oregon border, while most of the remainder live in sparse communities scattered across a 3.5 million square mile landscape. Telesat believes blanketing these rural regions with satellite-based connectivity is a profitable niche, and will work hand-in-hand with the Canadian government to do so. "Telesat will continue to seek opportunities to collaborate with the federal and provincial governments on its LEO satellite program," Telesat Vice President Erwin Hudson told Via Satellite. Telesat launched its LEO Phase 1 satellite in January on the Indian Space Research Organization's (ISRO) Polar Satellite

Launch Vehicle (PSLV). Since then, the company has completed orbit raising and is in the midst of testing the satellite's payload, including demonstrating satellite tracking and Doppler compensation, low latency network performance, and tracking antenna validation, Hudson said. If all continues as smoothly as it has, Telesat will kick off its first demonstrations with customers in the second half of 2018, according to Hudson. Already, Australia-based satellite operator Optus Satellite has signed on to conduct live, over-the-air trials on the Phase 1 satellite. "Other companies that serve key markets of interest to Telesat LEO, including maritime and aeronautical service providers," have also signed on for initial trials, Hudson said. On the manufacturing side, Telesat continues to negotiate with multiple undisclosed satellite manufacturers, "who continue to optimize their designs" to best meet the company's low cost, high capacity requirements, Hudson said. "Our plan is to down-select to either one or two manufacturers and to move forward into a detailed design and development phase. If we determine that one is clearly superior to all others, we will select a single partner. If not, we will proceed with the best two offers. We expect to announce our satellite manufacturing decision in the next few months." As for launch options, the matter is somewhat complicated, as Telesat's constellation will occupy multiple orbital planes at different altitudes and different inclinations. However, Hudson did say

Telesat will likely select a heavy launch vehicle for its primary deployments. "For initial population of the constellation, heavy lift launch vehicles with large fairings offer the best ratio of mass and volume, resulting in lowest launch cost per satellite," he said. "We also need a constellation maintenance strategy that allows us to replace any satellite in any orbit on short notice. Small launch vehicles capable of injecting one or two satellites directly into their operational orbits and available on short notice provide the best flexibility for constellation maintenance." According to Hudson, Telesat is considering both proven launch vehicles and those still in the developmental stage. And even though SpaceX is launching its own competitive LEO broadband constellation, that hasn't dissuaded Telesat from potentially using its launch services. In fact, SpaceX is launching two of Telesat's High Throughput Satellites (HTS), Telstar 19 Vantage and Telstar 18 Vantage, into Geosynchronous Earth Orbit (GEO) later this year. When it comes to the LEO space race, Telesat is clearly close to the front of the pack. The success of its constellation could be a litmus test for how other similar satellite systems will fare. CEO Dan Goldberg, for one, is quite confident in the business case driving the constellation. As he noted in an interview with Via Satellite earlier this year, if the company is able to achieve its technical goals, LEO could become Telesat's main focus in the coming years.

Bangabandhu-1 to be Launched on May 5

Bangabandhu-1, the first commercial satellite of the country, will be sent into orbit on May 5 and it will be ready for use within two months of launch. Through an email, SpaceX, the American company assigned to launch the satellite, said Bangabandhu-1 will be launched for its orbital slot on 119.1 degree east on May 4 evening US time. In Bangladesh time, it will be early morning of May 5,

we can use the connectivity and capacity of the Bangabandhu-1 for commercial purposes," he added. On March 31, French company Thales Alenia Space, designer and maker of Bangabandhu-1, took the satellite to Florida's Cape Canaveral for launching. SpaceX has carried out several test runs and found its performance quite okay, Shahjahan added. Thales manufactured the 3.7 tonnes satellite a

in January 2015. Bangladesh will be the 57th country in space. To celebrate the historical achievement, the government has made a massive preparation and will have fireworks on May 5 evening across the country. Initially, the launch of the satellite was slated for the Victory Day 2017. But it was postponed until March after Hurricane Irma and subsequent floods hit Florida, said officials concerned of the project. A 22-member team, led by state minister for information Tarana Halim, will also be in Florida during the launch of the satellite. Tarana was previously the state minister for telecom. Talking about the advantages of the satellite, project officials said it would immensely contribute to the country's digital advancement. Currently, Bangladesh meets its demand for satellite connectivity by renting bandwidth from foreign operators which costs the country about $14 million a year. Once launched, Bangabandhu-1 will save the foreign currency expenditure. It will also improve the Direct to Home (D2H) services, making people's access to worldwide TV entertainment faster and easier. Bangabandhu-1 will have 40 transponders and three of them would be used for broadcasting TV channels. The country's remote parts -- haors, coastal areas and deep-sea zones -- will also have impressive internet connectivity. It will also be helpful for distance learning, treatment, and improvement of weather forecast facilities. "The satellite will be a game changer in rescue operations after natural disasters," said the BTRC Chairman.
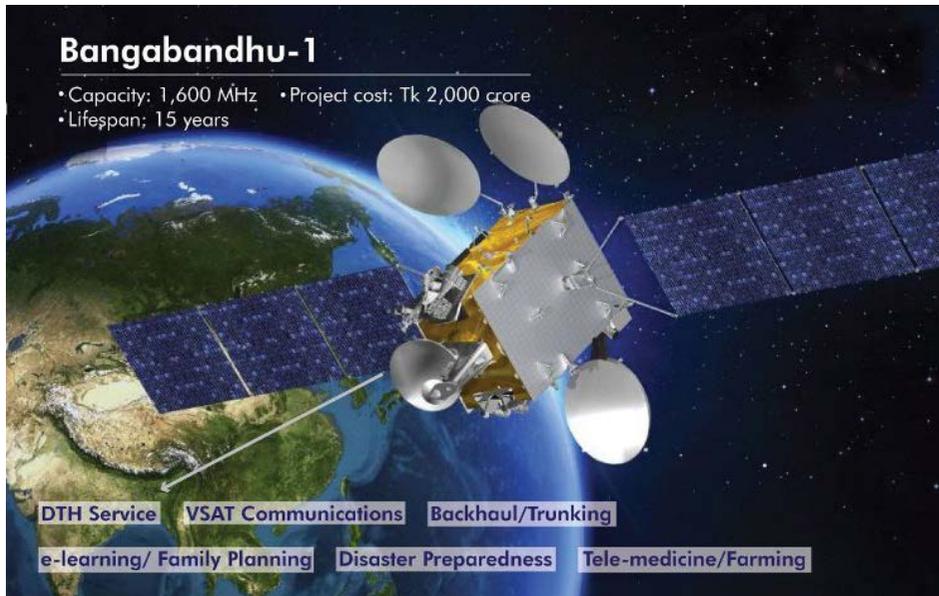
said Shahjahan Mahmood, chairman of Bangladesh Telecommunication Regulatory Commission (BTRC). "It will take about eight days to reach its slot." After the launch, it will take about two months to tune the satellite in and monitor it in the orbit from its landing stations in Gazipur and Rangamati and then it will be available for the commercial use, said the BTRC chief. "After the successful tuning,

few months ago and kept it in a warehouse in Cannes. Project officials said a brand new rocket would carry the satellite and that was why it took some time to launch. In November 2015, the BTRC signed a $248-million deal with Thales Alenia Space to manufacture and launch the satellite. The satellite would be launched into a slot bought from Russian satellite company "Intersputnik" for $28 million

ISRO Lost Contact with GSAT 6A Satellite

The Indian Space Research Organization (ISRO) confirmed over the weekend that it has lost communications with the recently orbited GSAT 6A communications satellite. ISRO launched the satellite on March 29 from the Satish Dhawan Space Center in Sriharikota. ISRO reported it lost contact with the satellite shortly after carrying out the second orbit raising operation. "After the successful long duration firings, when the satellite was on course to normal

operating configuration for the third and the final firing, scheduled for April 1, 2018, communication from the satellite was lost. Efforts are underway to establish the link with the satellite," the agency said in a statement released on Sunday. The incident comes just seven months after ISRO failed to launch a replacement satellite for the Indian Regional Navigation Satellite System (IRNSS), when a heat shield fairing malfunction prevented the

IRNSS 1H satellite from deploying into the correct orbit. According to India's The Economic Times, new ISRO chief K Sivan said he is still hopeful the agency can reestablish communications with GSAT 6A, and that the anomaly would not delay the upcoming launches of the IRNSS 1I satellite and Chandrayaan lunar exploration mission.

Big Data is Making a Big Impact on the Satellite Industry

Increased competition from Over-the-Top (OTT) Subscription Video on Demand (SVOD) providers such as Netflix and Amazon Prime is posing significant challenges for satellite operators. Moreover, the vast amount of choice that consumers have in terms of pay-TV offerings puts pressure on operators to lower the price of their service. Despite these issues, the satellite industry is growing. Dataxis found that between Q2 2016 and Q2 2017, the Direct-to-Home (DTH) satellite broadcasting market grew by 7 million subscribers from 238 million to 245 million compared with cable, which fell by roughly the same amount. One asset satellite can use to remain viable is Big Data. Operators have used Artificial Intelligence (AI) — more specifically, machine learning — to predict and analyze data for years, helping them better address different market segments and create more tailored subscription packages. With the explosion of OTT and multiscreen services, operators can collect an increased volume, variety and velocity of viewership data from multiple connected devices. While big data opens up new opportunities for satellite operators, changes are on the horizon. General Data Privacy Regulation (GDPR) will come into effect across the European Union (EU) in 2018, making the extraction of actionable insights from TV operators' viewership data both increasingly appealing (e.g., as a way to reduce reliance on third-party data for targeting) and increasingly challenging (e.g., more stringent due to regulations). With GDPR there are new obligations. Consent from consumers is absolutely mandatory, and operators

are required to make their subscribers aware of the data collected at all steps of the process. GDPR has the potential to impact more than just European pay-TV audiences. In fact, it's anticipated to act as a template for legislation in other parts of the world. So how hard will it be to collect data once GDPR is passed? While consumers are used to providing data on the internet, it's usually for free services such as social media. Subscribers may be more reluctant to pay a satellite operator who already charges a monthly subscription with that information. On the other hand, satellite operators have been in business for quite some time; therefore, they are generally trusted by subscribers and may have an easier time getting subscriber approval to collect data compared with OTT service providers, who are newer entrants to the pay-TV market. When it comes to leveraging Big Data, there are several different approaches that satellite operators can take. AI-aided content acquisition, scheduling, and distribution tools that leverage "content efficiency prediction" models are seeing increased popularity. In particular, content acquisition strategies can be built upon predictive models and Return on Investment (ROI) analysis. These models differ from traditional recommendation models in that they consider segments of viewers, as opposed to specific viewers (or households). At the core of such models is a vector representation of content items and a content similarity function. Various methods exist with regards to content vector representations, including endogenous and exogenous, which

can lead to significant cost savings or additional service revenues for operators. AI models have the ability to learn, hence making recommendation and content efficiency more accurate, especially over time. In today's connected world, operators need to be dynamic and adapt quick to changes. AI allows operators to rely on algorithm dynamicity to continuously improve their service offering and adjust to consumer behaviors. What does the future hold in store for satellite operators and Big Data? Big Data algorithms are evolving. Over the last few years we've seen major improvements in the AI domain with traditional models being combined with deep learning and machine learning. We've also seen interaction of computing power and access to data (connectivity/database). In this case, the full power of AI is enabled by CPU power, better algorithms, and access to large databases in real time. The convergence of these elements is providing a new paradigm for market and consumer analysis. Data has always been a part of the satellite business, but what is changing now is that the reaction to behaviors is becoming close to real time. Old methods of analyzing behavior could have a months-long lag, after which, for customers looking to leave a service, the matter may already have been decided. Ultimately, these advancements are helping satellite operators worldwide better exploit Big Data to understand their audiences in a more meaningful way (that is, to deliver targeted content) and open up new monetization schemes, especially related to targeted advertising.

Viasat Wi-Fi Hotspots to Help Bridge Mexico's Digital Divide

Viasat announced it will offer a satellite-enabled Wi-Fi hotspot service known as Community Wi-Fi to nearly all of Mexico. The new service will bring an affordable Wi-Fi experience directly to consumer's devices, in places where internet service has historically been unavailable or unusable. According to Viasat, the service can be deployed with minimal local infrastructure investment. Since April 2016, Viasat has been conducting Community Wi-Fi trials

at nearly 500 sites throughout Northern Mexico using its existing satellites and Wi-Fi technologies. Today, these deployments cover hundreds of thousands of Mexican citizens, where internet service was unavailable prior. With the increase in ViaSat 2 satellite capacity and coverage, the company expects to extend its reach to millions of people in unconnected towns across Mexico. Viasat launched its commercial service in Mexico with Grupo

Prosperist, a local telecommunications and technology service provider. In 2014, Viasat also acquired managed Wi-Fi provider NetNearU, which had successfully managed 14 million hotspots as well as operated a managed hotspot network in nearly 30 countries. With this expertise, Viasat intends to grow its number of subscribers within emerging residential markets to enterprises and commercial aviation.

Orange in Satellite Deal to Boost European Connectivity

Orange struck a deal with Eutelsat to enhance connectivity across Europe through satellite, as traditional operators increasingly look to the skies to boost coverage. In a statement, Orange said it will partner with Eutelsat to serve as an anchor distribution partner on the satellite operator's Konnect VHTS satellite, which is expected to be in service in 2021. Orange will use satellite connectivity to provide fixed-broadband services in European countries where the group has a retail presence, and the partnership was hailed as a "major step forward" in the group's strategy to boost broadband coverage. In addition to its home market of France, Orange has European operations in Moldova, Romania, Poland, Belgium, Luxembourg, Slovakia and Spain. Stephane Richard, chairman and CEO of Orange, said satellite was becoming increasing important to "building tomorrow's inclusive digital society, especially for delivering broadband connectivity in rural areas where it is sometimes challenging

to set up traditional broadband networks". Thales Group, an aerospace and security company, also struck an agreement with Eutelsat to deliver government connectivity services market using the new satellite. Orange's move follows an agreement by European rival Vodafone, which signed a deal with UK satellite firm Intelsat for roaming services in 2016. Deutsche

Telekom has also partnered with Inmarsat to boost in-flight connectivity via satellite and in the US, SoftBank agreed to invest $1 billion in US satellite firm OneWeb, which aims to deliver affordable internet access to remote regions. Eutelsat will also use its new satellite to compete with Inmarsat in the in-flight connectivity market.

SpaceX's Broadband Ambitions Get Green Light from FCC

The Federal Communications Commission (FCC) granted SpaceX approval to provide broadband internet services with its planned constellation of Low Earth Orbit (LEO) nanosatellites. The constellation, called Starlink, will be comprised of 4,425 satellites using the Ka- and Ku-bands to deliver global internet connectivity from approximately 1,100 km above the Earth's surface. SpaceX

intends to begin the constellation's launch campaign in 2019, after which it will require only 800 satellites to kick off its first commercial services. The authorization does however come with a caveat: SpaceX must orbit and operate at least half of its constellation within six years. The company initially requested the FCC waive the milestone requirement, hoping the agency would allow it to launch just 1,600 satellites in the same time frame. But the FCC denied this waiver request, stating it would give SpaceX "an unfair advantage" in the context of other planned LEO mega-constellations on the horizon. The company also has plans to launch a secondary constellation of 7,500 V-band satellites in Very Low Earth Orbit (VLEO), but this would require a separate license from the FCC. "In the future, these satellites will provide additional broadband capacity to the SpaceX system and further reduce latency where populations are heavily concentrated," SpaceX Vice President of Satellite Government Affairs Patricia Cooper stated in Oct. 2017. SpaceX already orbited its first two Starlink prototypes, Tintin A and B, back in February. According to the FCC, the agency has approved requests by OneWeb, Space Norway and Telesat over the past year to provide broadband services using similar Non-Geostationary Earth Orbit (NGSO) satellite systems.

3 Companies Join Forces to Expand Commercial Lunar Comms Opportunities

Surrey Satellite Technology Ltd (SSTL), Goonhilly Earth Station (GES) and Astrobotic have announced an agreement to collaborate on delivering a roadmap of innovations that support organizations carrying out operations on and around the Moon. The agreement formalizes a long-term close working relationship between the three organizations with the aim of deploying in-space communication relay services. Astrobotic will begin delivering a regular manifest of uncrewed payload flights to the Moon starting in 2020. According to the company, many of the companies, governments, universities, and other non-profit organizations operating payloads on its Peregrine Lander will need sophisticated communication relay services to reach until-now prohibitive destinations on the Moon, including the far side. SSTL plans to service those needs with new data relay services. Goonhilly Earth Station will receive SSTL's data relay and transmit data back to payload customers on Earth. "The complementary capabilities of Astrobotic, Goonhilly and SSTL allow us to provide a complete mission package that supports and enables a diversity of lunar endeavors, both for commerce and public sector initiatives," said Anita Bernie, director of exploration missions at SSTL.

Pakistan to Launch Communication Satellite

Under Bilateral exchange agreement, China will soon launch communication satellite for Pakistan, in order to build large telecommunication network infrastructure. China Academy of Space Technology will provide Pakistan this satellite according to the sources in Academy, the sources said they have developed 7 communications satellites for countries including Pakistan. According to the head of the Institute Telecommunication Satellite, Zhou Zhicheng "They are working on fulfilling the order of more than 10 satellites and working on export contracts." However, Pakistan would still be needing pioneers in developing communication satellites in the United States and Europe Such as Thales Alenia Space and Boeing, in order to build satellite technology and capacity. As previously reported China will launch its most advanced and state-of-the-art communications satellite in April which would let users use the internet in the high-speed trains. According to the Academy of Space Technology, "Shijian 13" developed by them would be carried on the Long March 3B carrier rocket from Xichang Satellite Launch Center in Sichuan Province in April. The satellite weighing 4.6 metric tons will remain in a geostationary orbit for 15 years which is 36000 kilometers above the earth. This is considered the most powerful satellite developed by China, which uses Ka-band broadband communications system and has the capability to transfer 20 GBPS speed. Shijian 13 uses electric propulsion after entering the orbit and reduces the chemical fuel in the satellite. It will also conduct space-to-ground laser communications experiments for future development—the academy said. Additionally, China will also launch Shijian 18 communications satellite in June, it is the first Chinese satellite based on DFH 5 satellite platform. This satellite will be launched on Long March 5 rocket at Wenchang Space Launch facility in Hainan province. This satellite will double the capacity of satellites China currently has, it will allow more television channels and clearer transmissions, improved internet connectivity and reduce the overall costs. The deputy head of academy Institute of Telecommunication Satellite, Wang Min said China has plans to launch a group of most advanced communications satellites based on DFH 4 and DFH 5 platforms by 2025, once it's done people would be able to use high-quality WiFi from anywhere and anytime including planes, bullet trains, and remote areas.

Iran Develops Space Technology to Serve People

Head of Iranian Space Agency (ISA) Morteza Barari says Iran has planned to develop remote sensing as well as communications satellites to serve the Iranian people in their daily lives. Stating that space technology has already entered Iranian citizens' lives, Barari added "perhaps one of the most prominent aspects [of space technology in people's lives] are the mobile smartphones that are equipped with satellite navigation systems which help people locate and navigate." Barari, who is also Iran's deputy ICT minister, added

that one of the services that the people of Iran today benefit from, but may not be aware of is the communications satellites. "Now, Iransat-21 telecommunications satellite provides a number of services to the people." He went on to elaborate more saying that the major part of the VSAT network in the country is operating on that satellite, meanwhile, Shetab banking system to handle ATM, POS and other card-based activities are conducted through that satellite as well. "The oil platforms in the Persian Gulf are in contact with inside

the country via that telecommunication satellite," Barari said, adding "there are of course other telecommunications satellites provided by the private sector serving the banks and the oil ministry. The head of Iranian Space Agency (ISA) concluded that one of their major goals this year is the development of communications infrastructure in rural and remote areas, pointing out that they have developed a plan in that regard in cooperation with the Ministry of Communications and Information Technology.

Vodacom to Expand West African Broadband with Intelsat Capacity

Vodacom Business Nigeria has signed an agreement for satellite services with Intelsat to expand its enterprise broadband networks and enable new and enhanced services throughout West Africa. Under a new multi-year agreement, Vodacom Business Nigeria will use the satellite services on Intelsat 35e to deliver broadband connectivity to the banking, oil and gas, and enterprise sectors across West Africa. In addition, according to Vodacom Business Nigeria, the improved performance, efficiency and lower total cost of ownership delivered by Intelsat 35e will enable the company to further enhance the services being offered to its existing customers in Nigeria; expand its offerings in the enterprise and Internet of Things (IOT) sectors; as well as extend broadband connectivity in Nigeria. "By integrating Intelsat's satellite services into our network, we are able to rapidly deploy our broadband network into new areas across West Africa and deliver fast, affordable internet access today. This

means that people in the communities that we serve will gain access to services that will provide real benefits such as business connectivity, news updates, improved quality of services in healthcare, banking and education, in addition to

promoting economic development of these communities," said Lanre Kolade, managing director of Vodacom Business Nigeria.

SUDATEL
SUCCESS STORY

- **Sudatel Telecom Group** is a leading ICT provider, with **more than 20 years** of experience in delivering telecommunication services in Sudan and Africa.

- Operates in 4 countries, **Sudan, Mauritania, Senegal and Guinea Conakry** and serves

13 million subscribers.

- Connects major strategic regions in the world via its international submarine cable network.

- **An international award winner** for the **Sudatel Data Centre**, considered to offer some of the highest standards in the region.

sudatel ®

A Telecom Group

4G LTE- Advanced: Is it a Game Changer?

Sudan is a beautiful country rich in culture, blessed in diversity and steeped in economic potential. In telecoms, Sudanese thrive on the Internet and use it to communicate with each other and the outside world, to stay informed, and to develop and modernize their businesses. Technology adoption in Sudan is high.

Sudatel operated the largest fiber optic network in Sudan, with direct access and ownership in submarine systems for worldwide access. In addition, Sudatel accumulated over the years the most and best spectrum.

