SAMENA TRENDS

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Exclusive Interview

Ihab Hinnawi
Group CEO
Batelco

THIS MONTH

FAIR TAXATION NETS FOR OTTS AND TELECOM OPERATORS

Convergence
KUWAIT 2017

4th December, 2017

Creating New Advantages for Industry Stakeholders

SAVE THE DATE!

Convergence to Kuwait 2017 will corroborate the need to engage stakeholders and delineate the roles that now need to be played by regulators and policy makers as an incentive for carrying out digital development investments, and for realizing new unique advantages that each stakeholder group should work toward achieving.

In this highly competitive industry, it is important to take the lead and collaborate to allow the industry to continually push innovation to the next stage. It is crucial also to ensure that all spheres of the industry are analyzed, explored and tapped to identify a road map for progression.

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BUILDING DIGITAL ECONOMIES

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Fair Taxation Nets for OTTs and Telecom Operators

In defense of collaboration, innovation, and the industry's need for progress and sustainability, SAMENA Council has communicated through industry consultations and at global fora that Over-the-Top Providers (or OTTs) have inarguably brought and are continue to bring significant benefits to the digital ecosystem and to the economies across regions. There is sufficient socio-economic evidence that supports this. However, quite candidly stated, and to openly support telecom operators' views, OTTs have also given space to important questions in relation to their compatibility with current national regulatory and economic frameworks. Such frameworks include taxation schemes and their application (or imposition) on telecom operators to the advantage of OTTs. Certainly, this imbalance in how OTTs have been receiving taxation related treatment at the cost of telecom operators' revenues has created certain market distortions and an uneven playing-field.

It is time to re-think all this in the interest of market fairness, shared responsibilities and obligations, and work together wherever similarities exist, and to objectively exchange views where differences exist.

Taxation is about managing balances in interests: interests of governments, of the industry, end-users, and for securing the future of the nation. Given the criticality of the matter, it is essential to understand various implications and ramifications of addressing those interests through taxation. Given that the telecom industry is among the greatest contributors of tax-related payments to governments, it is natural for the private-sector to raise voice and make requests to public-section decision-makers to revisit this area in view of changing market dynamics, evolving business models, and transforming socio-economic situation across the world. Knowing that taxes, fees and charges can create imbalances in efforts to balance aforementioned interests of those concerned and named above, it has become crucial in this new world of digital communications to open-mindedly see that taxation should attempt to be neutral (as much as possible) and equitable across all market players and sectors of the economy, and should apply fairly to all providing "same services". In no way, however, it is hereby implied that it is easy to achieve this. In fact, it requires assessment and re-assessment of a multitude of priorities and needs of all contributors and beneficiaries within in the taxation nets. It is, however, important that we start from somewhere.

In efforts to see the impact of taxation on the evolving digital economy, SAMENA Council will be conducting a taxation impact study, starting with the Sultanate of Oman. This planned initiative is founded on the need to understand various asymmetries that have emerged within the telecommunications industry, and to help visualize how they can impact overall public policy objectives and vision for the economy as well as fulfillment of internationally-agreed sustainable development agenda. Trade-offs may need to be made between the governments' short-term revenue generation needs and the potential negative impact of imbalanced taxation approaches on region-wide digital development efforts.