In the past, the telecom operators here, including our Sudatel, were limited in their network investments due to difficult outside circumstances. Although all traditional services were available, including 3G for mobile, ADSL for residential and fiber for business, all operators only had a passable quality of service (QoS) to offer their customers. Yet Sudatel was at risk of falling behind its key local competitors since its portfolio was constrained to CDMA, GPRS/Edge and 3G of limited throughput. Competitors were at various stages of investing in larger networks. Sudatel data customers were many but stagnating, using Sudatel primarily for its lowest market prices, which were attractive mainly to the low-consumption or budget-minded consumer. As a result, Sudatel's ARPU's were lower in number and revenues were smaller in profit. Its commercial brand, Sudani, was perceived as conservative and perhaps not ideally positioned for the modern internet consumer. This model was not sustainable for Sudatel.

About 18 months ago, investment difficulties in Sudan lessened to the extent that all operators had new capital expenditure (capex) investment options. For us at Sudatel, with our limited financial war chest, we had a major strategic choice to make: should we invest all we have in 3G, where the best and safest near-term revenues are, or be the first to jump the technology curve to a unique 4G LTE-A for a much better but far riskier long-term growth. On the one hand, a conservative investment approach may have left low prices generating unprofitable revenues with nothing to distinguish us from our competitors. On the other hand, a riskier approach may stunt our revenue growth if the newest technology drowned in a low market adoption rate (e.g. limited 4G handset/CPE (customer premise equipment) availability).

Eng. Michel A Hébert
Vice President of Operations
Sudatel Telecom Group

As a starting point, Sudatel had technology advantages others didn't have. In particular, Sudatel operated the largest fiber optic network in Sudan, with direct access and ownership in submarine systems for worldwide access. In addition, Sudatel accumulated over the years the most and best spectrum. The first entrant operator had clear advantages in both mobile coverage and capacity. Prior to our investment decision, the largest of our competitors commercially launched 4G to protect its premium position. Note that the third competitor also launched 4G after our rollout.

No risk, no glory. We took the riskier path. However, not all of our dollar eggs would be put in the one basket on our investment journey. After careful analysis and measuring risks, we took a hybrid market approach to our network investment. We carefully analyzed our revenue generating customers for the best potential and the minimum quality of customer experience (CX QoS) they needed. Thus, our strategy consisted of decommissioning our CDMA equipment in the 850 MHz spectrum to launch LTE-Advanced (LTE-A) with direct fiber to the radio nodes, carrier aggregation in 850 MHz and 1800 MHz in the most profitable areas of Khartoum, congruent with an enhanced 3G experience in surrounding network clusters. We evaluated and upgraded all clusters with the maximum capacity of the equipment on hand, selectively enhance transmission more than required by the radio capacity, and followed through a higher capacity core through to onward-connectivity so as to have end-to-end data and voice enhancement. We clearly measured the potential revenues this combination of technology deployment could generate

(Minimum Acceptable Customer QoS versus (potential revenue − network opex) = best clusters for profitable revenue generation). Our 4G LTE-A had at least a 30% better UL/DL speeds and more quality consistency than any competitive offers.

From a commercial standpoint, this optimum technology approach was complimented by a brand refresh to revive and revitalize our Sudani brand, together with a 25% premium over 3G pricing and a wider selection of subscription packages; including one that would allow any customer to "try-and-buy" at a very low entry point. Improving CX QoS in surrounding clusters also allowed us to do successive and timely 3G commercial voice and data revamps in tandem with the 4G LTE-A market adoption.

After 14 months of implementing this strategy, the results to date are nothing short of sensational. We have tripled and monetized data consumption, increased our net data subscribers at a faster rate than any rival adding 19% incremental customers on our base, tripled the number of 4G customers over the nearest rival, nearly doubled our mobile data revenues, and grew our overall (voice and data) revenues 39% YoY from Q1'17 to Q1'18. Mobile data ARPU increased from $1.1 to $16 for 4G LTE-A users. Mobile data revenues increased contribution to the EBITDA by 3%. To our customers enjoying our new services, the Sudani brand is now seen as a viable option and best value-for-money for anyone wishing to have mobile data services personally and for their businesses. We are now expanding on this strategy with the next wave of investments, even heading towards 5G using this LTE-A progression as a stepping-stone to

achieve our vision of leading ICT services in the region.

The process was not easy and certainly unintentional mistakes were made, however the results are exceptional and we have learned several lessons that we will take forward to our next expansions. Here are some of the key success factors (that may or may not apply to all):

- Jumping the technology curve is viable but only if you can do so with clear and sustainable advantages. In our case, we had immediate access to spectrum and fiber networks to provide a superior end-to-end service. It would take our competitors a few years to match us.
- Time to market (TTM) is critical. You don't need to be first but you need to be the best; even in our case the competitor had three times the radio sites and twice the coverage.
- Assure that any network design is fully end-to-end and not simply removing the interim bottlenecks of today. Properly forecasting profitable growth is critical to any design implementation.
- When you are not the market leader or the premium offering, move up the price/benefit scale, not down, to build your image and acquire profitable revenues. Any technology advantages are not beneficial if your customer does not see it or feel it. Hype your brand in the process.
- Assure that your customers have a superior quality of service but not a superior price. This enhances the value as perceived by customers.

Is 4G LTE-A a game changer? For Sudatel I can confidently answer 'yes' to this question. Technology for its own sake is not a game changer. But like any technology, using it best in your unique overall strategic approach within your own competitive circumstances is what could change the game.
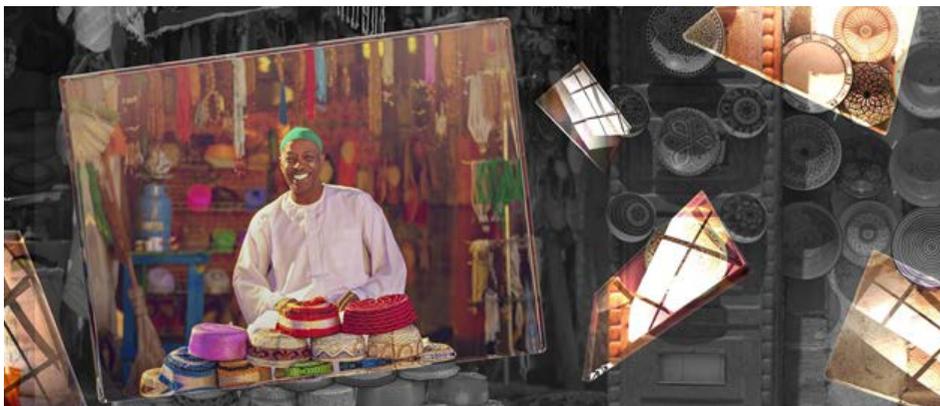
LTE and 5G Build Momentum in MEA for 2018

Nour Al Atassi
Regional Vice President and Managing Director,
Middle East and Africa
Syniverse

Syniverse®

Although 4G/LTE is still in the process of being rolled out in many places, it has now truly become the world's new mobile standard. At the same time, though, 5G has quickly been gaining ground around the world and is getting close on the heels of 4G.

Syniverse has been in the throes of helping operators complete their transition to 4G while at the same time beginning to prepare for 5G, and we recently examined some of the ramifications of what we've seen these two areas at this year's Mobile World Congress. There, we released a study on LTE roaming patterns that revealed important implications for the development of LTE in MEA, and we also held a number of customer meetings to share our vision on the factors that will have the biggest impact on 5G development.

MEA's large population, surging mobile data use and lack of fixed-line internet connectivity offer a sizable opportunity for these 4G and 5G services in the next few years, and we're looking forward to helping our customers fully embrace this mobile era.

MEA's large population, surging mobile data use and lack of fixed-line internet connectivity offer a sizable opportunity for these 4G and 5G services in the next few years, and we're looking forward to helping our customers fully embrace this mobile era. Our LTE roaming study and 5G meetings revealed promising opportunities for both these market factors in MEA.

LTE Becomes Majority of Global Roaming Traffic
Our study focused on traffic between six regions – North America; Latin America; Europe; Asia Pacific; the Middle East and Africa; and India – and the findings revealed that in the last year LTE traffic has surpassed non-LTE traffic and now represents the majority of global roaming traffic, rising to 54 percent in 2017 from 46 percent in 2016.

Additionally, the findings highlighted the need for the mobile industry to more urgently prepare for technologies like 5G, based on the eight years that it took from the time that LTE was commercially launched for it to surpass the previous generation of technology. A challenge then is to enable LTE roaming both in MEA and on a global scale. But outside the Americas, where most of LTE roaming is concentrated, the tipping point with global LTE roaming hasn't fully occurred yet, and providing LTE roaming service remains a competitive differentiator.

… IPX has emerged as a fundamental network backbone for LTE and other next-generation services, because it allows a single-connection approach that simplifies testing and deployment while consolidating a large number of connections worldwide

Critically, a major barrier in providing a consistent LTE service footprint was found to lie in the inter-regional connectivity that an IPX network can enable. To this end, our data suggests that for routes across MEA and the rest of the world, operators need to develop a full-scale strategy for integrating IPX and accelerating the maturity of LTE networks.

Critical Factors for 5G Market Introduction
In the same way, IPX will be crucial for 5G, and 2018 will likely see the mobile industry take its biggest steps yet in rolling out 5G. However, the next phase of 5G development will greatly depend on the continued rollout of LTE and how smoothly operators are able to work through complexities on that end. For this reason, at Mobile World Congress, we held customer meetings where we identified several factors that we see as playing a crucial part in the further growth of LTE and thus the market adoption of 5G. Here are two of the most important of these.

1. **Maximizing interconnection footprint** – Operators that have deployed LTE must continue to focus on establishing reach to a maximum number of LTE networks to offer the widest coverage for their users. As discussed above, IPX has emerged as a fundamental network backbone for LTE and other next-generation services, because it allows a single-connection approach that simplifies testing and deployment while consolidating a large number of connections worldwide. For this reason, it's recommended that operators include IPX at the core of their strategy in not just building out their LTE networks, but also laying a strong foundation for future 5G rollouts.

2. **Ensuring roaming interoperability** – Enabling ubiquitous LTE roaming has presented serious challenges to operators, because it requires the testing of a number of critical roaming processes. Specifically, the complex areas involved in the implementation of LTE roaming that operators need to carefully address include Diameter

… it's imperative that operators have a full-scale IPX strategy in place to meet the demands of the exciting future, and we're looking forward to continuing to help our customers navigate this strategy for both LTE and 5G.

signaling infrastructure, roaming via PGW or GGSN to legacy systems, wholesale clearing and settlement processes, and exchange of TAP records. Ensuring this roaming interoperability will go a long way in ensuring a smooth migration to 5G, which will include the introduction of several options, scenarios, and business models that will have to be supported.

MEA will soon see a dynamic phase of mobile development with unprecedented demands for high-speed, high-capacity networks. As we communicated through our study and meetings at Mobile World Congress, LTE roaming and 5G adoption will be crucial in enabling this phase, but one barrier to this lies in the connectivity and security that IPX provides. For this reason, it's imperative that operators have a full-scale IPX strategy in place to meet the demands of the exciting future, and we're looking forward to continuing to help our customers navigate this strategy for both LTE and 5G.

WHOLESALE NEWS

European Commission Backs Ofcom on Openreach Wholesale Regulation

Europe's highest regulatory body, The European Commission, has backed Ofcom's plans to regulate wholesale access to BT Openreach's broadband network. "The Commission particularly approves of the intention of Ofcom to make it more attractive for alternative operators to use Openreach's physical infrastructure, such as through improved and cheaper access to ducts, which should help rolling out their own optical fiber networks," read a statement from the European Commission. The European Commission is committed to ensuring that Europe's telecoms markets remain highly competitive for consumers. It has come under attack in recent months from network operators who accuse it of not doing enough to ensure healthy margins for operators. This approval will be met with enthusiasm by most network providers, with the obvious exception of Openreach. Initially, Ofcom had proposed reducing the wholesale price that Openreach can charge network operators to access its basic, 40Mbps superfast broadband service, to £11.23. However, it has since increased that figure to £11.92. Ofcom argues that by forcing Openreach to grant network operators access to its existing infrastructure, the UK can dramatically increase the availability of superfast broadband services for its citizens.

CETIN Improves IPTV Wholesale Provisioning

Czech infrastructure provider Ceska telekomunikacni infrastruktura (CETIN), part of Petr Kellner's PPF Group that was spun off from incumbent PTO O2 Czech Republic in June 2015, has announced an improved proposition for wholesale IPTV via a new Mass Market Offer (MMO). CETIN says the new MMO – which promises an improvement in the quality of its multimedia transmissions, an improved data to cost ratio and removal of limits on Wi-Fi broadband services – has been offered in its network since April, allowing its wholesale partner to receive up to four times the capacity with no increase in price. 'With a new MMO, service providers … will not be forced to limit peak performance and can further enhance their content to HD or Ultra HD quality,' a press release read. CETIN also noted that overall data consumption in its network is growing at a rate of around 35% per annum – the largest share of which is for multimedia and video services. While over-the-top (OTT) broadcasts depend on the quality and speed of the connection and its usage in homes (e.g. in many cases multiple devices are sharing the line affecting the quality of services such as Facebook, YouTube, Netflix and HBO GO, CETIN claims its native IPTV offer benefits from a guaranteed quality of service. 'Native IPTV is a priority service, meaning that content from the IPTV platform from the provider to end-user devices is captured in real time and in the same quality in the CETIN network,' it claims. Under its seven-year program, CETIN is investing CZK22 billion (USD898 million) in the development of its national telecommunications networks. The company says that at

the core of the build-out is its fiber-optic next generation network (NGN), while in terms of technology, it is investing mainly in VDSL2, VDSL3 and Vectoring – all of which effectively shorten the local loop by upgrading the copper tail between the telco's cabinet and the user's home to achieve the ultra-high speeds needed for the NGN. Optical fiber, therefore, is being run to the neighborhood via the building of fiber-to-the cabinet (FTTC) to improve speeds over the last mile. The current average available speed in the CETIN network is 45Mbps. Around half of households served now have internet access above 50Mbps and 831,000 Czech households can order fixed internet at speeds above 100Mbps. CETIN has wholesale contracts with 15 operators.

Russian, Turkish Ministers Discuss Reduction of Roaming Rates

Russian minister of Communications and Mass Media Nikolay Nikiforov and his Turkish counterpart Ahmet Arslan have discussed reducing roaming rates, reports Prime. They have also talked about joint projects by operators in both states in the data transmission field.

FICORA Extends DNA's License to Apply Roaming Surcharges

The Finnish Communications Regulatory Authority (FICORA) has confirmed it has renewed DNA's license to apply surcharges to its subscribers' roaming consumption in EU and European Economic Area (EEA) countries. The renewed authorization is valid from April 15, 2018. As noted in TeleGeography's GlobalComms Database, in June 2017 DNA, along with fellow cellcos Elisa and Telia Finland, requested a year's exemption from the European Parliament's April ruling to eliminate EU-wide roaming charges, arguing that the new system would mean lost revenues and increased prices for consumers that do not use their handsets outside of Finland. With the FICORA having accepted these applications that same month, DNA is now the first company to apply for a further year's exemption.

Mexican Wholesale 4G Network Opens for Business

Mexico's shared LTE network hit the launch button, covering 32.2 per cent of the population and claiming its first wholesale contract. Built by Altan Redes in a public private partnership (PPP), the network has met the first coverage and operation milestones of Promtel (Organismo Promoter de Inversiones en Telecomunicaciones). Called Red Compartida, the network uses 700MHz frequencies and is expected to be completed this year with population coverage above 92.2 per cent. Altan Redes said it aims to make the network available to "network and non-network operators in a non-biased wholesale business model", as part of a $7 billion investment. But Reuters noted that so far, it has not signed a deal with one of the country's major players. Telefonica and AT&T have not inked deals, although the latter said that it would "certainly consider using it" in order to improve its coverage. Market leader America Movil has said it has no plans. The network is one of a number of steps taken to reduce the dominance of America Movil in the country. Reuters also said that while the network is intended to reach rural areas, its initial launch favors big cities – enabling it to reach a larger percentage of the population. Altan Redes inked its deal with Promtel in January 2017, with a plan to launch by 31 March 2018. Its largest investor is a Morgan Stanley-managed funds, with a significant stake also held by the China Mexico Fund. Huawei and Nokia have been named as "anchor suppliers", split on a geographic basis and with Nokia also providing core network equipment.

Etisalat Reduces GCC Roaming Tariffs for Data, Text & Calls

Etisalat announced that it has further reduced its roaming rates for voice calls, SMS and data. Starting from April 1, 2018, Etisalat's prepaid and post-paid customers will enjoy discounted roaming rates of up to 29 percent on data, outgoing voice calls to UAE, GCC and local destinations and outgoing SMS while traveling to any Gulf Cooperation Council countries through any roaming partner. The new rates are introduced in coordination with the Telecom Regulatory Authority (TRA) to encourage roaming services within the GCC at affordable rates. For even bigger savings, Etisalat customers can also choose to subscribe to any of its data and combo roaming packages, offering non-stop roaming data usage in more than 100 countries for as low as AED35 per day. Customers can view and purchase from Etisalat's wide range of roaming offers by simply dialing *177# (for free within UAE or abroad), or using the Etisalat UAE mobile app, where they can also view the standard roaming rates and list of preferred partners. Etisalat has an extensive coverage of almost 730 international outbound roaming networks in 213 countries. To enhance customer's data experience, Etisalat expanded its 4G LTE partners to 291 networks in over 120 countries, enabling subscribers to take advantage of the high-speed mobile data offered on 4G networks while browsing the Internet outside the UAE.

Roam worry-free

Etisalat Daily Roaming Packages, starting from AED 35

Subscribe via Etisalat UAE App or Dial *177#

The end of ROAMO PHOBIA

Italy's Open Fiber Agrees Loan to Fund Broadband Rollout

Italian wholesale network operator Open Fiber has signed a EUR3.5 billion (USD4.3 billion) finance deal with three lenders to help fund its ongoing broadband infrastructure rollouts. The seven-year agreement with BNP Paribas, Societe Generale and UniCredit is expected to be finalized in the next few months, Reuter's reports. It comes as Open Fiber unveils its latest work plan covering 2018-2027, with the telco saying it is looking to deploy fiber infrastructure past some 19 million homes in 271 cities and 7,000 smaller markets across Italy. It plans to invest around EUR1 billion over the next three years. Meanwhile, a 13-city wholesale agreement with Vodafone Italy has been expanded, allowing Vodafone to use Open Fiber's networks in all 271 cities which are due to be covered. Open Fiber is owned by utility firm Enel and state lender Cassa Depositi e Prestiti (CDP). CDP recently took a minority stake in Telecom Italia, fuelling speculation that a merger could be in the cards for Open Fiber and Telecom Italia's network business, which is due to spun off into a separate division dubbed NetCo.

CRTC Orders Big Three to Lower Roaming Rates, Data-Only Package Costs; Review of MVNO Access 'Within Next Year'

The Canadian Radio-television and Telecommunications Commission (CRTC) finalized the wholesale rates that nationwide mobile operators Rogers, Telus and Bell must charge smaller Canadian wireless companies for network roaming, retroactively replacing the interim rates set by the CRTC in May 2015 under its original decision to regulate the roaming services of the 'big three'. The final rates are 44% to 99% lower – depending on the carrier and whether voice, text or data service – compared to rates prior to the CRTC's 2015 decision (see weblink for actual rates). The operators must comply with the order within 30 days. The CRTC said that the measure is aimed at facilitating sustainable competition in the wireless market. The CRTC also ordered Bell, Rogers and Telus to submit proposals for lower-cost data-only mobile packages by 23 April 2018, which will be published for public comment. The stated aim of the consultation is to ensure lower-cost data-only wireless plans are available to Canadians nationwide, as part of efforts 'to foster affordability, innovation and choice'. The CRTC also announced that it will initiate a 'complete review' of its wholesale mobile wireless framework 'within the next year', including its policy on wholesale MVNO access. In previous reviews and decisions, the regulator has repeatedly declined requests to mandate mobile network access for MVNOs/resellers, and therefore such access has remained subject solely to commercial negotiations with network operators.

INNOVATION IS NOT THE IDEA, IT'S A DAILY INSTRUMENT.

MICRO INSURANCE SOLUTION

MUZEIT APP

CONNECT POWERED BY SHAZAM

AR BOOSTER

MEGA WIN

MEGA PROMO

RING BACK TONE

MICRO FINANCE SERVICE

Good Will Hunting in the Age of Analytics

Ayman Z. Jomaa
CEO
Numbase Group

Right across the world, societies are moving through a period of rapid change, with serious questions pertaining to privacy arising in tandem with the explosion of artificial intelligence, big data and the internet of things (IoT). As recently as two or three years ago, the concept of being able to control the heating in your apartment remotely, from your mobile phone, anywhere in the world, would have been unfathomable to many. The incredible depth of understanding about an individual's behaviours and thought processes is such that companies like Numbase, which utilizes big-data on a global level, are now able to precisely change behaviours and influence how customers think.

Predictive data, real-time analytics and neuro-linguistic programming (NLP) – this is what we do from the Americas to Europe, Africa and Asia. We are able to speak to each subscriber in a finely tuned, unique way.

Those who embrace how we employ big-data at Numbase demonstrably enjoy new, faster and more relevant services. They save time and money. They receive real-time 'mega-promotions' that actually reflect how they are feeling and what they need. For citizens embracing the IoT, energy consumption at the home and office can be micro-managed and observed remotely. In the past year alone, the presence of an AI assistant in the home has become a new wonder – almost commonplace - filling some with joy and others with dread.

These changes are huge, and they have snowballed over a short period of time. Bringing AI in to the home is a monumental shift in how citizens interact with companies and each other. Importantly, the ability to listen to what subscribers are actually saying allows those of us in AI and big data to affect decision-making. There is clearly an implicit trust on the part of the citizen that – perhaps miraculously given recent events in the world of social media – remains strong. The question is, how far can that trust be stretched, and could it ever reach breaking point?

Good will

Predictive data, real-time analytics and neuro-linguistic programming (NLP) – this is what we do from the Americas to Europe, Africa and Asia. We are able to speak to each subscriber in a finely tuned, unique way. We use the kind of language that he or she prefers, we know if the subscriber prefers the use of numbers to text-rich messages. By adapting to the precise way the individual thinks, we are able to influence the way the person acts. We know what kind of music he wants to listen to or which promotion will make him spend money.

> ## We are likely to see the relationships between mobile network operators, content providers, regulators and end users change for the better.

The scale is breath-taking. Numbase services around 52 million customers every day with customized music experiences. We provide 50 million people with highly targeted financial services – every day. What this means is that by using big-data analytics, we're able to forecast purchasing decisions by understanding the minutia of an individual's behavioural traits personal financial decisions. For one company to hold such power is monumental: it is a great responsibility.

So, the first and most difficult reputational issue for those of us working with big data is one of good will. Over recent weeks we have all seen the leaders of social media giants squirm in front of policy makers, forced to admit that their business models have been built upon the packaging and selling of personal data in the most unexpected and invasive ways. It has come as a surprise to many that Facebook has access to – and sells – the behavioural traits and personal details of individuals who are not even registered on Facebook. All of us in the digital world whose companies are built upon analytics have a responsibility to think about what that means.

So, is this a turning point? Or has society passed the point of no return? What we do know is that we have rapidly moved in to an era of greater awareness and responsibility. We are likely to see the relationships between mobile network operators, content providers, regulators and end users change for the better. Companies such as Numbase, which has built an international business based on the development of digital products and financing solutions using big data, must now grasp the mettle and speak up as advocates for good will. Because, none of us want to see our children exist in a virtual 1984.

Yes, this is the world we live in and the business we're running. However, when companies take this responsibility seriously and operate with genuine good will, our industry can be a force for incredible good. Indeed, for most businesses, what we do is transforming lives for the better. We help citizens make better decisions and enhance their response rate.

Responsible lending

One of the most important parts of the way in which Numbase uses big data is its ability to identify how to lend responsibly. The data that underpins the digital financing solutions that Numbase provides to major carriers such as Zain,

> ## Our advanced user profiling techniques mean that we're now providing end users with seven million micro loans every single day. We are issuing millions of small loans – even cash – to minutely profiled subscribers every single day. The beauty of big-data analytics is that we know who to lend to and how much.

Airtel, Ooredoo or Three is critical in the pursuit of ethical, responsible financing. Our advanced user profiling techniques mean that we're now providing end users with seven million micro loans every single day. We are issuing millions of small loans – even cash – to minutely profiled subscribers every single day. The beauty of big-data analytics is that we know who to lend to and how much.

This is responsible. It should be not only championed but encouraged. And, of course it's nothing new: in developed markets, credit referencing agencies have controlled who borrows what for several

decades – decisions based on highly personal and sensitive personal data. The important take-home message is that these kinds of services exist in a positive social context and form part of a cohesive, safe international financial ecosystem.

Being seen to actively embrace the issues and play a cooperative role in promoting good will and responsibility is part of the journey towards regaining and/or retaining trust amongst the public in what we do. Our Associate Membership of GSMA is important because it gives us a voice, alongside other key global players, in helping to transform people's lives through the provision of innovative financing – particularly in parts of the world that still struggle with unbanked populations. Our association with GSMA also provides Numbase with an opportunity to widen its social impact.

Big Data for Social Good
The weight of responsibility that rests on our shoulders should also lead us to collectively, champion the incredible work

that big data is doing in helping public agencies and NGO's to tackle epidemic, natural disasters and environmental pollution: because big data is not only about creating commercial solutions to socio-economic needs.

> **Numbase' s recent decision to become a member of the SAMENA Council is based on a recognition that the industry and its derivatives are in urgent need of platforms that carry out proper advocacy work in repositioning the whole ecosystem and processes between operators, service providers and content providers.**

Much like GSMA, Numbase' s recent decision to become a member of the SAMENA Council is based on a recognition that the industry and its derivatives are in urgent need of platforms that carry out proper advocacy work in repositioning the whole ecosystem and processes between operators, service providers and content providers. Our services, which include VAS Solutions, Premium Numbers, 'Connect' Powered by Shazam, Mega Promotions, Loyalty Programs, Ring Back Tone Solutions, Microfinance Solutions, Content Aggregation, and Multimedia & Music Content all offer personalized and relevant high-end solutions: intrinsically adding value to the subscriber and the carrier. It is incumbent upon us to help citizens understand that our use of big data and analytics is beneficial to the individual and to society.

Caution
I do believe that recent controversies in the world of social media have awakened the public consciousness to the potential pitfalls of big data and AI – but it is right that policymakers are holding social media giants to account. Utilizing AI responsibly means managing the enormous quantities of data we hold, process or interact with in the most cautiously creative, ethical way possible. We embrace the incredible innovations that are within reach and we will always pursue cutting-edge technical creativity – but we do so in a way that serves and protects our customers and wider society. Big data means we can help every human being build their own life story – but for those of us who are using big data in this way it is a serious undertaking.

Artificial intelligence is – like it or not – is a force that will have irrevocable consequences for mankind. At Numbase Group, we're committed to making a lasting positive and exciting contribution to this next incredible chapter in the history of mankind.

MICRO INSURANCE SOLUTION

ARTICLE

Micro-Trends Analytics: A Secret to Successful Digital Transformation for Telecom Operators

Dave Watson
Chief Executive Officer
Trendalyze Inc.

The prevailing "OTT environment", in which a general slowdown in revenue growth and profitability has been recognized among the telecom industry's most pronounced challenges, poses a set of other new challenges for telecom operators in the SAMENA region. This new environment requires of telecom operators to redefine their strategic direction and priorities, introduce new operating models, drawing value from digital, and, most importantly, to transform themselves on all dimensions of the business. The latter is an imperative that requires holistically embracing digital transformation; a journey, which is as challenging to undertake as it is easy to talk about.

> **... This new environment requires of telecom operators to redefine their strategic direction and priorities, introduce new operating models, drawing value from digital, and, most importantly, to transform themselves on all dimensions of the business.**

Recognizing that companies across all industries are facing Amazonian competition, where fast data-driven organizations can rapidly expand both the scale and scope of their operations, there are some factors that help place context to the notion of digital transformation. For telecom operators, which also have not been immune to digital disruptions, such factors are of particular interest:

First movers scale quickly and capture significant market share, while fast followers instantly erode what is left of the margins, thus, leading to a winner takes it all effect. A case in point is Uber, which quickly scale, leaving no space for competitors! Companies that apply analytics to manage demand, optimize prices and deliver targeted value to their customers penetrate adjacent markets easily and cannibalize existing businesses. Think of Amazon's growth from a book retailer to an everything retailer, including operating grocery stores. So, it appears that superior data management and granular analytics, when leveraged to penetrate into and disrupt seemingly unrelated businesses, can lead to a broader horizontal growth.

Superior data management and granular analytics, when leveraged to penetrate into and disrupt seemingly unrelated businesses, can lead to a broader horizontal growth.

For telecom operators of the region, operating in this multi-competitor environment, where not only multi-dimensional competition exists but where Administrations have defined new national digital development policies, presenting a new set of challenges, there is much to consider in order to revive and redefine the legacy role of being a mere network provider to that of a key enabler. Moreover, digitization does demand data-driven innovations to create new possibilities, whether on improving core operations, customer experience enhancement, or playing a central role in nation-building through sustainable investments in digital infrastructure. Telecom operators that adopt these digitization-centric new practices across their entire organizations could themselves become the disruptors vis-à-vis enablers instead of resting their fate in the hands of new digital disruptors. Considering telecom operators' main challenges — most of which, operationally speaking, revolve around dealing with shareholder value-generation and ARPU, neutralizing competitive pressures from over-the-top providers (OTTPs), keeping sustainable investments in the wake of exploding data traffic, and detecting as well as reacting to ever-evolving customer needs — unlocking the behavioral DNA of network end-uses offers unprecedented potential for tapping new growth

opportunities. And the idea for making this a reality is simple: deliver exceptional results by detecting and monitoring micro-trends in consumer behavior and use the micro-trends data to innovate and tailor the value to micro segments.

However, achieving this simple feat requires a highly complex, real-time data analysis capability. Such a capability, which may be analogous to word-pattern matching pioneered by Google, is available through Trendalyze, a time-series patterns search and monitoring platform, which can be customized to target selected applications. Prior to Trendalyze, time-series pattern analysis was the domain of data scientists. The technology has a highly scalable back-end that makes it particularly useful for developing IoT and time-series big data analysis, as well as deep learning and monitoring applications. Telecom operators, with millions of customers, already have a tremendous value locked into behavioral micro-trends, also called motifs. These can be unlocked and monetized through granular motif discovery and deep learning. Just as motif discovery has helped scientists to unlock the value in human DNA sequences, the Trendalyze innovative platform can help telecom operators to leverage similar methods and algorithms to unlock the behavioral DNA of each of their customers.

Deliver exceptional results by detecting and monitoring micro-trends in consumer behavior and use the micro-trends data to innovate and tailor the value to micro segments.

Telecom operators, with millions of customers, already have a tremendous value locked into behavioral micro-trends, also called motifs. These can be unlocked and monetized through granular motif discovery and deep learning.

Ultimately, motif search empowers professionals and subject matter experts to quickly identify micro-segments, purely based on behavioral patterns.

Behavioral patterns are more accurate and reliable as compared to traditional statistical scoring algorithms as they rest on the stability and predictability of human habits. If an end-user starts reducing his activity over time in a stable manner, it is highly likely that he will churn. Point-in-time events, such as not using SMS for 3 days, for example, are less likely to reveal potential churn as they do not capture the trend.

Micro-trends analytics is a new and emerging field that will prove to be integral to telecom operators' endeavors to digitally transform themselves. Using analytics like a microscope to unveil hidden opportunities across the entire value chain is what allows organizations to deliver superior customer experience and to ensure higher profitability in an age where data-driven competition is now an essential fact of an enterprise's life.

TECHNOLOGY NEWS

Technology Has Transformed Every Aspect of Life in UAE

When The National launched in April 2008, it came into being first and foremost as a physical newspaper, with our website following rather than leading our coverage. Ten years later, it's more likely that you're reading this article on an iPhone, another product celebrating its tenth anniversary. Today, The National is a digital-first platform, with online content updated

constantly throughout the day, catering to an audience in the UAE and beyond that is increasingly choosing to experience the world first and foremost via digital channels. The explosion of smartphone ownership in the UAE in the past 10 years, coupled with the country's high internet penetration and government bodies' readiness to embrace technology, has transformed nearly every aspect of life in the country, from how we communicate, to how we work, shop, get around, and pay our electricity bills. The UAE's rulers have been quick to embrace the potential of technology to improve the lives of the country's inhabitants, with initiatives such as Dubai's Smart City, first announced in 2013, moving government services increasingly online to improve efficiency and reduce costs. In recent years such efforts have moved up a gear.

The embrace of blockchain technology is set to further cut costs among government bodies in the years to come. A tech savvy population has proved alluring to the region's entrepreneurs, giving rise to the region's most dynamic start-up culture. Of the many tech firms to build successful tech businesses from a UAE base, Careem and Souq.com are the most prominent.

After launching in Dubai in 2012 as a corporate transportation service, ride-sharing app Careem has expanded to over 13 countries with more than 20 million users, becoming the Middle East's first tech unicorn in late 2016 with a valuation of over $1 billion. Starting life as an online auction site in 2005, Souq.com has grown through the years to become the region's largest e-commerce platform; it made international headlines last year when it was acquired by Amazon, in anticipation that online shopping in the region is on the verge of an exponential rise. To say that the technology developments of the past 10 years have impacted UAE business practices would of course be an understatement. The rise of FinTech of the past few years is one of the more notable trends to watch in the next 10

years, with banks, financial services, and back office functions across all business segments bracing for massive disruption. Once again, the UAE's authorities have been quick to embrace the potential for such new technologies; the country's largest financial free zones – Abu Dhabi Global Market and the Dubai International Financial Centre – in the past two years have worked hard to create ecosystems where FinTech startups can thrive, working in conjunction with the country's established businesses so that both sides can reap the benefits. The path of progress rarely runs entirely smoothly, with technological development in the UAE (as elsewhere) introducing plenty of threats as well as opportunities. The implications of the rise of smartphones and social media, particularly on the young, is only now beginning to be understood, with potentially serious consequences for societal development, with the spread of online extremist propaganda and 'fake news' the most obvious negative impacts. More specific to the region, the Middle East suffers more from cyber-attacks than anywhere else in the world. While the UAE has emerged relatively unscathed from some of the region's most devastating attacks, such as the Shamoon attacks that impacted Saudi Aramco in 2012, experts continue to warn of the need for increased vigilance, particularly within the energy sector. In spite of such risks and threats, the transformations that technology has brought about in the UAE in the past 10 years have been for good rather than for ill, not least thanks to the progressive outlook of the country's authorities. We can only speculate what the next 10 years will bring, but given the UAE's forward-looking approach, the future impact of new technologies can only reap further rewards for the country and its people.

Scotland Claims 95% Fiber-Based Broadband Coverage

More than 95% of Scotland's homes and businesses can now connect to a fibre-based broadband service, according to the Scottish government which announced the milestone via a press release. The rollout has been delivered through the 'Digital Scotland Superfast Broadband' ('DSSB') project, it said, with a total contribution of GBP280 million (USD401 million) from across Scotland's public sector. It noted that without the DSSB program, only an estimated 66% of the country would be able to receive fiber-based broadband connectivity. DSSB is delivered through two projects, led by Highlands and Islands Enterprise in its area, and the Scottish Government in the rest of Scotland, while funding partners also include the UK Government through Broadband Delivery UK (BDUK), BT Group, local authorities and the EU via the European Regional Development Fund. The 95% coverage level was reportedly achieved at the end of 2017, in line with the commitment made in the Scottish Government's Program for Government 2017, and has been 'subject to checking and confirmation processes until this point'. Commenting on the matter, Scotland's Connectivity Secretary Fergus Ewing said: 'This is a landmark for the Digital Scotland Superfast Broadband

program, which has connected around 890,000 premises to fiber broadband, and is ensuring Scotland can offer world-class digital infrastructure … However, we want to go further, and we are now focusing on delivering our GBP600 million 'Reaching 100%' program, which is the biggest public investment ever made in a single UK broadband project. This will make sure every single premise in Scotland can access at speeds of at least 30Mbps by the end of 2021.'

UK to Become World Leader in Artificial Intelligence

The UK has the potential to become a world leader in the development of artificial intelligence (AI) according to a new government report. The report, issued by the UK's upper legislative chamber, The House of Lords, also stated that measures should be put in place to ensure that the technology is never given the "autonomous power to hurt, destroy or deceive". The report called for government investment in training schemes that would see people working alongside AI machines, in an attempt to mitigate the threat to jobs. "Many jobs will be enhanced by AI, many will disappear and many new, as yet unknown jobs, will be created… Significant government investment in skills and training will be necessary," the report stated. This sentiment was echoed by a number of industry professionals, who welcomed the report's findings. It is important that AI systems are introduced in a careful and ethical way. Many businesses lack the widespread

knowledge of how to use the technology, and there is also the risk that some users could be malicious and attempt to subvert a well-intentioned AI machine. Therefore, systems must be integrated into a business with a clear understanding of how the technology works and the implications of improper use. "Where they lack in-house experience, UK businesses should work with AI expert partners which can outline definable ROI and clear use cases using today's proven technology. These experts can help upskill staff on the nuances of the AI technology they are using, whilst ensuring they understand the consequences of using it erroneously. "Once businesses have a better understanding of how the technology can be used for the common good – in line with the House of Lord's guidelines – the UK will be better able to assume a leadership position in AI," said Doron Youngerwood, Product Marketing Manager, Artificial Intelligence, Amdocs.

Chinese Trio to Pilot 5G Networks

China's trio of mobile network operators have unveiled plans to begin trialing 5G technology in several of the country's largest cities, People's Daily reports. China Mobile is planning to begin offline testing in five cities in eastern and southern China, with each city to be covered by more than

100 5G base stations apiece, whilst 5G application demonstrations will take place in twelve cities. China Unicom, meanwhile, will pilot 5G technology in 16 cities, including Beijing Tianjin, Qingdao, Guiyang and Zhengzhou. The operator added that it will refarm a portion its 2G spectrum

for 5G services. Finally, China Telecom is looking to test the technology in Xiong'an, Shanghai, Suzhou, Shenzhen, Chengdu and Lanzhou, with another six cities to be added later.

Rogers, Ericsson Report on 5G Tests, Network Development Plans

Canada's Rogers Communications has announced a multi-year mobile network technology development plan in partnership with Ericsson, including 5G tests. Under the plan, Rogers will continue to roll out a Gigabit LTE network based on technology including 4×4 MIMO, four-carrier aggregation and 256 QAM, and will boost and densify its network with small cells and macro sites across the country. Ericsson and Rogers will meanwhile trial 5G in Toronto, Ottawa and other selected cities over the next year. On April 16 the partners demonstrated multiple live 5G examples at the Rogers Centre testing environment. Participants wore virtual reality (VR) glasses to toss a baseball back and forth, virtually shopped in a retail store, and controlled robots with real-time responsiveness. Rogers also demonstrated quad-band Licensed Assisted Access (LAA) on Gigabit LTE to show how LAA provides high bandwidth, simultaneously across several devices.

IoT Standards Split Opinions

Bruce Liuping, Huawei's director of enterprise wireless marketing, highlighted Apple's smartphone success as an example of why broader standards are not necessarily all that important. In a panel session, Liuping noted Apple's iOS "is a private standard but it's so successful, while Android is an international standard, because many other vendors use it." "But who is more successful? As long as you are strong enough you will be the standard." The Huawei executive was responding to a question on how governments can outline an appropriate approach to nurturing IoT growth, given device numbers are soaring as new applications emerge. With 30 billion IoT devices forecast to be connected by 2030, Garrick Ng, Cisco CTO for Hong Kong, Macau and Taiwan, said the vast amount of data which will be generated is less of a problem than the multitude of incompatible formats. "There are no IoT standards: everybody is working on their own. For example, Cisco is running some smart city projects around the world. Smart lighting systems in different cities run on Wi-Fi, Zigbee, LoRa, RF Mesh et cetera, so the control mechanism is different, authentication is different and the security is different. We have to spend effort to integrate every single one of these." Ng said a city shouldn't have to care about the format it wants results in, it just wants everything to work together. "We need to build flexible and open platforms to integrate all different types of vendors and data formats. I don't see things consolidating in the short term. I only see things going to be more [fragmented]. We have to be united and the architecture has to be very open," he said. Others on the panel agreed market forces will determine whether open standards or proprietary systems emerge as the winners in the IoT space.

Viva Unveils Region's First 9-Beam Antenna Tech

Viva Bahrain, a leading telecom services operator in the kingdom, said it had made a regional breakthrough by deploying the region's first nine-beam antenna technology during this year's Gulf Air Bahrain Grand Prix. Delivering approximately nine times the capacity to absorb traffic demand of a regular mobile tower, Viva customers enjoyed seamless voice and data telecom services during the race weekend, said the statement from the company. This step comes as the first stage of a strategic investment of Viva to better serve the growing demand of data, while focusing on efficiency and environmentally responsible alternatives that minimizes the need to build new tower sites across Bahrain, it stated. VIVA Bahrain CEO Ulaiyan Al Wetaid said a 50 per cent increase in mobile traffic demands was recorded at the event this year, which emphasizes the importance of the company's decision to invest in the latest innovation and to serve our customers in the best way. "We are very proud of the results this technology has achieved and will be exploring more ways to utilize it in the future for the betterment of Bahrain," he added. This year, the Bahrain Grand Prix attracted close to 95,000 attendees over the race weekend, driving a large increase in mobile data traffic demands. Continuing to invest in the most advanced technology is core to VIVA's strategy and the company is strongly committed to delivering the best customer experience and connectivity services in Bahrain

AT&T Shows How Fast US 5G Could Be

AT&T has been running test trials of 5G service in preparation for deployment in 12 US markets later this year. The carrier shared its speed test results and a few other notes on Tuesday. AT&T has been testing 5G with small businesses over the last year in three separate cities: Waco, Texas; Kalamazoo, Michigan; and South Bend, Indiana.

Speed tests so far sound promising:
Waco's 5G speeds were 1.2Gbps from 500 feet (150 meters) over a 400MHz channel, with 9-12 millisecond latency. That was with "hundreds of simultaneous connected users," according to AT&T. Kalamazoo had 1Gbps speeds at 900 feet (275 meters) in "line of sight" conditions, and no negative impact from rain or snow. AT&T notes that the signals can penetrate "significant foliage, glass and even walls" better than expected, but it's unclear what that specifically means. South Bend didn't report specific speeds, but claimed "gigabit wireless speeds" in line of sight and "some nonline of sight" conditions. To put that in perspective, my home's Wi-Fi speed is around 100Mbps, and my phone on AT&T LTE averages around 25Mbps in New York. In January, AT&T said that it

plans to launch its mobile 5G network in a dozen markets in late 2018, along with a phone that will actually be able to use it (few current phones can). There are still a lot of unknowns, including how much 5G will cost consumers, and how extra users will impact speeds. And, how good

5G coverage will be as compared to LTE in areas that have it, or how reliable it will be versus LTE. 5G is being pitched as a key technology for self-driving cars, mobile VR and a lot more. At the least, it sounds like 5G could be a lot better at being a fast way to get online.

Construction Begins on New 36 Tbps Japan to Australia Subsea Cable

The Japan-Guam-Australia (JGA) cable project is being spearheaded by a consortium of companies, including Google, Alacatel Submarine Networks, RTI Connectivity and NEC, and is intended to boost communications networks from Japan

and Australia, to Asia and the United States, thereby improving network redundancy and expanding onward connectivity options in Guam. "We are honored to be selected once again by RTI-C to construct their third subsea cable. While both SEA-US and HK-G will provide horizontal East-West connectivity across the Pacific, JGA cable will now provide the much-needed vertical North-South connectivity, enabling high capacity communications to reach all corners," said Toru Kawauchi, general manager of NEC's Submarine Network Division. RTI-C's financial investment in the project will utilize capital from the Fund Corporation for the Overseas Development of Japan's ICT and Postal Services Inc. (Japan ICT Fund), in addition to a number of loans from Japanese financial institutions, including NEC Capital Solutions Limited. "JGA will be the second project after HK-G to be co-financed by the Japanese government-led Japan ICT Fund, and the third project supporting RTI's investment after SEA-US and HK-G for the Japanese loan syndicate. We wish to further utilize these funds for many more cables in the future," Kawauchi added.