Bocar A. BA
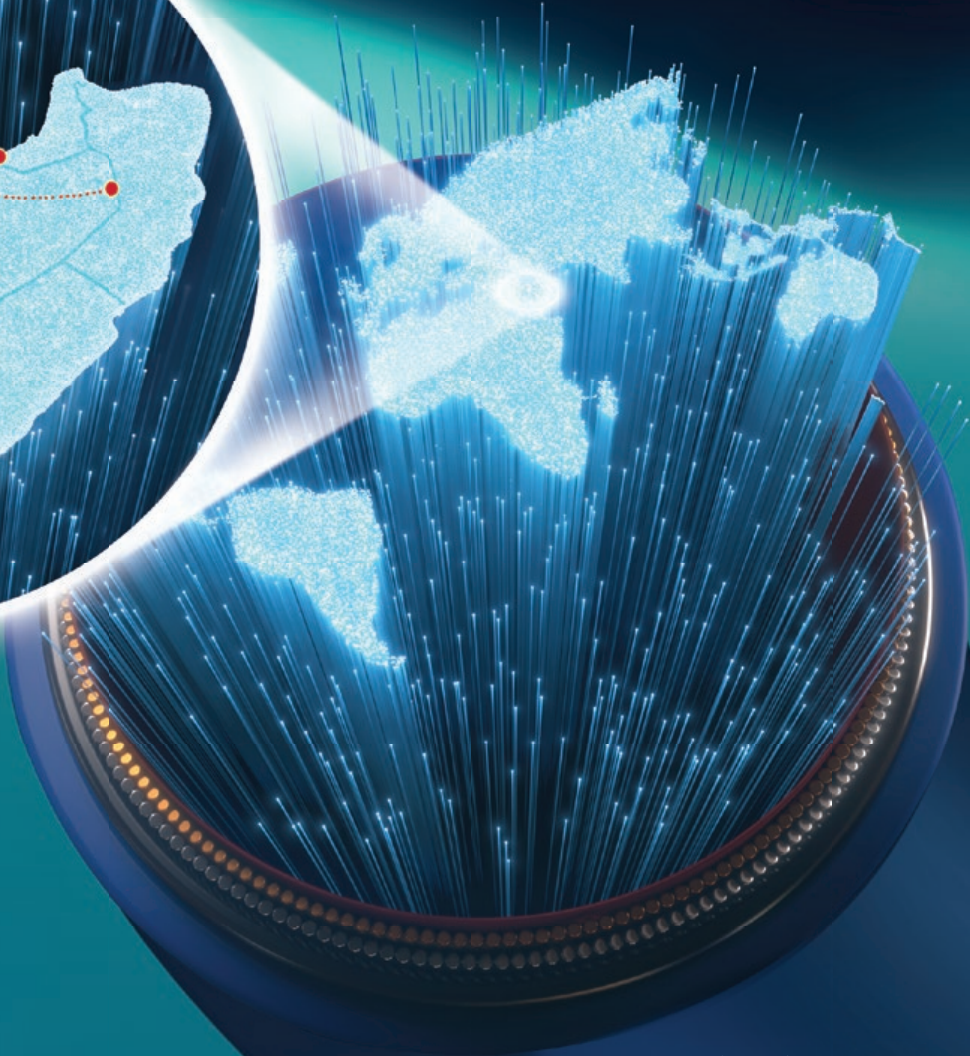Chief Executive Officer
SAMENA Telecommunications
Council

Ihab Hinnawi
Group CEO
Batelco

Batelco

Q. What is unique about Batelco Group and its approach, which sets you apart from other market players with a competitive advantage?

A. We differentiate ourselves from our competitors in a number of ways. We offer a leading network and invest in superior telecommunications networks so that we can sustain high levels of cash generation and reinvest in our business based on the Group's new Digital Solutions and future operating model. We are agile and lean and continuously adapt to the fast moving, ever changing communications landscape.

As we are both a multinational and a multicultural company with operations across 14 geographies, our diverse workforce helps us better understand and meet the needs of our customers. We therefore utilise this opportunity by capitalising on the knowledge, experience and skills of our local management in each location and invest in ongoing training and development to support the changing needs.

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We have been working hard to put in place a new ecosystem and business models helping us to fit the new pace of change in the industry and in line with this we are currently prioritizing digital transformation and customer experience. Our important objective is to increasingly position Batelco Group as a top tier and leading integrator of digital solutions and services in its chosen markets through a customer-centric business model.