NEC to Deliver 10G-EPON to Support KDDI's FTTH Services; Carrier Completes 5G Trial

In a press release, Japan's NEC Corporation has announced that it has supplied a 10 Gigabit Ethernet Passive Optical Network (10G-EPON) system to domestic carrier KDDI Corp, to support the latter's residential fiber-to-the-home (FTTH) service 'au Hikari Home 10 giga'. The new offer, NEC claims, enables the world's fastest upstream and downstream speeds of up to 10Gbps. The vendor's 10G-EPON system consists of an Optical Line Terminal (OLT) installed within KDDI facilities and an Optical Network Unit (ONU) installed inside the homes of individual subscribers. 'The need for high speed and large-capacity internet is expected to continue rising with

the sophistication and high-definition of content and the increase in mobile data traffic such as Wi-Fi offload. In addition to this 10G-EPON system for KDDI, NEC will continue to work on the development of optical access technologies that support the strengthening of telecommunications carrier services,' said Kazuhiro Tagawa, Deputy General Manager, Network Solutions Division, NEC Corp. In an unrelated development, KDDI and Samsung have competed a 5G field trial in a baseball stadium in Japan, successfully downloading and streaming a live feed of 4K video on a 5G tablet at Okinawa Cellular Stadium. In a joint statement the

companies announced that to facilitate the trial, Samsung installed 5G access units with beam-forming technology on a light tower in the stadium. Samsung and KDDI believe that the successful outcome of the trial will hopefully lead 'to new viewing experiences in crowded places like international conferences and music concerts using 5G and ultra-high frequency spectrum, such as the 28GHz used for the trial'. In December 2017 Samsung and KDDI achieved download speeds of 1.7Gbps on a high speed train in Tokyo.

KPN to Conduct Four Field Trials of 5G Technology

KPN, the Netherlands' largest mobile network operator by subscribers, has announced that it will conduct four separate pre-5G field trials during 2018. The trials will take place in Amsterdam Zuidoost, a farm in Drenthe, the Rotterdam harbor and on motorways near Helmond. In the Amsterdam Zuidoost area KPN will work with the municipality of Amsterdam, the Amsterdam ArenA and equipment vendor Nokia to test 5G applications. Massive MIMO technology will be used

to give extra capacity in busy locations. In Drenthe KPN will test 5G applications in agriculture at a farm in Valthermond, including drones connected to the mobile network. The firm also stated that it will test mobile communication based on millimeter waves in Drenthe, with the potential to reach speeds above 1Gbps. In the port of Rotterdam KPN will collaborate with Chinese vendor Huawei and will investigate 'network slicing'. This concept means that specific services in a virtual

mobile network will be protected from other mobile traffic and will lead to a more reliable quality of service. Lastly, KPN will try 5G for automotive purposes. On the A270 near Helmond and the A58 between Eindhoven and Tilburg the company will test technologies on 5G mobile networks enabling cars to communicate real-time with other cars and for use with traffic lights and matrix signs.

Korean Mobile Operators to Share Costs of 5G Infra Deployment

South Korean mobile operators and an internet service providers will share the costs of 5G infrastructure deployment. Following the completion of the deployment, operators will be able to share

this infrastructure, Yonhap news agency reports, citing government officials. The initiative is expected to generate savings of nearly KRW 1 trillion (approximately USD 938 million) over the next 10 next years, as

it would keep SK Telecom, KT, LG Uplus and SK Broadband from making redundant investments, according to the Ministry of Science and ICT.

Ericsson Obtains Swedish 5G Testing License for 26 GHz Band

Swedish postal and telecoms regulator PTS said it has granted Ericsson a permit for 5G testing for 1 GHz of contiguous

capacity in the 26 GHz band in Sweden. The permit runs until December 31, 2019, after which it could obtain a permit for

commercial exploitation.

AT&T Claims 1Gbps Speeds in 5G Trial

AT&T Mobility has issued a progress report regarding its 5G trial activity, claiming 1Gbps download speeds among a number of other achievements. In Kalamazoo, Michigan the telco observed download speeds in excess of 1Gbps speeds under line of sight conditions up to 900 feet. Further, AT&T reported no impacts on its 5G millimeter wave (mmWave) signal performance due to rain, snow or other 'weather events'. In South Bend, Indiana AT&T demonstrated a full end-to-end 5G network architecture, including the 5G radio system and core, observing extremely low latency; and in Waco, Texas the 5G network successfully supported hundreds of simultaneous connected users. Melissa Arnoldi, president of AT&T Technology & Operations, commented: 'It's no coincidence that AT&T is aiming to be the first US carrier to launch standards-based, mobile 5G services to customers this year. We've been "practicing" for this moment for almost two years. And unlike some of our competitors, we plan to offer a 5G-capable device to customers this year, too. After all, what's the use of a highway without an on-ramp?'

Vodafone Claims First Live Test of 5G Spectrum in the UK

Vodafone has conducted the UK's first test of its newly acquired 5G spectrum, according to a company release. The test was conducted over across Vodafone's existing live network between Manchester and Newbury. "5G will improve the quality of our lives and transform how we work. This next generation technology will enable medical services that could save lives, from remote surgery to remote care for the elderly. It will enhance industrial applications, from automated systems to robotics, helping manufacturers across the UK boost their productivity. And it will enable families to share their experiences with loved ones wherever they are, thanks to innovations like augmented reality. "Today's test is just the beginning. We are now preparing our network for 5G while continuing to increase the capacity and extend the reach of our existing 4G network," said Vodafone UK chief executive Nick Jeffery. The test utilized Massive MIMO technology, transmitting over Vodafone's recently purchased 3.4 GHz spectrum running over an existing core 4G network. Vodafone hailed the test as a major milestone in UK telecommunications, noting that this is the first time that the 3.4 Gigahertz (GHz) radio frequency allocated for 5G has been used in the UK.

Optus Launches 5G Showcase in Broadbeach for the Commonwealth Games

Australia's Optus has launched what it called its 'first public showcase using a live Optus 5G network', with the cellco simultaneously showcasing 5G use cases and 8K video streaming on-the-go, on its live 5G trial indoor and outdoor network. For the duration of the Commonwealth Games, which are currently being held on Australia's Gold Coast, Optus will showcase multiple user applications connected through a 5G system in the suburb of Broadbeach. Within its 'Optus 5G Technology Showcase', the cellco aims to offer a preview of the state-of-the-art technology, offering the public a chance to go hands-on with a number demonstrations of virtual reality (VR) use cases. In addition, Optus claims to have successfully streamed 8K video over its outdoor 5G network. This has reportedly been achieved via a van equipped with an 8K television, which itself carries 'a prototype 5G device with the live trial network in operation'. This demonstration will reportedly allow users to see how video content can maintain ultra-high quality streaming levels on the move. Commenting on the matter, Dennis Wong, Managing Director of Optus Networks, said: 'What we have here today is a spectacular simultaneous demonstration of 5G capability, powered by a live 5G network,

rather than through simulations … For people to be able to walk off the street and interact with real 5G technology is an incredibly exciting development as we continue towards leading in the delivery of the first phase of 5G technology in 2019.'

Verizon Stages 3.5GHz 4G Trials with Google, Ericsson, Nokia and Qualcomm

US telecoms giant Verizon has revealed that a number of vendors and tech firms have come together at its facility in Irving, Texas to test 4G solutions using frequencies in the 3.5GHz Citizen Band Radio Spectrum (CBRS) band. Verizon's partners have been named as Google, Ericsson, Nokia, Qualcomm Technologies, Federated Wireless and Corning, and the tests have focused on: spectrum

deployment feasibility, interoperability, mobility handoffs and data rates. The CBRS band is made up of 150MHz of shared 3.5GHz spectrum, which until now has been primarily used by the federal government for radar systems. The Federal Communications Commission (FCC) authorized shared use of the spectrum for wireless small cells in 2016. However, by using carrier aggregation (CA) and LTE-A

technology, Verizon notes that it will be able to use the spectrum to boost capacity and support faster downlink transmission speeds. In a separate statement to Fierce Wireless, a Verizon spokesperson clarified: 'CBRS-capable devices will begin entering the line-up by the end of 2018 and will continue to expand aggressively through 2019.'

KT Plans Commercial 5G Service in March 2019

KT, the second largest mobile operator in South Korea, announced plans to start commercial 5G service in March 2019, which will make it one of the first operators in the world to launch the next

generation mobile technology, Yonhap News Agency reported. Oh Seong-mok, president of KT's network business division, said at a press briefing it will launch 5G service combining true mobility and nationwide coverage. The operator, with a 31 per cent market share, said it will not use a fixed-wireless version of 5G, which US-based Verizon announced plans to roll out in three to five markets by the end of this year. Verizon's rival AT&T said in early January it aims to bring mobile 5G to a dozen cities in late 2018, likely making it the world's first operator to offer 5G for mobile customers. Up until AT&T's announcement, it had appeared US operators were focused on fixed-wireless 5G launches for 2018 rather than mobile. KT's announcement yesterday (22 March) comes despite the head of its 5G business unit, Lee Yong-gyoo, stating at Mobile World Congress last month it is not yet ploughing ahead with large-scale investment in the technology. "It's not clear what the business case is, not clear at all," he said. Lee did say at the time KT's aim was still to be first out of the 5G traps in South Korea with commercial services but wouldn't commit on when that might be. KT deployed pre-standard 5G at the Winter Olympics last month, delivering 360-degree VR and a time slice function – a 5G-dependent video streaming technology which allows viewers to control the time, target and angle of the content being viewed.

# Nokia, KDDI Trial LTE Connected Vehicle Applications in Japan

Nokia and Japanese mobile operator KDDI (au) have completed proof-of-concept trials to evaluate the role of 4G LTE cellular technology in enabling safe, cost-efficient, low-latency car connectivity. The Finland-based equipment manufacturer says the trials are the first in the world 'to use LTE broadcast, implementing the evolved Multimedia Broadcast Multicast Service (eMBMS) standard in two connected

car applications, and demonstrating the potential of cellular technology to enable fully automated driving in the future.' In a press release, Nokia highlighted that its 'vehicle-to-everything' (V2X) technology is designed 'to connect vehicles to each other, to communications network infrastructure, and to roadside sensors, including connectivity to traffic lights, radar and other functions.' The trials with

KDDI at a rural location on the Japanese island of Hokkaido focused on vehicle to network usage, utilizing 'non-integrated systems' in the vehicles themselves which connect to sensors via the Nokia Multi-access Edge Computing (MEC) platform designed to reduce network latency. The eMBMS hotspot solution allows data to be sent once to many users simultaneously, Nokia added.

# Laying the foundation for 5G with ultra-dense 4G networks

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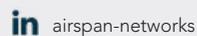
5G Network Densification: Airspan, Cracking the Code on Small Cells

Damiano Coletti
Vice President Strategy and Marketing
Airspan

Network densification remains one of the greatest challenges facing mobile operators as they look to implement 5G, add 4G capacity and increase user speeds. However, achieving massive densification requires a new approach to small cell deployments, from site acquisition to RF planning, integration with existing infrastructure, installation, network optimization, advanced interference mitigation and management. One goal for densification options needs to be zero or minimal zoning review, which includes pre-approved forms such as mono-poles and aerial mounting options.

Airspan has the most cost-effective network densification portfolio using innovative form factors that include the award-winning Sprint Magic Box based on the AirUnity indoor small cell with integrated wireless backhaul and plug-and-play installation, as well as AirPole and AirStrand, which simplify site acquisition and installation for outdoor scenarios.

With over a 300,000 small cells deployed worldwide, Airspan is the only vendor to have demonstrated that new approach. Airspan has the most cost-effective network densification portfolio using innovative form factors that include the award-winning Sprint Magic Box based on the AirUnity indoor small cell with integrated wireless backhaul and plug-and-play installation, as well as AirPole and AirStrand, which simplify site acquisition and installation for outdoor scenarios. AirSON integrated operational intelligence minimizes operational costs and automates configuration and optimization tasks. Airspan is removing barriers and leading the way toward 5G network densification.

Demand for Small Cell Gets Bigger with 5G
As the demand for coverage and capacity expands, mobile operators are stepping up small cell deployment roadmaps. The Small Cell Forum (SCF) recently released the results of a survey of more than 50 mobile operators who were asked about their deployment plans and business drivers for a dense heterogeneous network (HetNet) and the barriers they expect to have to overcome. Forty percent of the operators expect to deploy between 100 and 350 small cells per square kilometer in areas they densify by 2020. The SCF forecasts that "...between 2015 and

> **To meet the challenge of densifying their 4G networks and laying the groundwork for 5G, innovative operators are looking for vendors who can anticipate their needs and provide a wide range of small cell solutions...**

2025, new non-residential small cell deployments will grow at a compound annual rate of 36 percent, to reach almost 8.5 million, and by 2025 deployments will be 22 times higher than in 2015."

Most critically, 58 percent of operators in the first two to three years of deploying 5G New Radio expect to focus primarily on small cells. While some operators are launching 5G as a mobile service, most early installations are expected to be indoors and in venues, shopping malls, factories and other commercial areas.

To meet the challenge of densifying their 4G networks and laying the groundwork for 5G, innovative operators are looking for vendors who can anticipate their needs and provide a wide range of small cell solutions that:
- support multiple deployment options to eliminate issues of site acquisition and installation costs
- provide wired and integrated wireless backhaul options
- simplify complicated system configuration and operations
- automatically integrate and optimize coordination with existing networks

Pure-play small cell solution provider Airspan is the only field-proven company that is laying the foundation for 5G today by leveraging its deployment experience of over 300,000 small cells worldwide. With our small cells, Airspan is taking site acquisition from§` hours to minutes, all without a regulatory review. Advanced feature support includes integrated Distributed SON, 4T8R MIMO and unique LTE UE Relay backhaul that not only improves the efficiency of macro networks, but also scales networks with an ultra-dense 4G architecture.

Indoor and Outdoor Customers Like Magic
Last year, India's all-IP wireless broadband network operator Jio successfully deployed close to 100,000 Airspan small cells, carrying more than 350 TB of data, and terminating more than 5 million VoLTE calls daily.

Sprint's partnership with Airspan has already allowed the company to deploy nearly 200,000, all-wireless small cells — dubbed "Magic Boxes" — in approximately 200 cities across the country. The self-

> **The self-optimizing and self-configuring small cell requires no customer premises backhaul. The unit requires no implementation, labor or rental costs that are a hurdle for many traditional small cell deployments.**

optimizing and self-configuring small cell requires no customer premises backhaul. The unit requires no implementation, labor or rental costs that are a hurdle for many traditional small cell deployments. Sprint expects to have a million Magic Boxes in its network in the next few years.

Airspan and Sprint recently won the prestigious GSMA Global Mobile Awards' Best Mobile Technology Breakthrough Award for the Magic Box, gaining recognition for the technology innovation and simplified installation that is driving the largest indoor small cell deployment in the US.

The 5G Reality Check
Today's mobile operators are tackling densification challenges on several fronts on the road to 5G. Flexible and creative small cell solutions are needed that meet the challenges of zoning and site acquisition, minimize installation and operations costs, and increase the spectral efficiency of the macro network. Airspan is densifying 4G networks with 5G-ready small cells today to deliver on the promise of high-speed broadband, voice and digital services for business and homes.

REGULATORY NEWS

GSMA Launches Global Mobile Money Certification Scheme

At the Mobile 360 – West Africa event, the GSMA announced the launch of the GSMA Mobile Money Certification, a global scheme for mobile money providers to offer safer, more transparent and more resilient financial services to millions of mobile money users around the world. The certification relies on an independent assessment of a mobile money provider's ability to deliver secure and reliable services, to protect the rights of consumers and to combat money laundering and terrorism financing. The certification is designed to enhance consumer trust and accelerate commercial partnerships by setting a high bar to which all providers can aspire. "The GSMA Mobile Money Certification is a consumer-focused initiative, aimed at giving customers confidence that a provider has taken steps to ensure their funds are in safe hands, their rights are protected and they can expect a high level of customer service," said John Giusti, Chief Regulatory Officer, GSMA. "With over 690 million accounts globally, the mobile money industry is having a clear impact on the global effort to expand financial inclusion, providing access to life-enhancing financial services and serving as a gateway to the digital economy. Mobile money is directly advancing 13 of the 17 Sustainable Development Goals by facilitating access to essential services such as health and education, providing employment opportunities and reducing poverty." The certification scheme follows a three-year consultative process led by

the GSMA, which worked together with providers in Africa, Asia and Latin America to understand the challenges of their business and assemble best practices from these markets. Certification is open to all mobile money providers, whether they are a mobile operator, a bank or other type of payment service provider. Orange Côte d'Ivoire, Safaricom (Kenya), Telenor Microfinance Bank Ltd. (Easypaisa Pakistan), Tigo Tanzania (Millicom Group) and Vodacom Tanzania are the first to be certified, covering 98 million accounts in four markets. The certification promotes the application of consistent risk mitigation and consumer protection practices across key areas of business. The requirements include a set of eight high-level principles and 300 detailed criteria covering issues such as security, consumer rights and the prevention of money laundering,

financing of terrorism and fraud. The Certification criteria complements providers' compliance efforts, but goes beyond regulation in its detail and scope, defining and promoting industry best practices in detail. Responsible business practices are essential to help regulators achieve their goals around financial inclusion, stability, integrity and consumer protection. The operational management of the certification is contracted to an independent scheme operator, Alliances Management, which has responsibility for training and overseeing independent assessors to ensure all assessments are consistent and objective. The benchmark for achieving certification has been set high to serve as an aspiration to all providers and a pass mark of 100 per cent is required.

NBTC Scraps Financial Relief Plan for AIS, True Move

The National Broadcasting and Telecommunications Commission (NBTC) has performed a volte face by saying it will not push a plan to relax license fee payment terms for Advanced Info Service (AIS) and True Move, The Bangkok Post writes. The plan involved allowing the pair to extend the final payments to five years,

at a 1.5% interest rate, instead of paying the amount in full in 2020. Market leader AIS and second-ranked True Move called on the country's prime minister to allow the two firms more friendly payment terms for their 900MHz licenses after the National Council for Peace and Order (NCPO) said it would consider financial relief for cash-

strapped digital TV operators. The NBTC, however, came under fire after it revealed the relief financial package for the two firms, with NBTC secretary-general Takorn Tantasith saying that the telecoms regulator only offered the solution at the request of the NCPO, which asked it to consider all possibilities.

Orange Agrees on Mobile License Amendments

Orange Cameroon and the Ministry of Posts and Telecommunications have agreed a number of amendments to the cellco's mobile operating license, which was most recently renewed in March 2015. APA reports that the changes include the introduction of service neutrality for the use of mobile frequencies and set an annual spectrum fee of 1% of the firm's turnover, excluding taxes. The amendments permit the French-owned operator to deploy fiber-optic networks to improve the quality of its services, although Orange remains barred from offering retail fixed broadband access. Under the concession amendments, the cellco is also required to roll out 4G networks to all major regional cities, as well as universities, major economic activity areas and locations with at least 10,000 residents.

Panama Watchdog: 140MHz of AWS Spectrum Now Freed Up

Panama's National Public Services Authority (Autoridad Nacional de los Servicios Publicos, ASEP) has confirmed that 140MHz of spectrum in the 1710MHz-1780MHz/2110MHz-2180MHz (AWS) band was successfully freed up in 2017, in line with Resolucion AN No. 9319-Telco, which was signed back in November 2015. The development was shared by the watchdog this week, as it gave a presentation of its annual results to the National Assembly (Asamblea Nacional). The frequencies in question were originally expected to have been freed up by the end of 2016; a prospective date for a future spectrum auction has yet to be disclosed.

Vodafone NZ 'Disappointed' by Regulator Legal Challenge

Vodafone New Zealand says it will defend itself against 27 charges of misleading advertising filed by the country's Commerce Commission. The charges center on Vodafone's use of the name 'FibreX' as the brand for its HFC services, which employ fiber to the street cabinet then coaxial cable links for the last mile connection to the customer premises. The regulator claims the FibreX branding is misleading consumers into thinking they are signing up for a full fiber-to-the-home (FTTH) service, as offered under the government-backed Ultra-Fast Broadband (UFB) initiative. Vodafone, which offers HFC cable connections in Christchurch, Wellington and Kapiti, says it is 'disappointed by the approach taken by the Commerce Commission' and says it will 'welcome the opportunity to defend the naming and marketing of FibreX'. In a statement, the company said: 'We have been clear in our communications to consumers throughout. In 2017, the Advertising Standards Authority looked into our advertising of FibreX and ruled it was not misleading. They noted that consumers are more interested in the speed than the technology behind their internet service, and that FibreX performs to a comparable standard to other fiber access technologies.'

DICT Hints at 'Controversial' Spectrum Refarming in 2018

The Philippine Daily Inquirer reports that the Department of Information and Communications Technology (DICT) is keen to undertake a 'potentially controversial' mobile frequency refarming exercise this year, that could have an adverse impact on the spectrum held by duopoly PLDT Inc. and Globe Telecom. DICT acting secretary Eliseo Rio Jr, confirmed the intention to hopefully start work on the policy in 2018, but noted that nothing could happen quickly. We have to get the approval of the OP [Office of the President] for this,' Rio said in a text message. 'What is needed is just the authority, we have funds available for this.' If DICT pursues the plan, Rio said that refarming could affect Globe and PLDT's frequencies, without detailing which bands would be affected. One lawyer working with the incumbent telcos is quoted as saying that refarming could become 'complicated' if the bands in question are already in use. According to the Department's records, PLDT holds about 30.32% of all available radio frequencies while Globe has 24.90%. The DICT official did clarify, however, that the refarming plan does not include the unassigned 3G, 4G and potential 5G radio frequencies that DICT hopes to award to a new major telco player by May or June this year.

UAE and Bahrain's Telecommunications Authorities Discuss Cooperation

The General Authority for Regulating the Telecommunications Sector, TRA, has received a delegation from the Telecommunications Regulatory Authority in Bahrain, headed by Sheikh Mohammed bin Salman Al Khalifa, Director of Finance, Information Technology and Human Resources, to discuss cooperation. The visit is aimed at reviewing the most prominent practices and strategies related to the management of regulatory and licensing affairs, finance, spectrum, human resources, and customer happiness. The agenda of the visit included a detailed presentation on the TRA's scope of work, which contained regulations governing and developing the telecommunications sector in the UAE, and the empowerment of government entities in the area of smart transformation (mTransformation). In addition, to a presentation on the mechanism for issuing Type Approval certificates and another about the system for handling customer complaints, the customer business center, and the methodology and framework for developing government services. Hamad Obaid Al Mansouri, TRA Director-General, said, "We cherish this long march of cooperation and experience sharing between the two entities, which embodies the strong relationship between the two fraternal countries. Such meetings gain their importance from global developments at technological levels, especially in the wake of the Fourth Industrial Revolution (4IR), artificial intelligence and digital government, and what they entail in the heavy reliance on Big Data. Sheikh Mohammed bin Salman Al Khalifa said, "This visit is part of the ongoing efforts to support and develop bilateral relations between the two entities and to share experiences. All is part of our strategic plan to learn about best experiences and practices in the telecommunications sector at the regional level and to build on them in developing our approved work mechanisms."

O2 UK to put 2.3GHz Spectrum into Use within a Day of Receiving it

Fresh from dominating the UK's 2.3GHz mobile spectrum auction, O2 has confirmed plans to put its new frequencies into use within 24 hours of receiving them. In a press release, O2 said that having secured all of the 2.3GHz blocks that were up for grabs, it intends to use these to provide a 'significant boost' to its 4G customers. Initially, the spectrum will be deployed in London, before being rolled out in other cities, including Edinburgh, Newcastle and Leeds, 'in the coming months'. As reported yesterday by CommsUpdate, O2 was the biggest overall spender in regulator Ofcom's 2.3GHz/3.4GHz auction, bidding GBP205.9 million (USD290 million) for all 40MHz of the 2.3GHz spectrum, while it bid a further GBP317.7 million for 40MHz in the 3.4GHz band. O2 UK CEO Mark Evans said: 'With this spectrum investment we can build on our publicly recognized Best Network Coverage, to lead the way on network reliability and service as well … The airwaves we've secured allow us to further enhance our network, both now and in the future. We've thrown down a major marker for our future commitment to the UK. Our investment in 3.4GHz enables us to move forward to further improve connectivity whilst boosting the economy and laying the foundations for 5G in Britain.'

Proposed Federal Budget Would Allocate Just $7.5 Million to Fix National Broadband Map Data

The omnibus bill to fund the federal government that is currently before Congress calls for $7.5 million to go to the National Telecommunications and Information Agency (NTIA) to update National Broadband Map data in coordination with the FCC and using partnerships previously developed with the states. The news comes at a time when a wide range of stakeholders have questioned the accuracy of the data upon which the latest version of the National Broadband Map is based. That's particularly important as the government gets set to allocate funding to help bring broadband to unserved or underserved areas. If you don't know where those areas are, how do you correctly allocate funding? The FCC recently updated the capabilities of the interactive National Broadband Map, but the data upon which the map is based is from 2014. The data was collected

from the Form 477 filings that broadband providers must make with the FCC and some people have suggested that other data collection methods would be more accurate. "I look forward to the day we can merge a great platform with great data," said FCC Commissioner Mignon Clyburn when the updated National Broadband Map platform was unveiled last month. Participants got an earful about broadband data problems at a recent Senate Commerce Committee hearing titled "Rebuilding Infrastructure in America: Investing in Next-Generation Broadband." A report from the Benton Foundation about the hearing quoted opening remarks from Senator Roger Wicker (R-Mississippi), chairman of the Senate Subcommittee on Communications, Technology, Innovation, and the Internet: "Inaccurate information of where broadband exists will only exacerbate the digital divide and leave

millions of rural Americans further behind." Also at the hearing, Steven K. Berry, president and CEO of the Competitive Carriers Association, said the problem with the map was "garbage in, garbage out" because the FCC requested information about the wrong parameters. The question now, however, is whether $7.5 million is sufficient to address the problem. That amount is a small fraction of the $293 million that the NTIA allocated to 56 state broadband initiative projects as part of the 2009 broadband stimulus program to collect information for the National Broadband Map – and unfortunately it appears that the money spent at that time did not yield a sustainable system for ensuring accurate map data. If Congress passes the omnibus spending bill, it also would need President's Trump signature before becoming law.

RCom Given Go-Ahead for Wireless Asset Sale

Reliance Communications (RCom) was cleared to complete its entire wireless asset sale after a tribunal removed an order restricting the debt-ridden operator

from selling its tower and fiber holdings. The decision comes a day after India's Supreme Court gave the company permission to sell most of its wireless assets to Reliance Jio, after previously holding up the process due to legal challenges. RCom said in a statement the National Company Appellate Law Tribunal (NCLAT) had vacated the stay in relation to its fiber and tower assets, and the company was "very confident of achieving overall debt reduction of approximately INR25,000 Crore [$3.8 billion] within the next few

weeks". The company's tower assets are owned by subsidiary Reliance Infratel. However, NCLAT ordered the company to deposit the proceeds of the fibre and tower assets in an escrow account for the State Bank of India, and the distribution of the proceeds will be decided by NCLAT on April 18. RCom announced in December 2017 it would exit India's mobile sector, as it looks to reduce a debt load of around $6.9 billion. The process was held up by legal challenges, including a case by Swedish vendor Ericsson.

Beeline Relinquishes spectrum in 900MHz, 1800MHz Bands

Uzbekistani mobile operator Beeline has reportedly transferred a portion of its frequency allocations to rivals Ucell (Coscom), Universal Mobile Systems (UMS) and Uzbektelecom (Uzmobile), Gazeta.

ru writes. The Republican Radio Frequency Council (RRFC) ordered the operator to transfer roughly half (47%) of its spectrum in the 900MHz and 1800MHz bands to other cellcos by October 1, 2017 to ensure even distribution among the players. The transition period was subsequently extended to 1 April 2018. In addition, the RRFC has allowed tech neutrality in the two bands.

FCC Refuses to Block Verizon mmWave License Transfer

The Federal Communications Commission (FCC) waved on the transfer of mmWave licenses from Straight Path Communications to Verizon, rejecting a motion by the Competitive Carriers Association (CCA) to stay approval. In denying the CCA's motion, the commission said the group failed to meet its burden of proof to warrant such "an extraordinary remedy". The FCC concluded: "Verizon's acquisition of this mmW[ave] spectrum is unlikely to foreclose rival service providers from obtaining access to sufficient spectrum" for 5G. In January, the FCC

gave the go ahead for Verizon's deal with Straight Path Communications to move forward, approving the transfer of 735 licenses in the 39GHz band and 133 in the 28GHz, 29GHz and 31GHz bands. But the following month, the CCA asked the FCC to review and stay its decision citing an "incomplete and flawed public interest analysis" which led to the original outcome. The CCA, which represents rural and regional operators, accused the FCC of giving Verizon "special treatment" by allowing it to acquire licenses which should have been cancelled and returned to the

commission for auction due to Straight Path Communications' failure to meet build out requirements. CCA argued the transaction would not only give Verizon a head start on 5G and allow it to corner the market, but also result in a less competitive 28GHz auction. CCA filed a similar request to block AT&T's acquisition of mmWave spectrum from FiberTower, though the FCC is yet to issue a decision in that case. The FCC is expected to hold an auction for the remaining available spectrum in the 28GHz band in November.

The FCC is looking to Speed up 5G Deployment in the U.S

Actions taken by the Federal Communication Commission (FCC) in late March are aimed specifically at helping telecommunications and technology companies achieve their goal of a fully-operational 5G network as fast as possible. As we saw at Mobile World Congress in Barcelona in February, the talk around this next-gen wireless communications technology has reached a boiling point. A majority of the major carriers are already testing their 5G networks through small-scale deployments in select cities across the country. But the FCC would like to see those testing zones get online more frequently and more often. To accomplish that, the commission approved new rules that will streamline the review process for approving new 5G facilities. In short, the FCC has made it easier for carriers to set up small cell deployment facilities throughout the country without having to jump through all kinds of regulatory hoops to get those projects approved. Previously, the National Environmental Policy Act and National Historic Preservation Act were required to review small cell installations. These small cells, as explained by Business Insider, are advanced radio hardware that are required for 5G networks. "By cutting unnecessary red tape, we'll make it substantially easier for carriers to build next-generation wireless networks throughout the United States," FCC Chairman Ajit Pai said in a statement. "That means faster and more reliable wireless services for American consumers and businesses. That means more wireless innovation, such as novel applications based on the Internet of

Things. And ultimately, that means American leadership in 5G." As pointed out by Business Insider, the revised small cell rules will create two major benefits for the deployment of 5G here in the U.S. It'll speed up the rollout of those small cell installations by shortening the approval process, effectively making it possible for more small cells to be approved more quickly. And it will reduce the cost of deploying small cells. Currently, according to BI's analysis, the federal review process accounts for roughly 30 percent of the deployment of a single small cell. Eliminating the cost of deployment with the updated rules will save an estimated $1.56 billion during the entire 5G rollout process.

Dutch Law on 'Undesirable' Telecoms Ownership Proposed

The government of the Netherlands today (19 April 2018) proposed a law that would require any party attempting a takeover of a Dutch-based telecommunications

company to first seek government approval, Reuters reports. The proposed Law on Undesired Control of Telecommunications would apply to telephony, internet and data

center companies, a Cabinet statement said, citing national security interests as the reason behind the move.

Ofcom Confirms New Broadband Regulation, as DCMS Finalizes USO Design

British telecom regulator Ofcom has published final statements on its reviews of the wholesale local access market and quality of service remedies for wholesale line rental (WLR), MPF and Generic Ethernet Access (GEA) services. In a press release Ofcom said the new rules, which are designed to 'further increase investment in full-fiber broadband networks, and drive improvements in the quality of Openreach's service', will apply from 1 April 2018. The main measures include a requirement that BT must make its telegraph poles and underground tunnels open to rival providers, making it quicker and easier for them to build their own full-fiber networks directly to households around the UK. In addition, Ofcom has confirmed that it will not regulate the pricing for Openreach's

fastest wholesale broadband products, including its new pure fiber offerings, arguing this will incentivise other operators to build fiber infrastructure. The third key measure is the reduction of the wholesale price that Openreach can charge operators for its entry-level superfast broadband service; the maximum charge for the plan, which offers speeds of 40Mbps/10Mbps down/uplink, has been set at GBP12.06 (USD17.05) per month. Finally, the new rules also include stricter requirements on Openreach to repair faults and install new broadband lines more quickly. Meanwhile, in separate but related news, the Department for Digital, Culture, Media and Sport (DCMS) has published its chosen design for the new Universal Service Obligation (USO), after considering responses to an earlier consultation on the matter. Having considered the feedback, the DCMS has confirmed it will move ahead with implementing the USO by 2020. The core elements of the USO include: a minimum download speed of 10Mbps; additional quality parameters which include a 1Mbps upload speed, minimum standards for latency, a

maximum contention ratio of 50:1, and a minimum data cap of 100GB per month; uniform pricing, so as to ensure that people connected under the USO do not pay more for their broadband than others pay for comparable services in non-USO areas; and a cost threshold of GBP3,400 per premise. In addition, it has been confirmed that while fiber-to-the-premises (FTTP), fiber-to-the-cabinet (FTTC), fixed-wireless and mobile technologies can all be utilized to deliver universal broadband services, the DCMS has said that satellite technology may not, 'based on its current capabilities'. According to the DCMS, there have been expressions of interest from some smaller market players in being designated as Universal Service Providers (USPs), and these have reportedly been passed to Ofcom to consider. In terms of arrangements for monitoring and reporting the progress of the USO, this will be done through Ofcom's 'Connected Nations' reports, with the first review of the specification set to take place 'at least as soon as the Digital Economy Act 2017 trigger of 75% UK premises take-up of 30Mbps broadband has been reached'.

DoT Close to Approving Idea-Vodafone Tie-Up

India's Department of Telecommunications (DoT) is making progress towards approving the long-awaited merger of Idea Cellular and Vodafone India, but there are still several more processes to be completed before it can greenlight the tie-up. The Economic Times quotes telecom secretary Aruna Sundararajan

as saying: 'The Idea-Vodafone merger is in the final stages of approval … but there are some foreign direct investment (FDI) approvals that are involved, there's liberalization of licenses, so there are a number of clearances, and not a one-step clearance, so we're in the process of expediting it.' The DoT is the last of

the major authorizations required for the transaction to take place, with the duo having already received a thumbs-up from the Securities Exchange Board of India (SEBI), the National Company Law Tribunal (NCLT) and the Competition Commission of India (CCI).

USTelecom Statement on FCC'S Order to Streamline Deployment for Next Generation Networks

"The FCC's order to streamline deployment for next generation networks reflects the Commission's future-focused and pro-consumer approach to helping speed the delivery of next generation technologies. Broadband providers across the nation are

deploying smarter, faster fiber networks to connect our customers and the technologies they rely on. USTelecom's members stand ready to connect the countless new small cells that will deliver 5G across our nation. We appreciate

Chairman Pai's and Commissioner Carr's leadership on this item to reduce regulatory roadblocks and ensure all Americans have access to world class broadband networks."

How WRC 19 Can Help Bridge the Digital Divide

Rarely a day goes by without a senior government official in the United States or elsewhere focusing on how to best address the digital divide: an important global goal to ensure that no one is left out of the benefits of the digital world. Accordingly, a significant amount of governmental resources are focused on enabling a fully connected world, where no one — no matter how remote their location — is denied access to the digital economy. Increased connectivity is particularly important to the most rural and remote portions of the world to enable economic development and access to critical services including healthcare and education. Taking appropriate actions at the 2019 World Radiocommunication Conference (WRC 19) on spectrum use can enable the deployment of advanced broadband services throughout the world, while ensuring there is additional capacity to support the promise of 5G. Bridging the digital divide has been an ongoing struggle since the start of telecommunications, with it growing increasingly in importance as the role of the internet increases. However, the focus on a solution by governments has been aimed at primarily either deploying terrestrial wireline or wireless services to meet user needs. Such actions have included universal service subsidies, enabling the creation of municipal or local government owned and operated Wi-Fi networks and, most recently, the focus by governments on limiting or eliminating local laws that may slow down terrestrial wireless deployment. Of course, these solutions have increased connectivity some, but still have proven unsuccessful where there are true economic and geographic issues associated with deployment. This is the case even when funding is made available — since this is generally a temporary solution. The economics of deploying and operating a terrestrial network — whether wireless or wireline — in sparsely populated areas, rarely makes economic sense. Another solution that governments have tried is to provide terrestrial wireless service providers with

access to additional spectrum. The belief, though faulty, is that if terrestrial providers are given greater access to spectrum, they will deploy in rural areas. While providing additional spectrum access has certainly helped improve services in urban areas, where the economics make sense, in less populated areas there is still no meaningful deployment because the economics are not there. Accordingly, whatever the incentive that governments provide, it is clear that the majority of beneficiaries of increased terrestrial broadband services have been in those in the most populated regions of the globe, leaving a digital divide. At the same time, the satellite industry has continued to increase the provision of broadband services to all areas of the globe, including to the most remote areas, without the benefits of many of these same incentives. Further, the satellite industry has successfully advanced the state of satellite technology to meet user demands for high speed broadband — today deploying services as fast as 100 Mbps. Because of the global reach of satellite and the lack of need of local infrastructure, this has resulted in broadband services being made available at cost-effective rates to even the most rural and remote areas of the globe. Of course, just like terrestrial services, the satellite industry is seeing a dramatic uptake in the demand for its high-speed services. And, just like the terrestrial industry, the satellite industry needs access to additional spectrum to meet this demand, especially for 5G. The question of how additional spectrum will be made available for the terrestrial wireless and satellite industries for 5G is front and center at WRC 19 under Agenda Item 1.13. Under this Agenda Item, the WRC is examining what spectrum will be made for terrestrial wireless 5G services and what, if any protections, will be made for satellite 5G and other services in these same bands. We are at a critical time with access to broadband being even more important to ensure that all are connected and can take advantage of the digital economy. As we move forward looking at solutions, we must focus on a spectrum policy that

provides both the haves and have nots access to the digital world. This can be accomplished by ensuring that domestic and international spectrum policies do not neglect providing adequate spectrum for use by the commercial satellite industry. Accordingly, as the WRC considers Agenda Item 1.13, it must ensure that satellite has sufficient access to the spectrum under consideration in order to be able to expand its broadband services globally. Of course, this need must be balanced with the requirement for additional spectrum to meet terrestrial wireless demand. While balance does not require equality, it does require that the spectrum made available for satellite services provides appropriate protections internationally since satellite communications do not stop at the border. The way forward is fairly simple: governments must ensure that both services have access to sufficient spectrum. To this end, where possible, sharing should be enabled, with protections for both services addressed internationally. Further, in some cases, where sharing is not possible, such as where satellite user terminals are operating with 5G, there will be a need for dedicated spectrum for satellite services internationally. Currently, the International Telecommunications Union (ITU) is considering making 8 GHz out of approximately 64 GHz under consideration for terrestrial 5G available for satellite on a dedicated basis. WRC 19 provides a true opportunity to enable the digital divide to be bridged for 5G and broadband services. To be successful, regulators will need to carefully balance the needs of the satellite and terrestrial wireless industry and make decisions that will result in a win-win. This includes adopting protections internationally so that the satellite industry has access to an adequate amount of spectrum it needs to meet the demands of its users, including those in the most remote corners of the globe. Failure to take such action international level at WRC 19 will ensure that the digital divide continues to exist into the next decade.

EU Countries Strike Cross-Border 5G Agreements

A number of European countries signed agreements to establish cross-border 5G corridors for connected and automated driving, as part of a push to build "a better environment for the testing and deployment of 5G technology". In a statement, the European Commission (EC) announced new partnerships were signed at the Digital Day 2018 event held in Brussels today (10 April), building on existing agreements struck in 2017 between 27 member states to conduct cross-border 5G tests. The latest agreements see Spain and Portugal signing a letter of intent to establish two joint corridors between Vigo and Porto, and Merida and Evora which will allow connected automated driving

to be tested across borders. Meanwhile, Bulgaria, Greece and Serbia are working together on a corridor between the cities of Sofia, Thessaloniki and Belgrade. In addition, Italy and the three presidents of the Tyrol – Sudtirol – Trentino Euroregion also confirmed their intention to work with other interested member states on the development of the 5G corridor on the Brenner Pass motorway. The EC said a pan-European network of corridors is now emerging with hundreds of kilometers of motorways, where tests will be conducted "up to the stage where a car can operate itself with a driver present under certain conditions".

5G experiment area
Today's announcement follows similar initiatives already in place between other member states. For example, France, Germany and Luxembourg have announced a joint corridor, as have Norway, Finland and Sweden, among others. The EC said the establishment of 5G corridors made Europe "the biggest experiment area rolling out the 5G technology", while also committing to support the efforts by

helping to address issues around security, privacy and data governance. In a speech, Andrus Ansip, EC VP, said he expected EU countries to agree on a new telecoms policy "that will help 5G become a reality" in the coming weeks, as part of the Digital Single Market Vision.

AI and VentureEU
Other highlights from the Digital Day 2018 event saw a declaration between 25 European countries to cooperate on artificial intelligence (AI) development. This agreement will see member states work together on addressing important issues raised by AI, ensuring Europe's competitiveness and research and deployment of the technology, as well as dealing with social, economic, ethical and legal questions. In addition, the Commission and the European Investment Fund launched a pan-European Venture Capital Funds-of-Funds program (VentureEU) to boost investment in "innovative start-up and scale-up companies across Europe". The fund aims to raise up to €2.1 billion in public and private investment.

US Bans ZTE From Buying Parts From American Companies for 7 Years

After pleading guilty to charges of violating sanctions and illegally shipping US goods to Iran, ZTE agreed to pay almost $900 million in fines in 2017, with up to $300 million in possible additional damages. However, it seems those penalties weren't enough for Uncle Sam, because today the US Department of Commerce slapped the Chinese phone maker with a ban preventing American companies from selling components to ZTE for the next seven years. While the original sanctions case was settled last March, the new ban follows multiple statements by major US Intelligence agencies earlier this year questioning the trustworthiness of Chinese networking giants Huawei and ZTE. Heads of the NSA, FBI, and CIA

cited concerns that both companies may be using their technology to spy on US consumers, and then sharing that data with the Chinese government, though none of those agencies has provided evidence of that behavior actually taking place. In addition to being banned from buying parts from US companies, ZTE agreed to dismiss four of its senior employees, while also pledging to discipline 35 others. That said, according to US officials, it seems ZTE has yet to follow through on the latter. The ban, while quite severe, doesn't explicitly prevent ZTE from selling smartphones and other devices commercially in the US. However, with companies like Intel, Microsoft, and most notably Qualcomm (which makes the processors found in a

large number of ZTE phones), no longer able to supply parts, ZTE will be forced to overhaul its entire supply chain if it wants to continue to do business here. According to Reuters, who spoke with exports control lawyer Douglas Jacobson, the ban is highly unusual and "will be devastating to the company, given their reliance on U.S. products and software. It's certainly going to make it very difficult for them to produce and will have a potentially significant short and long-term negative impact on the company." ZTE has yet to comment on how the new ban will impact its business, but we have reached out to the company for an official statement on the matter, and we will provide an update if we hear back.