Q. How is Batelco Group similar to large global telecom groups in the way it operates?

A. I believe that Batelco is quite unique. The Group's operations are located in 14 different geographies and each operation has its own uniqueness with diversified requirements. Our challenge is to always respond to market demands and introduce relevant services. One size does not fit all, so we embrace the differences and leverage on the strengths that are integral to each operation. Accordingly, across the group, we respond to market needs by investing in and launching the relevant services for each location.

As we are a customer centric business, everything we do is with customers first and foremost in our minds so from the development stage upwards we are analyzing market needs and listening to feedback from our customers. In this way, we are making huge advancements by implementing the type of services each region requires. Amongst the current most important technological initiatives are Digital Solutions, Cloud Services, Fibre Rollout and OTT Services.

Q. What are Batelco Group's current market priorities and what long-term growth strategy is the Group following?

A. Batelco Group is focused on digitisation and delivering an unmatched customer experience. Digitisation is crucial to the communications sector today. We are experiencing firsthand the development of the digital era where solutions are hosted in the cloud and the rise of the Internet of things, with the integration of everything technological, is evolving very quickly. Our goal is to be in the forefront in all our markets in order to deliver a full range of digital solutions for consumers and businesses across all sectors.

It doesn't matter what we offer from a product and services point of view if it's not matched with excellent customer experience, so we continue to invest a lot of effort in positioning ourselves as the best customer experience operator in our different markets.

In the long term we will continue investing in the digital space and help in shaping the future of the industry. As a full services provider we have the necessary networks in place and fixed mobile convergence is a key enabler for the global drive towards the IoT.

Furthermore, going forward we will also focus on new opportunities in new markets and on any potential consolidation that would add value for us in certain markets.

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Q. What is it like for a regional telecom group such as Batelco Group to operate in this increasingly "over-the-top" digital environment?

A. Batelco Group is in a unique position to take advantage of the current evolution in the telecommunication market. Having a portfolio of operators in relatively smaller markets has allowed us to be able to try out initiatives that would not be possible in larger environments. It has also allowed us to be very specific in what we want to do, rather than be forced to try out everything. From an 'OTT' player perspective, Batelco is actually an ideal telecom partner, having all the powers of incumbency and brand, but yet with the nimbleness and market demographics that allow us to relate to them and deploy solutions, especially with players who have not got the capability or scale (yet)! It is also one of the few players that will provide access to European, MENA and Asian markets in one go ! So we provide a decidedly unique context for OTT players, that allows us to synergize our strengths with theirs.

Q. What are your views on the industry's growth prospects and do these prospects include any new M&A venture planning by the Group?

A. Global Telecom sector growth prospects remain limited overall due to several headwinds spanning from demand saturation in legacy core businesses and revenue decline due

to Technological Disruptions (e.g. VoIP impact on international voice) to telecom market fragmentation and fierce competition. All factors limit Telecom operators' profitability and capacity to invest for growth.

One of the on-going mantras in the digital age is one of driving scale … and it becomes increasingly difficult to compete against players and solutions that innately scale globally (like the Googles and Facebooks of the world)

As a mitigant, demand for Data and Digital Services is growing exponentially both on B2C and B2B segments, counter-balancing ARPU erosion and revenue loss thanks to Data based revenues and new high growth services. However, growth in Fixed & Mobile Data requires significant investments in spectrum and network as well as applications and contents.

Telecom market prospects are also highly correlated to political and macroeconomic prospects including GDP growth, inflation and FOREX which are particularly relevant to the GCC Telecom sector in particular where growth prospects are highly dependent on: (i) oil prices; and (ii) political stability.

In this context, Batelco Group is actively reviewing its M&A strategy with a focus on:

- **In-market Consolidation:** enabling to increase scale, lower costs and rationalize competitive landscape where the viability of some operators is questionable due to market size.
- **Pragmatic approach to Geographic Expansion:** Batelco will continue to remain diligent regarding Geographic Expansion. Opportunities will continue to be studied but with a more selective approach.
- **Diversification towards Adjacent Businesses:** Global Telco's have been experimenting with diversifying away from their core business

While moving towards Asset Light Models: GCC Telcos (including Batelco) are likely to be more Capital Constrained

due to Macroeconomic and Industry trends.