Canada's Push Toward 5G Technology Depends on Timely Access to Spectrum

Canada's push toward fifth-generation wireless technology promises network upgrades that could enable everything from powering complex new technologies to closing the digital divide. But long before Canadians see any of the technology's promises in action, the federal government must decide how it will allocate the necessary spectrum in a new auction round. For 5G technology to work as Canada's carriers hope, they will need huge blocks of spectrum -- the radio frequencies that carry signals to receivers embedded in smartphones, sensors and other connected devices. "Industry needs that (spectrum) to deliver all of the capabilities of 5G and to keep up with the demand for wireless services," says Eric Smith, a spokesman for the Canadian Wireless Telecommunications Association. "So timely allocation of the necessary spectrum is important," Smith said. The problem, however, is the Canadian government has been slow to make decisions when it comes to the allocation of the 600- and 3,500-megahertz spectrums -- two frequency bands that could be useful for 5G wireless networks. The telecoms are waiting for the Department of Innovations, Science and Economic Development to set out a framework for acquiring 3,500 MHz spectrum, a mid-range set of frequencies that's been identified as the primary band suitable for the introduction of 5G services in Europe before 2020. Consultations on 3,500 MHz won't be officially launched until the summer and it's unclear when the auction will be held. In fact, ISED only announced last week the terms for holding a 600 MHz auction next March --

years after it began the process of deciding what to do with it. ISED Minister Navdeep Bains says the government is aware of the importance of 5G technology, and is committed to supporting it, but it wants to get the ground rules right -- not just for the industry but for consumers. He says that 600 MHz spectrum is the first of its kind that's shown potential for 5G wireless use but it's also well-suited for rural and remote areas -- which the government wants served. "I think spectrum is not a point of conversation that many people can directly appreciate," Bains said. He said spectrum licences are one of government's tools to stimulate competition which, in turn, will lead to lower, affordable prices and innovation leading to better-quality service. "And that's really the purpose of spectrum," Bains said. But Gregory Taylor, a University of Calgary academic who has spent years analyzing Canadian telecommunications policy, is skeptical that the government will be able to deliver what consumers want throughout the country. "Most of us live in cities, so if you cover the cities you cover the majority of the population. But the challenge in Canada has always been in getting communication technologies out to the rural area." There's no economic rationale to support it, so the government has tried various ways to persuade industry players to address the needs of remote parts of Canada, Taylor says. But Taylor says he doesn't think successive Liberal and Conservative governments have used the leverage they have from controlling access to spectrum. One tradeoff would be to insist on improved coverage for rural and

remote areas with 600 MHz spectrum as a condition of issuing 3,500 MHz spectrum that could be even more important to 5G in urban areas. Taylor, an assistant professor at the University of Calgary's department of communication, media and film, says he's wary of the hype surrounding 5G because "right now we simply don't know the details of it." "Before we make this jump to 5G, I think the priority should be that we make sure we fill in all of these areas of Canada that are, right now, not receiving proper coverage. And then we should move onto areas of 5G." But he acknowledges the odds are against ensuring coverage for rural and remote communities. "The problem for the rural areas is, there's never that much of a financial return," he said. "So the government will talk about it, but the companies simply don't want to do it." On the other hand, Canada's governments and its telecom industry see the promise of 5G, which some say is progressing more quickly in Asia and Europe than in North America. It's also why Bell, Telus and Rogers and other carriers have been running 5G pilots and preparing to spend billions of dollars to upgrade their networks to be ready for the early stages of 5G technology within a year or two. Bains says the Trudeau government is committed to striking the right balance of innovation, coverage and affordable prices. "5G has enormous potential for innovation and we don't want to rush things. We want to make sure we get this right." "So we'll work with industry stakeholders -- and even civil society -- to make sure we put the best possible framework in place."

Watchdog Clears TIM, Fastweb Fiber Venture; Elliott Ups TIM Stake

Italy's Competition and Markets Authority (Autorita Garante della Concorrenza e del Mercato, AGCM) has closed its investigation into the Flash Fiber tie-up between Telecom Italia (TIM) and Fastweb. The venture, established in July 2016, aims to deploy jointly-owned fiber networks in

29 Italian cities, and the AGCM has now ruled that the proposals put forward by the pair do not restrict or distort competition in the broadband access market. Separately, the investment firm Elliott Advisors has confirmed that it has increased its stake in TIM to 8.8%, with options to raise this

to around 13.7%. The activist investor is looking to reduce the control of French firm Vivendi at TIM; the telco's board resigned last month, with a new board to be chosen at a forthcoming shareholders meeting. Vivendi has a 23.9% stake in TIM.
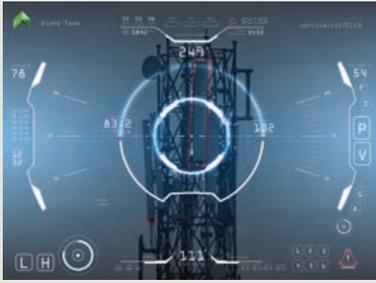
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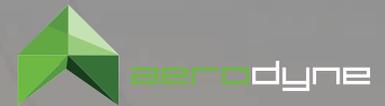
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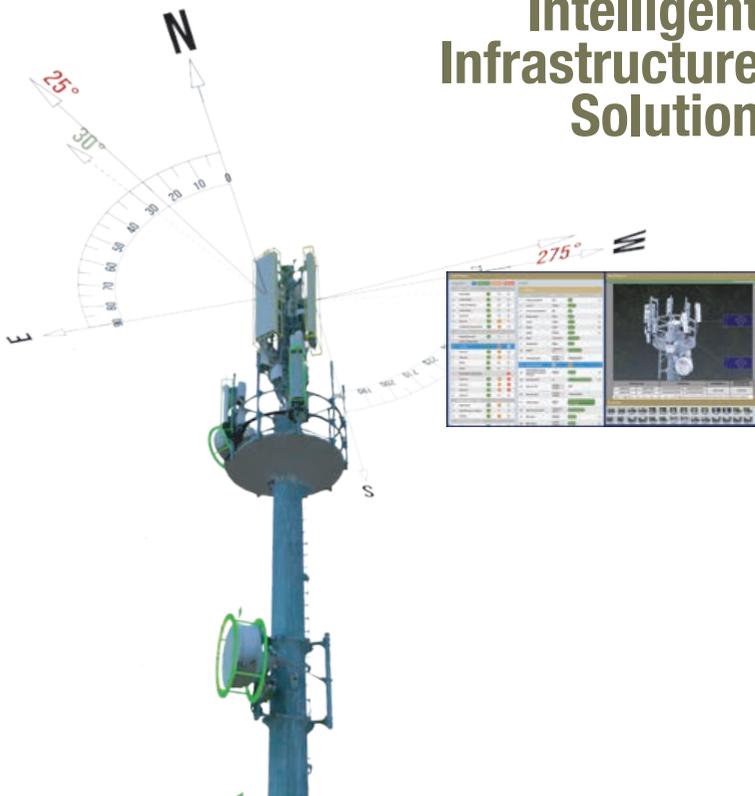
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ARTICLE

Disruptive Behaviour - Drones Meet Big Business

The speed at which Drone technology has evolved over the last three years has been nothing short of astonishing. Like a 'Moore's law" running wild, their capabilities are growing exponentially, while industrial-scale production from manufacturers like DJI has relentlessly driven down costs. Putting Drones into reach for a mainstream market was just the first stage of integrating them into businesses though. Data without meaning is not equivalent to knowledge - a painful lesson for some of the corporate big-spenders who surfed the 'drone wave' without stopping to think about what actual value their investments could add.

In regions where Drones were quick to become established there was a surge in the numbers of pilots, hoping to cash in on the sudden availability of viable commercial platforms at consumer prices. In the UK alone, the number of individuals and entities issued with a Permission for Commercial Operations (PfCO) from the Civil Aviation Authority stands in the region of 4,000. The age of DaaS (Drones as a Service) was upon us, but for the most part these service providers could only offer images or video to their clients. In an increasingly crowded marketplace the demands and expectations of big businesses were a reality check for many newly-qualified pilots.

More pragmatic pilots were already thinking about how they could incorporate Drones into their existing business or skillset. A GIS specialist would find it easy (if relatively expensive) to incorporate Drone data into a project. A surveyor with technical knowledge could find a practical application within building inspections. Media production companies were able to add new capabilities and creative possibilities to their locker by getting their cameras airborne, often at a fraction of the cost of employing a helicopter.

While these approaches made a strong case for Drones as useful tools they weren't truly Disruptive Technology. For all the hype and technical advances a drone can still be described as a 'smart/dumb' machine. Smart in terms of the wealth of technology it contains, but dumb in the sense that ultimately it is just a platform for a sensor. The same can be said for the sensors themselves - while they get smaller and more powerful they are only a method of capturing data. To be truly disruptive, to fundamentally change the way that enterprises work, DaaS providers had to take the next step - turning petabytes of undeveloped data into concise

Kamarul A Muhamed
Founder & Group CEO
Aerodyne

information. The corporate mantra is much the same as it ever was - "Do it faster, smarter, safer, cheaper. Preferably all of the above. And did we mention cheaper...?"

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Relatively few Drone companies have actually had the resources (or the nerve) to stick their heads above the parapet and tackle the demands of multinational heavyweights and conglomerates. Going into a boardroom to try and sell a service based on new technology can be a nerve wracking experience. Walking out and realising that you are only a small piece in a very complex puzzle can be rather more of a chastening one. The Catch 22 was obvious to see, but not so easy to address. How do you persuade someone to invest in a service before you've proved that you can actually scale it up and deliver it? With the notable exceptions of General Electrics (GE) and Amazon only a handful of major companies have shown the capability or the appetite to develop their own 'in-house' Drone solutions.

There was clearly a market for anyone who could combine DaaS with Software as a Service (SaaS) and offer the holy grail - a fully-managed service which captured, analysed and reported the mountain of Drone data and turned it into a solution that was genuinely disruptive.

Enter Aerodyne. While some other Drone solution providers were going through high- profile (and often messy) rounds of public and private funding Aerodyne were going quietly about their business - developing their own connections, experience and, most importantly, a cloud-based software platform. This was unleashed in early 2016 and since then growth has been phenomenal, the scale of their operations reaching unprecedented

levels. From an original team of three they have developed into a fully-fledged international company employing over 200 staff, with projects around the world. Already with offices in Australia, Singapore, Malaysia and Indonesia they are launching a London- based European office later in the year. Drone magazine caught up with Aerodyne CEO Kamarul A to talk about how far the Drone industry has come, and which direction it is heading in next...

A special Q&A with Mr. Kamarul supports the need for drone technologies and their emerging role.

Q. How did you first become involved with Drone technology?

A. I used to run an interactive production agency and we regularly chartered helicopters whenever we needed to produce aerial images. Our projects took us all over the world, and in 2009 I was in Russia to document the journey of a vessel travelling through the Volga-Don canal. We needed to charter a helicopter frequently over a period of 3 weeks, and we realized that we could get a top of the range Drone (at that time) for less than a third of the helicopter charter cost. It also eliminated what was a tricky and time- consuming approval process with the Russian authorities. So, the Drone was the logical choice and the rest, as they say, is history.

Q. When did you first realise the potential for Drones in wider industry?

A. We went on to use drones for the next 4 years to capture some amazing and unique images which were pivotal to our production work. And it was exclusively visual. By 2013 Drones were becoming more far more capable in terms of their flight endurance, reliability and sensor technology. It became clear to us that instead of using the technology just for the marketing and advertising departments of a company, we could add value to their surveying, inspection works, construction projects etc. That's what

prompted us to explore the potential of Drones for industrial uses. It was still strictly visual and eye-in-the-sky capabilities for the next year or so.

Then we began our first organizational transformation into an engineering and survey company and began offering data capabilities. At that point we also had analysts, data scientists, civil, mechanical and aerospace engineers in the company and we started delivering actionable data to our clients. Fast forward to mid-2017, and we transformed ourselves again into a fully-fledged solution company - delivering total end-to-end drone-based solution to our clients.

Q. What were the main lessons that you learned in your early days of trying to incorporate Drones into your business?

A. Drone safety is a big issue. Lots of effort was required to convince clients - not just from the inherent dangers of drone operations but also in terms of privacy, regulatory requirements and safety compliance. We also realized early on that it is not just about flying and capturing the data. The real prize was what we could do with the data and how we could deliver it to the client. Technology limitations were also a big issue. Fortunately drone technology moves faster than Moore's law - it has now reached maturity and passed the tipping point of it being universally accepted in industry.

Q. What Drones are you currently using in your projects?

A. We try not to get too hung up about drone systems - we treat them as purely data capture devices - an airborne IoT (Internet of Things) platform if you like. So, we deploy the best platform for each individual client to strike the right balance between accuracy, performance and cost. Our current fleet of over 200 drones includes both fixed wing and multirotors from manufacturers such as Sensefly, DJI, Topcon, 3DR and many more. Currently DJI accounts for about 75% of our drone assets, primarily on the strength of the M600 and M200 series. They are impressive not only because of their technological features. With the software development kit (SDK) we can access a level of automation and customisation that give us far more flexibility.

Q. What is your proudest achievement to date?

A. I'm immensely proud to have seen and experienced the emergence of Aerodyne as one of the leading Drone service providers. Three years ago, there were only three of us working here - now we have a team of more than 200 across five countries, and we are still growing exponentially. By this time next year, we will have doubled again in size. In 2016 we were recognised by Frost and Sullivan as the entrepreneurial company of the year (UAV). Now that has been overtaken by our achievement in 2017 of completing 30,000 asset inspection in seven months! I'm really proud of the dedication and professionalism of our team. It wasn't an easy thing to deliver, but with continuous learning, perseverance and hardwork we overcame many obstacles together.

Q. What are the challenges facing Drone technology in the next few years?

A. The next major challenge is the move towards full autonomy and integration into even more aspects of daily commercial life. At that stage companies will have truly reached the age of Enterprise 4.0. For this to really work well, better sensors, flight endurance, system redundancies and advanced features (such as adaptive sense and avoid) are needed. We also need to see a central artificial intelligence (AI) that manages the whole ecosystem. This has the potential to create more flashpoints with regards to regulations and safety concerns.

Q. What is your favourite Drone to fly, (and why)?

A. For my personal use, my two favourite Drones are the DJI Inspire 2 with X5S (for its amazing visual capabilities) and the DJI Mavic (for its range, endurance and portability).

Q. What are the most exciting possibilities for the future of Drone technology?

A. Drones will without a doubt automate a lot more processes in our daily lives, both at work and at home. In the not-so-distant future, drones will become our mode of transportation, our delivery platform, our personal robotic assistants, photographers, communications devices - perhaps even our personal trainers and bodyguards. I can't wait to be living in that

Aerodyne by Numbers

35,000+
number of successful flight operations in 2017

$80 billion+
value of assets inspected and reported with Vertikaliti

100,000+
assets inspected for first half of 2017. 300,000 projected by 2018.

future! At work they will also play an integral role within enterprises - continuously monitoring and improving performance.

Q. After the last three years progress, where do you think you will be in another three years' time?

A. I see Aerodyne emerging as one of the key innovators, influencers and market leaders in drone-based managed solutions. There are so many leading-edge projects we are working on right now that are under wraps for now - so stay tuned!

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

Afghanistan

Afghanistan Telecom Regulatory Authority (ATRA) signed MoU for cooperation with IDLG. Based on this MoU signed by Dr. Mohammad Najeeb Azizi, ATRA Chairman and Mr. Abdul Mateen Beg, Director for Independent Directorate of Local Governance, ATRA is to equip IDLG and its related parts with IT equipments and to connect them with internet and optical fiber. Appreciating ATRA in the conference, Mr. Abdul Mateen Beg said, "provincial directors' offices, districts, province municipality offices and other related departments of IDLG will be equipped with internet services in five six years by ATRA as per the MoU". "ATRA continues to provide the compatriots with different services through expanding and

propagating technology and further the authority would equip the provincial directors' offices, districts, province municipality offices and provincial councils of the country with information technology and would also connect them with internet and optical fiber for expedition of activities and relationships between center and local governance", said Dr. Mohammad Najeeb Azizi on signing this contract. Mr. Azizi also added, "Transparency would be provided for electronic government by implementing this MoU and further termed infrastructures, good content and publicity as positive means for propagating e-government". The conference ended by replying journalists' questions. (April 4, 2018) atra.gov.af

Bahrain

The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain chaired the first meeting of the 5G Frequencies Working Group to discuss and shed the light on Government's efforts in general and TRA's efforts in specific in setting the proper plan and conducting the necessary preparations to secure the required spectrum for implementing the 5G networks in the Kingdom of Bahrain. The Working group is responsible for developing and implementing the action plan for the initial introduction of 5G commercial mobile networks in the Kingdom of Bahrain. The meeting also discussed and finalized the terms of reference TRA prepared for the Working Group that include the rules and responsibilities assigned to the group. TRA's Director of Technical & Operations, Eng. Mohamed Alnoaimi stated "The Working Group will consider the commercial sector needs of the spectrum required for establishing the 5G networks in cooperation with all the concerned government entities and will prepare an evacuation plan accordingly in light of the agreement with the Working Group team." The Telecommunications Regulatory Authority (TRA) of the Kingdom of Bahrain chaired the first meeting of the 5G Frequencies Working Group to discuss and shed the light on Government's efforts in general and TRA's efforts in specific in setting the proper plan and conducting the necessary preparations to secure the required spectrum for implementing the 5G networks in the Kingdom of Bahrain. The Working group is responsible for developing and implementing the action plan for the initial introduction of 5G commercial mobile networks in the Kingdom of Bahrain. The meeting also discussed and finalized

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The Telecommunications Regulatory Authority's (TRA) Board of Directors held their first meeting this year. During the meeting, Board members discussed key issues related to the telecommunications sector; praising TRA's significant efforts in working on both the Privacy and Data Protection Regulation which aims at protecting the confidentiality of communications and the privacy of individuals, and on the International Roaming Regulation which sets our rules aimed at increasing price transparency and also serves to improve the provision of information on charges and tariffs to users of international roaming services. The Board also commended TRA on its leading role contributed to the progress towards achieving the Fourth National Telecom Plan ("NTP4") objective of establishing the National Broadband Network ("NBN"), which is supported through a single fixed fiber network. The Board of Directors expressed their thanks and appreciation to TRA for its outstanding efforts in the development and growth of the telecommunications sector in the Kingdom of Bahrain. (April 4, 2018) tra.org.bh

The Telecommunications Regulatory Authority (TRA) held a series of briefings with telecom operators this month to discuss the new economic regulatory framework, a key step towards achieving single network in the kingdom. The new framework gives effect to the government's Fourth National Telecommunications Plan (NTP4) objective of establishing the National Broadband Network (NBN), which is supported through a single fixed fiber network, said a statement from TRA. The purpose of developing the New Framework is to improve the quality of services, lower prices, and drive innovative technological advancements. The new framework will encourage these improvements by ensuring that all operators can compete on a level playing field in the provision of services to end users, it stated. TRA's Acting General Director, Sheikh Nasser bin Mohamed Al Khalifa said: "The NTP4 mandates the move towards the single fixed fiber network supporting the development of a National Broadband Network in order to maintain the ingdom's outstanding position at the forefront of technological innovation." The meetings were testimonial to the Authority's dedicated effort to engage industry stakeholders in the development of the new economic regulatory framework, and promote service-based competition in the telecommunications market," he added. (April 1, 2018) tradearabia.com

Bangladesh

The Bangladesh Telecommunication Regulatory Commission (BTRC) is planning to issue a request for proposal (RFP) for the award of four concessions for the management of telecoms towers. BTRC Commissioner Md Jahurul Haque said that the authority could award the licenses within the next two months via a beauty contest. The license fee is set at BDT250 million (USD3 million), with an annual fee of BDT5 million, in addition to a requirement to share 5.5% of revenue with the government and contribute 1% to the social obligation fund. So far, only two companies have expressed interest in the authorizations – US-based American Tower Corporation and Malaysian-backed edotco Bangladesh. (March 29, 2018) The Daily Star

Egypt

The National Telecom Regulatory Authority (NTRA), is participating in the International Telecommunication Union (ITU) Council 2018 Session that will take place on April 17- 27, at ITU headquarters, in Geneva, Switzerland. It will be preceded by the meetings of the Expert Group on the International Telecommunication Regulations (EG ITRs) on April 12-13, and the Council Working Group on Strategic and Financial Plans (CWG-SFP) on April 16. The ITU is governed by the Plenipotentiary Conference and the Administrative Council. The Plenipotentiary Conference is the supreme organ of the Union. It is the decision-making body which determines the direction of the Union and its activities. The Council, on the other hand, acts as the Union's governing body in the interval between Plenipotentiary Conferences. Its role is to consider broad telecommunication policy issues to ensure that the Union's activities, policies and strategies fully respond to today's dynamic, rapidly changing telecommunications environment. The Council also takes all steps to facilitate the implementation of the provisions of the ITU Constitution, the ITU Convention, the Administrative Regulations (International Telecommunications Regulations and Radio Regulations), and the decisions of Plenipotentiary Conferences and; where appropriate, the decisions of other conferences and meetings of the Union. Egypt will represent the African group, in response to the invitation of the African Union (AU). EG-ITRs final report will be presented during the meeting and it will be presented also at the Plenipotentiary Conference, due to be held in Dubai, during the last quarter of 2018. (April 17, 2018) mcit.gov.eg

The National Telecom Regulatory Authority (NTRA), is participate in the Central Region Communication Conference (CRCC), hosted by the United States Central Command (USCENTCOM), in Washington, USA, on April 17-19. The Conference will bring together ICT ministers, telecommunications regulators, senior military ICT officers and ambassadors residing in Washington from eleven countries: Afghanistan, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia and the United Arab Emirates. CRCC aims at promoting multilateral participation in exchanging regional information and communications systems to promote regional security, stability and economic development. CRCC will feature several presentations and an opportunity for regional delegations to exchange views and lessons learned from their respective national cybersecurity strategies and ICT initiatives. The Conference also aims to strengthen cooperation between relevant entities and organizations to meet the operational requirements of the sector and to overcome the challenges related to crisis management or relief missions sent in disaster situations. The United States Central Command (CENTCOM) was established on 1 January 1983. As its name implies, CENTCOM covers the "central" area of the globe located between the European, African and Pacific Commands. The CENTCOM Coalition nations seek to promote peace and stability, enhancing capabilities, sharing information and addressing destabilizing issues in the region.

(April 17, 2018) mcit.gov.eg

Jordan

The Telecommunications Regulatory Authority (TRA) organized a regional workshop on "Internet of Things" in cooperation with the International Association of Mobile Operators (GSMA) and with the wide participation of representatives of the Arab member administrations of the Arab Regulators Network and the local and regional mobile operators. The two-day workshop, organized by the Telecommunications Regulatory Authority (TRA), aims at building the capabilities of the telecommunications industry, increasing their knowledge, and preparing them to cope with the rapid technological development in the field of Internet in the region. The Chairman of the Board of Commissioners Dr. Ghazi Jabour said in his speech at the opening ceremony of the workshop: "We in Jordan are aware that we are on the verge of a new era with many opportunities and challenges, which requires us to work diligently, driven by unlimited support and guidance His Majesty King Abdullah II, may God protect him, to keep abreast of the developments. This requires us to be sufficiently aware of the exploitation of successive technological and scientific developments, of which the Internet is one of the most important and important of the moment. "Our future lives will depend heavily on the new areas that Internet services will provide, which will directly affect the evolution and quality of human life. The role

of communications regulators in laying the foundation for the spread of Internet services shows things by adopting creative regulatory frameworks that keep pace with the times of the day and takes into account Internet related topics including coverage of privacy issues, information security and effective spectrum management. Mr. Javad Abbasi, President of the Middle East and North Africa region of the GSMA, said: "The Internet has a positive impact on the lives of people and businesses around the world. This is evident in its role in helping to reduce costs and increase efficiency. Productivity in key sectors such as transport, health care and education, as the International Association of Mobile Operators works in collaboration with governments and policy makers around the world to ensure regulatory frameworks and policies that remove barriers and limitations that prevent the Internet of things and the development of its services, because of the economic and social benefits brought by Internet applications. The agenda of the workshop includes many important topics related to the Internet in terms of regulatory, economic and technical, such as: the Internet of things, and a high-level technical view of mobile devices, various related models, and government strategies to encourage adoption of Internet of things.
(April 3, 2018) http://trc.gov.jo

Lebanon

The Ministry of Telecommunications (MoT) has licensed three local operators to operate fiber-to-the-home (FTTH) broadband services via state-owned incumbent telco Ogero's in-deployment network, namely Connect (Lebanon), Globalcom Data Services (GDS, a sister company of IDM Lebanon) and TriSat. All three are currently licensed as 'data service providers' (DSPs), operating internet access services via their own fixed-wireless infrastructure. GDS Chairman Habib Torbey said that FTTH packages will be priced 'moderately' above the current costs of DSL, with initial connection speeds up to 100Mbps, whilst the MoT aims to finalize the geographic distribution assigned to each company within two months. The new licenses, according

to Nassif Bechara, CEO of Connect, assert that Ogero remains the sole owner of the fiber-optic network; DSPs sign usage contracts with Ogero whereby the state telco will perform maintenance. Habib Torbey added that the DSPs can deploy additional fiber-optic cables only in specific areas and in cases where such cabling is not available (expected to represent less than 5% of the overall network). Connect and TriSat will reportedly pay 40% of revenues to the MoT under the license, compared to 20% for GDS. Additionally, the companies pay USD1/meter/year cable rent, plus transmission fees to connect to Ogero central offices (exchanges) and FTTH router rental fees. (March 26, 2018) BusinessNews

Morocco

Morocco's National Telecommunications Regulatory Agency (Agence Nationale de Reglementation de Telecom, ANRT) has launched a tender for the supply, installation and operation of a centralized number portability (NP) database. The move follows the regulator's decision to amend the terms and conditions for NP

services in the country with Decision 04/15 of October 8, 2015. The updated legislation was created to improve 'the operational modalities' of the number portability regime by reducing the time required to port a number, in addition to facilitating the implementation of a centralized NP database. The ANRT ordered

the implementation of mobile number portability (MNP) to be completed by January 1, 2007, but granted operators extra time to set up the required systems after they complained of technical difficulties. At the end of April 2007 the regulator announced the commercial introduction of fixed and mobile number portability; since May 31, 2007 all operators are legally bound to port a customer's number on request. (April 12, 2018) telegeography.com

The government is not planning to sell its remaining 30% stake in Maroc Telecom (IAM), Reuters has reported, citing Finance Minister Mohammed Boussaid. The official said: 'the government has a 30% stake left … This is not now on the table for selling,' adding

that the state has not yet made any decisions on other potential privatizations. TeleGeography notes that in May 2014 UAE-based Etisalat completed the acquisition of French media group Vivendi's 53.0% controlling stake in Maroc Telecom's holding company Societe de Participation dans les Telecommunication (SPT), via its indirect subsidiary Etisalat International North Africa (EINA), for a final consideration of EUR4.138 billion (USD5.7 billion). Etisalat holds 91.3% of EINA's capital, while the Abu Dhabi Fund for Development owns the remaining 8.7% stake. The Kingdom of Morocco is the second largest shareholder in the Moroccan operator with a 30.0% stake, while 17.0% of the company is publicly floated. (March 27, 2018) telegeography.com

Nepal

Government has finally shut down analog cable TV in Kathmandu. Although the shutdown was announced at multiple times before, this time only the switch off is successful. They also plan to close Analog TV broadcast all over the country. Ministry of Information and Communication authorities visit to some local cable operators to make sure of the shutdown. Most of the cable operators have already implemented digital system, so as to continue serving people. For digital cable TV, people need to put set top box and subscribe the digital service. People who have not yet subscribed digital TV in Kathmandu, will be unable to view any channel now. If some people have not put set top box and subscribed the digital service, they will be unable to view all TV channels. Earlier, they

have let the cable operators to provide Nepali TV channels to give ample time for the subscribers to change. So, after the closure, there will be no any channel at all in analog cable TV. You can ask the same cable operator for digital TV service or take the service from the biggies like Subisu, Hamro TV, Sky cable and the Space Time Network. MOIC says, if some other cable operators are still found to be broadcasting analog TV channels, they will be facing legal action. As per their plan, they are also going to perform this shutdown from metro, sub-metro and municipality areas gradually to whole of the country. The digital TV service will be made compulsory first in the city areas and then to rural areas. (March 28, 2018) nepalitelecom.com

Pakistan

Pakistan Telecommunication Authority has invited Expression of Interest for Spectrum Sharing Framework. Spectrum Management is the process to regulate the use of radio frequencies in an efficient manner. Various technical and regulatory tools are used for the spectrum management and Spectrum Sharing is one such tool. Last date to apply for Consultations of Spectrum Sharing Framework is May 4, 2018. Increasing demands for radio frequency spectrum are placing more emphasis on making better use of spectrum. Availability of radio frequency spectrum for technological developments in telecom industry is crucial. Its demand is increasing day-by-day as new technologies emerge especially for wireless broadband services. This has forced regulators to introduce measures to liberalize the markets. In order to meet the growing demands of radio frequency spectrum, the regulators have focused on latest trends in spectrum management. The objective of spectrum management is to maximize the social, economic and technological benefits from this natural resource.

For clear understanding of the subject PTA Share Telecom policy

2015 for spectrum trading:

- Spectrum may be shared between any licensees with the necessary license conditions to enable the sharing.
- A spectrum sharing framework will be developed by PTA and PEMRA in consultation with FAB and stakeholders and will be subject to policy level approval by Federal Government (MoIT).
- The applicant licensees will be required to jointly inform PTA/ PEMRA and FAB regarding intended sharing. PTA / PEMRA in consultation with FAB will determine whether the sharing is to be permitted taking into account its effect on competition, national security, compliance with national laws and policies and compliance with international obligations and international relations.
- Spectrum will not be traded by any licensee with the necessary license conditions until the licensee has fulfilled its payment obligations to GoP. Permission to share spectrum will not absolve the assigned licensee from any roll out and payment obligations that are conditions of its license or imposed by regulations.

(April 16, 2018) phoneworld.com.pk

Turkey

Speaking at the Wireless Communications Summit, BTK President Dr. Ömer Fatih Sayan said that the technology is moving in a dizzying way. Sayan emphasized that the level of development of countries is now measured by information technology. Wireless Communication Summit 2018 organized jointly by Information Technologies and Communication Authority and Huawei Company in order to follow developments in the world about 5G and beyond new generation mobile communication technologies and to exchange information about work done by different parties was realized in BTK Central Building. President of BTK who made opening speech. Ömer Fatih Sayan emphasized that the number of internet users is increasing all over the world. "So this means that in the future, societies that produce information and use information technology will succeed, the most important of the development levels of the countries and perhaps even the survival and survival criteria will be information technologies. Especially artificial intelligence, machine learning, large data analysis, robotics and cyber security will guide the world of the future. While this is the case, the main effect of being successful in these areas will be to produce in 5G and beyond technologies and turn this area into a benefit. Because 5G and beyond are technologically different from the first 4 generations, Information technology countries' development, economy, development level and pointed out that one should not overlook the contribution to the education system Sayan, "Today the number of mobile users in Turkey 71 million people, the number of users who connect from mobile social media has reached 42 million. When we look at the worldwide social media usage rate, we see that 29 million messages were sent in a minute to Whatsapp, more than 65 photos were uploaded to Instagram, more than 156 million emails were sent, and nearly 4 million calls were made to Google. The end-user expectation is increasing day by day. Technological developments are on the way to meet expectations. Mobile data traffic of 11 exabytes in 2017 is expected to rise to 49 exabytes in 2021. "Sectors such as autonomous vehicles, connected vehicles, vehicles everywhere, remote health control, 360-degree increased reality and virtual reality will be reshaped with 5G," said Sayan. "It is possible to observe that the tendering processes in 5G and beyond have started in countries like USA, UK and South Korea. . It is obvious that the focus areas of Forum studies and research centers all over the world are similar. In this sense, even for companies where financial ratios and income information are entering a downward trend, there are projections that 5G and beyond are turning into a flush and these figures are beginning to turn upward. Along with 5G and beyond, traditional business models in the telecom sector will change. With the momentum from the vertical sectors, the B2C editing right from the operator to the end user is going to leave a shift to the business world and then to the end user (B2B2C). We see the impact of all of these in the global development as a consortium, like the eSIM standard, the 5G automotive association, or the vehicle everywhere, "he said. President Sayan BTK's also about working on 5G has shared the following information: "Turkey's 5G with the highest possible measure of nativism and nationalities of the ratio of mobile communication technology, and in line with the objective of becoming one of the most early last country in order to create a 5G and Beyond ecosystem BTK coordination The other study we conducted is the 5G Valley Open Test Field. Bilkent, Hacettepe and ODTÜ, together with three of our three mobile operators, have signed the 5G Valley Open Test Ground Cooperation Protocol. 5G Valley aims to establish an infrastructure for ARGE, URGE and testing of 5G and Beyond technologies in cooperation with ICTA, Universities and Operators, as well as Academicians and Researchers. (April 6, 2018) btk.gov.tr

United Arab Emirates

The Telecommunications Regulatory Authority, TRA, has revealed its future-shaping 2030 document during its annual retreat held recently at the St. Regis Hotel in Dubai. The retreat consisted of five different sessions focusing on TRA's future shaping and Artificial Intelligence, in addition to the establishment of a voluntary program, discussing plans and mechanisms for employees' happiness, and human resources related topics. Hamad Obaid Al Mansoori, TRA Director-General, delivered the welcoming speech of the retreat, calling on all the participating working groups to engage in interactive discussions to develop a roadmap for TRA business and initiatives for 2018. He said, "I am extremely proud of the rapid and effective success in enhancing the country's leading position in the ICT sector at the local and global levels. I hope to continue the journey towards an 'excellent' future with innovative plans and mechanisms to accomplish tasks away from routine, and exceed expectations in initiatives and projects that are highly distinguished, innovative, creative and effective". On the following day, the TRA held its annual gathering where Al Mansoori delivered a general speech addressing six topics including international developments, TRA's role in coming phases, in addition to issues such as the 5G, Artificial Intelligence, Internet of Things, and others. He then proposed a series of question to be considered and addressed during the next stages, in preparation of the digital future in which the telecommunications infrastructure is crucial. He added, "TRA retreat this year is exceptionally important, as it comes at

a stage of transition to Artificial Intelligence and understanding of concepts of the Fourth Industrial Revolution to enhance the principle of sustainability. And since these concepts are mostly based on ICT infrastructure, the TRA has to reflect carefully on the compatibility of its plans and programmes to serve digital transformations." (April 15, 2018) samenacouncil.org

The Telecommunications Regulatory Authority (TRA) organized a three-day master class training course on 5G in cooperation with the training firm Terrapinn. The course which was attended by a number of TRA's employees and licensed telecommunications companies was held as part of the 4th National Telecom Plan's objective of developing human resources capacity in the telecommunications sector. The course gave an overview about 5G services and discussed 5G usages and benefits, including the deployment of super-efficient and super-fast mobile networks, pervasive converged fiber-wireless networks, the role of GSMA regarding 5G services. The course also discussed 5G way forward which includes setting the technical foundation for 5G, Spectrum acquisition, selecting the business models. During the course, 5G case studies were presented, including what 5G Vendors are saying, Telcos in 2020, the Key challenges to implementing 5G networks, overcoming the risks of 5G implementation, evaluating the impact of 5G on the industry. 5G networks are the next generation of mobile internet connectivity, offering faster speeds and wider capacities. (April 15, 2018) samenacouncil.org

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Australia

Australian telecoms regulator ACMA has introduced new draft rules aimed at improving the experience of consumers being migrated to the National Broadband Network (NBN). ACMA is consulting on a second set of new rules aimed at protecting consumers moving to NBN services, in the wake of the significant volume of complaints over activation delays, connection faults and inadequate speeds. The regulations would apply to all providers offering retail services over the wholesale network. They would include a requirement to make a one-page key facts sheet available to consumers for each of a service provider's plans, detailing information about plan speeds available and the type of household user profile it would be suited for. ACMA proposes that the facts sheet would include typical download speeds that consumers can expect to experience during peak times. The sheet would also be required to detail the remedies a service provider will offer to customers if line-testing of a connection shows that the maximum possible download speed of the connection cannot reach the speed tier of a purchased plan. The draft code would also make it mandatory for the ISPs to perform a series of line tests following the activation of each service migrated to the NBN. These tests would need to be performed within one working day of activation, as well as when requested by customers. If a consumer's average evening speed fails to meet the typical evening speeds of a plan, ISPs would have to take steps to remedy the situation such as improving speed, changing consumers to a lower speed plan, or offering cost reductions or refunds as a remedy. Finally, the new rules would include a service continuity standard aimed at ensuring customers are not left without a working voice or internet service for too long while being migrated to the NBN. The standard would enable consumers to be temporarily reconnected to their old legacy service in the event of unreasonable delays connecting to the NBN, unless the consumer has agreed to be temporarily provided with an alternative service. 'These rules will ensure that consumers have the information they need to choose a service plan that meets their needs. They will also ensure that consumers have confidence that their new NBN service will work as promised,' ACMA Chair Nerida O'Loughlin said. "The migration to the NBN is a complex task for industry and consumers. These rules are designed to address consumer "pain points" in the process. We look forward to feedback on the draft rules we have released today." (April 11, 2018) telecomasia.net

The Australian Communications and Competition Commission (ACCC) has published a final report on its communications sector market study, with this including some 28 recommendations and actions related to competition and consumer issues. The market study examined likely competition and efficiency developments in the communications sector over the next five years, during which time 5G technology is expected to be adopted, while the National Broadband Network (NBN) rollout is also scheduled for completion. Notably, the watchdog said that it had not found 'any major deficiencies in the current communications regulatory arrangements', arguing that it remained 'largely fit for purpose'. Meanwhile, the economic regulatory framework for the communications sector has, the ACCC claimed, 'proven to be capable of accommodating major changes to the sector, including allowing for appropriate responses during the transition to the NBN'. With regards to the NBN, the ACCC said that several competition and consumer issues related to the transition to the in-deployment network have emerged, with these requiring 'immediate measures' to resolve on the part of both retail service providers (RSPs) and NBN Co, the company overseeing the network construction and management. Some measures are already underway, with what the ACCC called 'significant progress' having been made since the publication of its draft report last October. These measures include: the obtaining of eight court-enforceable undertakings from various ISPs on NBN speeds; the commencement of an inquiry into NBN wholesale service standards; and last month's publication of the first report compiled as part of a broadband performance monitoring and reporting program. Meanwhile, with the ACCC noting that the report had found that the markets for broadband and voice services are operating competitively under the current regulatory arrangements, the watchdog's chairman Rod Sims said: 'Despite market concentration, competition in the sector is leading to lower prices, greater choice in services and service providers, and bigger inclusions for voice and broadband services on fixed and mobile networks … Competition will increase further as Vodafone expands its NBN footprint and TPG deploys its wireless network, bringing additional choice to consumers in terms of quality and pricing of telecommunications services.' (April 5, 2018) telegeography.com

Canada

The Minister of Innovation, Science and Economic Development published a framework for the auction of 600MHz mobile spectrum licenses, setting aside 43% of the frequencies on offer for regional competitors (i.e. existing cellcos other than the nationwide 'big three' Bell, Rogers and Telus) and potential new market entrants. The auction – scheduled to take place in March 2019 – is designed to support competition in the marketplace, leading to improved quality, coverage and prices of mobile services. 600MHz frequencies carry signals over long distances (making them suitable for rural wireless coverage) and penetrate buildings (helping to improve urban wireless service quality). (March 29, 2018) telegeography.com

Chile

The Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) has ordered Claro, Movistar, Entel, Wom and Virgin Mobile to cease using the term 'unlimited' for their commercial offers. Subtel had discovered earlier this month that the cellcos' 'unlimited' offerings included various constraints – such as decreasing download speeds during certain times or once a traffic quota has been reached – which misled and confused customers. The regulator gave the operators three days to formulate and present a plan to make their offerings more transparent. Having reviewed the responses, Subtel says that the arguments presented were 'not convincing' and has ordered the providers to expunge the term 'unlimited' from their offerings by May 1, 2018. Subtel reiterated that the term 'unlimited' has a clear meaning for users, who expect 'inexhaustible capacity of data and stable quality' and that expectation is not met by the tariffs currently being advertised by mobile service providers as 'unlimited'. The watchdog also warned that if companies refuse to comply with the order, it may alter regulations currently in force. At present, the caveats imposed by providers on unlimited plans are explained by the cellcos as traffic control measures, in line with existing rules. (April 17, 2018) telegeography.com

China

The telecoms watchdog the Ministry of Industry and Information Technology (MIIT) has issued China Mobile with a license to offer mobile services based on FDD-LTE technology, the operator confirmed in a press release. In its statement the cellco explained that, in line with the requirements of the license, it would: 'vigorously promote the development of mobile Internet of Things and Industrial Internet on a nationwide basis, actively initiate the scale application of TDD/FDD convergence network and comprehensively enhance the quality of high-speed broadband mobile communications services in rural areas, and raise the overall network quality at a lower cost.' Mobile favors the TD-LTE standard over the FDD-LTE alternative and was instrumental in promoting the technology's adoption worldwide – the cellco having previously suffered from the limited takeup of its 3G technology of choice, TD-SCDMA. The operator claims to have deployed and operated the world's largest TD-LTE network, which comprises more than 1.5 million base transceiver stations (BTS) and covers over 1.3 billion people. (April 5, 2018) telegeography.com

Cuba

The number of active mobile telephony users in Cuba has reached five million, reports local newspaper Granma. The subscriber total is an increase from the four million reported by Cuba's state-owned telecoms operator Empresa de Telecomunicaciones de Cuba (ETECSA) at the end of 2016. Recent growth driven by a raft of new initiatives aimed at relaxing SIM card ownership and making services more affordable for the island's citizens, as well as the introduction of mobile email access (March 2014), balance transfer (June 2015) and per-second billing (January 2018). (April 13, 2018) telegeography.com

France

The telecoms regulator Arcep has launched a public consultation on the terms and conditions for its forthcoming auction of frequencies in the 900MHz, 1800MHz and 2100MHz bands. The updated obligations follow on from a January 2018 agreement signed by the authority and domestic mobile operators aiming to ensure that all 'while spaces' (areas with no mobile services) are covered by high speed wireless networks. Arcep is planning to reallocate spectrum in the three bands for a period of ten years; the authorizations in the 900MHz and 1800MHz bands awarded to Orange, SFR and Bouygues Telecom in 2006 and 2009 expire in 2021 and 2024, while their 2100MHz concessions are valid until 2021 and 2022. Further, Arcep said it could redistribute the spectrum in the 900MHz and 1800MHz bands to ensure all operators have equal holdings, as the three incumbents currently hold two times more spectrum than newest market entrant

Free Mobile. Arcep is aiming to publish the results of the consultation in mid-May, with plans to launch the award procedure in June. (April 10, 2018) telegeography.com

The telecom regulator Arcep has published a consultation on new measures aimed at preventing certain practices by operators that risk undermining coherent fiber deployments, particularly in regions of the country, outside very high-density population areas, covered by the AMII settlement agreed in 2011. The regulator has identified three main risks to the goal of achieving consistent fiber roll-outs. The first is described as a pre-empting strategy from certain operators, namely the announcement of roll-out plans with no rapid follow-through to deter competitors from investing in the area. The second is inefficient network duplication, bringing fiber infrastructure to locations where another operator is already investing. The third is the threat from 'skimming' tactics, in which an operator selectively brings FTTH connectivity to the most profitable premises in a region while disregarding the most costly lines, thereby discouraging competition from rivals. These draft recommendations follow the regulator's assessment published in October 2017, prompted by a request from the French Senate. The consultation closes on May 15. (April 3, 2018) telecompaper.com

India

The Telecom Regulatory Authority of India (TRAI) is expected to overhaul the existing mobile number portability (MNP) rules in the next two months to make it more consumer-friendly and prompt, its chairman RS Sharma said. "Currently, a substantial number of MNP requests are being rejected due to wrong UPC (Unique Porting Code) and balance issues," Sharma told ET, adding that the regulator was working to finalize the norms in the next two months. MNP allows mobile phone users to retain their numbers while moving cities or changing their telecom service provider. Earlier this month, in the backdrop of consumer complaints, the sector watchdog had sought views from stakeholders to improve the MNP process, especially in scenarios such as sudden network shutdowns by operators and transfer of subscribers' prepaid balance. Telecom regulator has sought written comments from stakeholders by May 3, and counter comments by May 17. Sharma said that the entire mobile connection porting procedure from one telecom service provider to another should be consumer as well as cost-friendly. Trai, in January, had cut down the porting fee from Rs 19 to Rs 4, after a review of such charge. Nearly 345 million porting requests have been processed so far, from the time when subscribers were first allowed to port their mobile numbers in 2011. Statistics from the Cellular Operators Association of India (COAI) that represents Bharti Airtel, Vodafone India, Idea Cellular and Reliance Jio, revealed that there was a steep increase in annual MNP requests to 64 million in 2017 from nearly 6.5 million in 2011.
(April 11, 2018) economictimes.indiatimes.com

The Department of Telecommunications (DoT) has instructed operators to vacate spectrum in the 3300MHz-3400MHz range by the end of September this year, so that the airwaves can be used for 5G services. The Economic Times cites a notice from the regulator as saying that affected license holders – including telcos Bharti Airtel and Tata Communications as well as oil and gas firms Indian Oil Corporation and the Oil and Natural Gas Corporation (ONGC) – could apply to the DoT's Wireless Planning and Coordination (WPC) division for spectrum in other bands currently being used for internet services such as the 2700MHz-2900MHz and 5GHz ranges. A spokesperson for Airtel noted that the company had already surrendered its holdings in the band. (March 29, 2018) The Economic Times

Italy

The Competition and Markets Authority (Autorita Garante della Concorrenza e del Mercato, AGCM) has fined fixed and mobile operator Wind Tre a total of EUR4.25 million (USD5.25 million) for misleading advertising of its cellular and fiber-optic services. The watchdog says that the telco did not provide sufficient information on extra fees payable on certain mobile tariffs once the bundled monthly data limit had been reached. It said that services marketed under names such as 'Free Unlimited Plus' led consumers to believe that bandwidth was indeed unlimited. In the fiber broadband market, Wind Tre was told that its promotional campaigns did not include sufficient information on the characteristics of the offer in terms of geographical coverage, waiting times for installation, differences between service tiers and full financial terms of the products on offer.
(April 12, 2018) telegeography.com

Indonesia

The Ministry of Communications and Information Technology (MCIT), known locally as Kementerian Komunikasi dan Informatika (KemKominfo), has reportedly blocked 83 million unregistered pre-paid SIM cards in the last month, after users failed to register their numbers ahead of the February 28 deadline. Local news site Tempo quotes KemKominfo's Head of PR, Noor Iza, as saying that the bulk of the accounts – some 43 million – were attributed to market leader Telkomsel. Connectivity will be restored if the users in question register their accounts by May 1, the report adds. (April 6, 2018) telegeography.com

Jamaica

Troubled Jamaican 4G start-up Symbiote Investments, which trades as Caricel, will have its license revoked, Andrew Wheatley, the Minister of Science, Energy and Technology, has informed the House of Representatives this week. The Jamaica Gleaner quotes Wheatley as saying: 'I have written to the principals of Symbiote indicating that I have a receipt of a recommendation from the Office of Utilities Regulation (OUR) and, as such, I am proceeding with the revocation … There were several conditions that they breached and, as such, the OUR recommended that we proceed to revoke the license.' It is understood that the issue of outstanding fees was one of the issues flagged up by the watchdog. In October 2017 Symbiote agreed to sell its Jamaican 4G business to South Africa-based Involution for an undisclosed price. The sale was made public in February 2018, only for the regulatory authorities to protest that Symbiote had not sought government approval for the transaction.
(March 28, 2018) telegeography.com

Japan

A Ministry of Internal Affairs and Communications (MIC) advisory panel last Friday gave the thumbs up to online shopping operator Rakuten's bid to become Japan's fourth mobile network operator (MNO), suggesting the move would be 'appropriate' in the current climate. Local press reports quote officials working for the e-tailer as saying that it hopes to launch the new mobile service in October 2019, and aims to sign up ten million subscribers by the end of fiscal 2028 by offering cheaper fee plans than those offered by the three incumbent MNOs – NTT DOCOMO, KDDI and SoftBank. Rakuten, which already operates an MVNO service, said it is considering monthly service fees of between JPY2,000 and JPY4,000 (USD18.7 and USD37.4), comparable with low-cost resellers and roughly half the JPY6,000-JPY7,000 charged by major carriers. It is understood that the new entrant's green light is dependent on Rakuten securing sufficient funds to roll out a nationwide network capable of offering a resilient and stable service, and maintaining its financial viability to enter the market. The MIC is expected to give the firm official approval as early as this week and, if realized, the official OK will likely result in the e-commerce firm kick-starting a plan to invest around JPY600 billion (USD5.6 billion) to build its own wireless network, while simultaneously planning to locate network bases at utility facilities including those of Tokyo Electric Power Co (Tepco), Chubu Electric Power Co, and Kansai Electric Power Co. Rakuten hopes to cover 96% of the Japanese population by the end of fiscal 2025. Until it establishes its own network throughout the country, Rakuten will lease network capacity from NTT DOCOMO and other major carriers. On February 26, 2018 Rakuten applied to the MIC for 4G-suitable 1.7-GHz and 3.4GHz cellular frequencies, with the stated aim of launching the new service in 2019, offering tariff plans linked to its online shopping platform in a bid to lure in customers. Rakuten – whose MVNO service with host network operator NTT DOCOMO has amassed around 1.4 million customers – established a new wireless venture, Rakuten Mobile Network, in January 2018, with Rakuten's chairman and CEO Hiroshi Mikitani at the helm. Rakuten also acquired Japan's sixth largest smartphone maker Freetel in September last year.
(April 9, 2018) telegeography.com

Latvia

The telecoms watchdog the Public Utilities Commission (Sabiedrisko Pakalpojumu Regulesanas Komisija [SPRK]) has opened a public consultation on the creation of a standardized approach to spectrum auctions. To date, the regulator has developed the rules for each tender on an individual basis. To make the process more efficient and transparent, the SPRK has proposed a uniform framework for the organization of auctions for the allocation of spectrum. Interested parties have until April 20, 2018 to submit comments.
(March 29, 2018) telegeography.com

Lithuania

The Communications Regulatory Authority (RRT) has launched a public consultation on future plans for the use of spectrum in the 3400MHz-3800MHz and 3800MHz-4200MHz frequency ranges. 'In preparation for the arrival of the most advanced 5G technology, the RRT is taking the necessary steps to prepare this radio frequency band for the participants of the electronic communications market,' commented Ricardas Budavicius of the RRT, adding: 'This survey will be a useful indicator for the development of plans for the development of 3400MHz-3800MHz and 3800MHz-4200MHz radio frequency bands, as well as the conditions for the forthcoming auctioning or public tender.' The regulator has invited telecoms industry participants and other interested parties to submit their views and opinions on the plans by May 1. (April 1, 2018) telegeography.com

Malta

The Malta Communications Authority (MCA) has awarded five licenses in the 800MHz and 2600MHz bands to the country's three mobile network operators (MNOs). Vodafone Malta, GO and Melita will be able to use the additional spectrum to improve the speed and availability of 4G LTE and LTE-A services. The exact allocations have not yet been published. The regulator says it is also working on an assignment plan covering the 700MHz, 3.4GHz and 26GHz bands to support future 5G and Internet of Things (IoT) networks. The Malta was home to 604,725 cellular subscribers at the end of 2017, with Vodafone claiming 44.7% of the total, ahead of GO (36.7%) and Melita (18.6%).
(April 9, 2018) telegeography.com

Philippines

The President Rodrigo Duterte of the Philippines has ordered the setting up of an oversight committee to assist the telecoms industry regulator, the National Telecommunications Commission (NTC), in his plan to set up a new third telecoms operator in the country. On April 6 the president signed Administrative Order No. 11, which confirms: 'It is the objective of this Administration to ensure reliable, inexpensive and secure telecommunications services in the country'. Under A.O. No. 11, Duterte has reportedly ordered the panel to assist the NTC in the formulation of the Term of Reference (TOR) for the selection and assignment of radio frequencies for the entry of a new telco player. In addition, the new committee will oversee compliance of the regulator and other implementing agencies with the TOR provisions. According to the president's A.O., the entry of a new major telco player is considered a matter of national interest 'which shall redound to the benefit of the public by ensuring genuine competition'. The Philippines is keen to realize the entry of competition in an integrated and transparent manner, it said. The selection of the third telco player is now expected to be made before the President delivers his third state of the nation address (SONA) in July.
(April 12, 2018) Philippine News Agency

Slovakia

The Office for the Regulation of Electronic Communications and Postal Services (Regulacny Urad, RU) has opened an auction for spare spectrum in the 1800MHz band. A total of 2×9MHz is on offer, split into 18 blocks: one of 2×5MHz with a reserve price of EUR1.8 million (USD2.2 million), one of 2×0.8MHz with a reserve of EUR288,000, and 16 blocks of 2×0.2MHz, each with a reserve of EUR72,000. Bids are being accepted until 9 May. Slovakia's mobile sector is served by four operators – Orange Slovensko, Slovak Telekom, O2 Slovakia and SWAN Mobile – all of which have existing spectrum holdings in the 1800MHz band.
(April 9, 2018) telegeography.com

South Africa

South Africa's Department of Telecommunications and Postal Services (DTPS) is redrafting the Electronic Communications Amendment Bill, with Minister Siyabonga Cwele set to outline more details in the department's budget vote in parliament on May 17. Cwele's spokesman Siya Qoza said that the department is 'incorporating' feedback received from a recent workshop with industry stakeholders into the bill, which will then be presented to cabinet before being submitted to parliament for further engagement with the industry. Qoza added that the updated legislation will be discussed in parliament during the current financial year ending March 31, 2019. The proposed framework (published in October 2016) stated that all wireless service providers in the country would be required to return their previously assigned spectrum, which in turn would be allocated to a newly-established Wireless Open Access Network (OAN). The government has drawn heavy criticism over the amendment bill, however, with Vodacom CEO Shameel Joosub saying

that the bill was already scaring away investors: 'The industry lost close to ZAR80 billion [USD6.6 billion] in [the] last year in market cap … purely because there is a lot of uncertainty.' (April 17, 2018) telegeography.com

The Independent Communications Authority of South Africa (ICASA) has announced a 5.3% increase in spectrum and general license fees, effective April 1. The unit price for MHz of paired spectrum will reach ZAR2,344 (USD201), while levies to apply for the amendment or transfer of service licenses will increase from ZAR57,873 to ZAR60,940. License renewals will cost ZAR6,094 (ZAR5,787 previously). (March 27, 2018) telegeography.com

South Korea

The Ministry of Science and ICT (MSIT) has reportedly begun the process of defining the terms for its planned spectrum auction of frequencies that will support the introduction of 5G services. According to Yonhap News Agency, the ministry aims to complete a review of its plans shortly, ahead of holding a public hearing on the matter next month, with a view to then holding the spectrum sale in June 2018. With frequencies in the 3.5GHz and 28GHz bands expected to be made available, an MSIT spokesperson was cited as saying: 'We have conducted simulations on various scenarios for auctions, and gathered opinions from related organizations, mobile carriers, and manufacturers … The details of auctions are set to be provided near the public hearing.' The report notes that the government is currently trying to determine how best to allocate frequencies in the aforementioned bands, with one option under consideration being to share them equally among the nation's three mobile network operators (MNOs) – SK Telecom, KT Corp and LG Uplus. Consideration is also being given to whether it may be better to distribute the spectrum unevenly to give the highest bidder an advantage. With SK Telecom said to favor the unequal allocation process, it has been suggested that both KT and LG Uplus believe such a method of distribution would give their larger rival an undue advantage, as it is likely to be the biggest spender in the spectrum sale. (March 26, 2018) telegeography.com

Sweden

The telecoms regulator PTS is holding a meeting on May 4 where it will provide information about the rules that will apply in the 700 MHz spectrum auction that has a preliminary starting date of December 4. Parties wishing to attend the meeting should register via e-mail by 02 May, which is also the deadline for any queries.
(April 17, 2018) telecompaper.com

Thailand

The National Broadcasting and Telecommunications Commission (NBTC) plans to allocate 380MHz of spectrum in four frequency bands by 2020 to develop the country's digital infrastructure landscape, The Bangkok Post writes. The regulator is aiming to ensure that there are enough resources for the smooth operation of mobile broadband services in Thailand, and to that end is planning to award 180MHz of spectrum in the 2600MHz band, 90MHz (1800MHz), 20MHz (850MHz) and 90MHz (700MHz).

(April 9, 2018) telegeography.com

The National Broadcasting and Telecommunications Commission (NBTC) has decided to return to its original plans of auctioning three paired 15MHz blocks of spectrum in the 1800MHz band with a starting price of THB37.45 billion (USD1.2 billion), rather than tendering nine blocks of 5MHz in the band at THB12.485 billion. The Bangkok Post writes that the move was in response to prospective bidders' claim that the amended draft will hurt their long-term business strategies, assuming operations under a 30MHz (2×15MHz) licensing scheme. NBTC secretary-general Takorn Tantasith also said that the NBTC will ban JAS Mobile Broadband from the auction, as the company defaulted on the payment of its license in March 2016. The spectrum (1800MHz and 850MHz) on sale is currently utilized by Digital Total Access Communications (DTAC) under a build-transfer-operate (BTO) revenue-sharing agreement with state-owned telco CAT Telecom (expiring in September 2018). The NBTC originally planned to sell the frequencies in an auction scheduled to be held by May 2018, though the plans were put on hold pending the Council of State's position on whether the NBTC has authority to call for bids as an acting regulator. The six-year term of the existing commissioners ended on October 7, 2017, but the new NBTC law allowed them to continue in the same capacity until they are replaced. In late March the Council of State affirmed that the acting regulator had the authority to call for bids, though no date for the tender has been set. (April 3, 2018) telegeography.com

The State Council ruled the acting National Broadcasting and Telecommunications Commission (NBTC) board

has the authority to hold an auction of spectrum in the 850MHz and 1.8GHz bands, Bangkok Post reported. NBTC Bboard Member Prawit Leesathapornwongsa suggested two weeks ago the auction couldn't be held until a new board takes over later in the year because the acting board, whose six-year term expired in October 2017, would no longer be able to make policy decisions at the end of this month, the newspaper said. An original draft of the planned auctions was approved by the NBTC board and passed a public hearing in December 2017. But a revised plan, calling for the number of slots offered in the 1.8GHz band to be increased from three to nine to make the sale more competitive, hasn't been approved by the acting board

as some members disagree with the amendment. The State Council, an advisory body reporting to Thailand's prime minister on legislative matters, suggested the board meet on 11 April to consider the amended draft of the auction, Bangkok Post said. Any delay in the auction would be huge setback for dtac, the country's third largest mobile operator, whose concession with state-owned CAT Telecom to operate 2G services on the two bands expires on 15 September. The NBTC originally planned to hold the auctions in January 2018, but later pushed the date back to May before the question of the board's authority to schedule the sale arose.
(March 26, 2018) telegeography.com

United Kingdom

The telecoms regulator Ofcom has published the final result of its recent spectrum auction, after concluding the process of allocating frequencies for the four winning bidders. The industry watchdog confirmed that O2 UK, the biggest spender at the sale process, has been allocated the 3500MHz-3540MHz block in the 3.5GHz band, and as the sole winner of 2.4GHz spectrum has also laid claim to the 2350MHz–2390MHz block in that band. Three UK notably increased the cost of its new spectrum holdings in the assignment phase, with Ofcom confirming that it had agreed to pay an additional GBP13.13 million (USD18.7 million) to secure the 3460MHz-3480MHz block. BT subsidiary EE also paid extra during the assignment process, offering up an additional GBP1.00 million for the 3540MHz-3580MHz block. Rounding out the winners, Vodafone UK has been allocated the 3410MHz-3460MHz block, and did not pay any additional fee in the allocation process. (April 16, 2018) telegeography.com

The telecoms regulator Ofcom has confirmed that it does not intend to introduce a temporary remedy for Dark Fiber Access (DFA), which would have required BT's network arm Openreach to provide a restricted form of the service in the leased line (Ethernet) markets until March 31, 2019. In a publication detailing its decision, Ofcom noted that BT is currently subject to a package of temporary regulation in relation to certain Ethernet services, including a charge control. In November 2017 the regulator began consulting on whether it would be appropriate to add a restricted form of dark fiber remedy to this package of temporary measures. Now, however, it has decided that, following input from stakeholders, it will not introduce an obligation on BT to provide dark fiber at and below 1Gbps for the period until March 2019. Nonetheless, Ofcom said it remains 'of the view that dark fiber can play an important role in promoting competition in leased lines', adding: 'In particular, we believe that dark fiber has an important role where duct and pole access (DPA) is not an effective remedy, for example because usage restrictions may prevent DPA being used. We will therefore be considering an

enhanced dark fiber as a remedy in our further market review.' (April 13, 2018) telegeography.com

The telecoms regulator Ofcom has announced the outcome of the principal stage of its auction of spectrum in the 2.3GHz and 3.4GHz bands, revealing that four of the five bidders had made successful bids. All four of the nation's existing mobile network operators (MNOs) have secured new frequencies, with O2 UK emerging as the biggest spender, after offering GBP205.9 million (USD290 million) for all 40MHz of the 2.3GHz spectrum on offer, as well as GBP317.7 million for 40MHz in the 3.4GHz band. Vodafone UK made the largest offer for 3.4GHz frequencies, meanwhile, with its GBP378.2 million bid netting it a 50MHz block in that band, while EE bagged a 40MHz block of 3.4GHz spectrum with a GBP302.6 million bid. Rounding out the winners, Three UK walked away with a smaller allocation than any of its rivals, agreeing to pay GBP151.3 million for 20MHz of 3.4GHz spectrum. Only newcomer Airspan Spectrum Holdings failed to win any of the frequencies put up for auction. Having confirmed the identities of the winning bidders, Ofcom has said it will now move to the 'assignment' stage of the auction process. In this stage those companies that won spectrum in the principal stage bid to determine where in the frequency bands their new spectrum will be located. After the end of the assignment stage, the regulator will issue the winning bidders with licences to use the relevant spectrum 'within a few days', allowing them to begin putting it to use, and it expects to publish the final auction results shortly after. Commenting on the development, Philip Marnick, Spectrum Group Director at Ofcom, said: 'This is good news for everyone who uses their mobile phone to access the internet. As a nation we're using ever more mobile data on smartphones and mobile devices. Releasing these airwaves will make it quicker and easier to get online on the move. It will also allow companies to prepare for 5G mobile, paving the way for a range of smart, connected devices.'
(April 4, 2018) telegeography.com

United States

The Federal Communications Commission (FCC) has proposed to stage a tender for 28GHz millimeter wave (mmWave) licenses on November 14, 2018, with a 24GHz auction process also on the cards. The start date was included in the watchdog's April agenda, and designates the processes as Auction 101 and Auction 102, respectively. The latter will commence following the conclusion of bidding in Auction 101. The FCC notes that a total of 1.55GHz of spectrum will be made available in these auctions. The 28GHz licenses will be offered in two 425MHz blocks (by county) and the 24GHz licenses will be offered in seven 100MHz blocks by Partial Economic Area (PEA). The auction is designed to support the introduction of 5G wireless services and the development of the IoT sector.
(March 29, 2018) telegeography.com

Zambia

Vodafone Zambia has been awarded a license by the Zambia Information and Communication Technology Authority (ZICTA) which will allow it to offer VoLTE services, it has announced. In revealing the development, the operator – which currently offers data-only plans over its LTE infrastructure – said it expects a commercial voice launch within the next three months, and claimed this will make it the first in the country to bring VoLTE technology to consumers. Vodafone Zambia CEO Lars Stork said: 'We have consciously built in support for VoLTE in our 4G network and the tests we have conducted have shown tremendous results … Today our LTE network is solely used for data traffic, however our vision and strategy is to offer best in class data and now also voice over data on our 4G network.' In the wake of this news, the regulator moved to quell speculation that Vodafone Zambia had been sidelined in the award of that concession, with the Lusaka Times citing ZICTA spokesperson Ngabo Nankonde as confirming that only two companies – UZI Zambia and Broadband Square Limited – had applied for the license in question, with Vodafone Zambia opting not to apply. With both Vodafone Zambia and UZI Zambia now set to enter the wireless voice market, they will join the nation's three established MNOs MTN Zambia, Airtel Zambia and Zambia Telecommunications Company (Zamtel).
(March 28, 2018) telegeography.com

Zimbabwe

The government has announced plans to privatize a large number of state-backed firms, including its assets in the telcoms sector. Cellcos NetOne and Telecel and fixed line operator TelOne are all targets for partial privatization, Finance Minister Patrick Chinamasa announced. Meanwhile, state-backed ISPs PowerTel, Africom and Zarnet are to be merged into a single entity, though there are no plans to combine the enlarged business. (April 16, 2018) telegeography.com

Post Telecom Authority of Zimbabwe (Potraz) has drawn up a draft Bill that is intended to repeal The Postal and Telecommunications ACT {Chapter 12:05}. The telecoms regulator said this is driven by regulatory deficiencies which have risen as a result of drastic changes in the Information and Communication Technologies landscape since the ACT was promulgated in the year 2000. Potraz said that the overall objective of this proposed Bill is to stimulate economic progress whilst at the same time catering the needs of consumers and businesses.
Some of the proposed amendments are:
- a new classes of licenses
- changes in the number of Board of Authority
- reducing the number of Board meetings held annually
- the role of Potraz in dispute settlement within the sector etc.

The proposed amendments will seek to:
- Streamline regulatory processes to enable a rapid response to any technological changes and consumer needs.
- Strengthen regulatory oversight on competition issues
- Include comprehensive provisions on addressing consumer complaints
- Facilitate the effective planning, management, and allocation of scarce resources
- Repeal obsolete provisions and upgrade organizational references where necessary.

Stakeholders are being invited by Potraz to comment and impart ideas on how to make this draft Bill appeal to the favorable interest of all concerned parties. Stakeholders have until the April 10 to comment. The objectives are good at face value but I doubt if Potraz is ever going to realize these professed objectives. To envision Potraz facilitating effective planning and management given its frustrating bureaucracy is far-fetched. And by saying "streamlining regulatory processes", Potraz could essentially be saying that it is replacing old rules with new rules that will only impede the telecoms sector development. Stakeholders should then be braced for new bottlenecks.
(April 4, 2018) techzim.co.zw

From eMBB to Digital Society