Q. How do your business models and market strategies differ in each of the markets in which you operate, and do you foresee a time in this age of digital services in which one strategy may become applicable for all markets?

A. There are obviously differences in markets, and this should be seen as a strength rather than a disadvantage. One of the on-going mantras in the digital age is one of driving scale … and it becomes increasingly difficult to compete against players and solutions that innately scale globally (like the Googles and Facebooks of the world). So yes, the advantages of economies of scale are there.

But if I may offer a different perspective…. the flip-side of this is the need for a customer engagement context – not everyone wants to be treated the same as everyone else in the world! We (the operators) have built extensive and long standing one-on-one relationships with our customers. Our digital challenge is unlocking that knowledge in a new way that makes it meaningful for our customers.

Q. What are the Group's plans for the GCC, and are there any new advantages that you have gained or lost as a result of recent regional political dynamics across the Gulf region?

A. The Kingdom of Bahrain is Batelco's key market and its largest contributor with c. 50% of the Group EBITDA. In its home country, Batelco is the leading player – it enjoys a strong operational performance and market share combined with very low leverage, strong cash position and low cost of funding, leading to high and sustainable dividend pay-out.
However, a combination of limited growth and fierce competition in the Bahraini market has pushed the Executive Management to embark on a cost optimization strategy, whilst focusing on expanding both its B2C and B2B offerings by:

- further investing in its Fixed & Mobile infrastructure due to Data Explosion and Broadband Demands; and
- Investing in adjacent businesses such as Data Centres and specific ICT solutions.

Unlike its GCC peers, Batelco's expansion has been very limited to small operations in neighbouring GCC countries such as Kuwait and the KSA – moreover, Batelco is not a candidate for Oman's 3rd Mobile license. However, Batelco Group has developed a Digital Transformation Strategy in order for its operating companies (specifically in Bahrain & Kuwait) to extend their business models to include key initiatives like Content (video and music), Mobile Advertising, FinTech, Cloud Computing, and Internet-of-Things. Other initiatives, such as Online Education and Digital Healthcare, are also emerging with significant opportunity for growth.

Finally, we don't believe that Batelco had gained or lost any advantages as a result of the recent regional political dynamics in the Gulf region. Moreover, we don't believe that the ongoing regional conflict will have a negative impact on any existing or future business relationships (such as the Wholesale and Roaming segments) between our GCC peers.

Batelco Group has developed a Digital Transformation Strategy in order for its operating companies (specifically in Bahrain & Kuwait) to extend their business models to include key initiatives like Content (video and music), Mobile Advertising, FinTech, Cloud Computing, and Internet-of-Things

Q. How effectively has Bahrain been able to tread the path of innovation and both invest in and benefit from 4G? Are you following an equally aggressive strategy as a nation to work toward 5G development?

A. 4G is available across the Batelco Group and it ensures excellent coverage, stability and fast performance for our customers. In 2016, we launched superfast 4G+ in Bahrain, the first to deliver the service for the country with superfast data speeds. The 4G+ network serves to enhance Bahrain's global position in terms of

providing advanced telecommunications services for consumers and businesses.

In order to meet the ever-growing demand from customers for superfast mobile data that is also reliable and widely available we are also aggressively pursuing the development of 5G in our home market and across all our markets of operations, and in May this year we conducted successful 5G trials in collaboration with Ericsson at our headquarters in Bahrain.

Q. What do operators and regulators need to define and develop together, to be able to tackle challenges relating to data regulation, spectrum availability, and industry fees and charges?

A. The industry sector has seen two significant changes being a retreat by regulators from implementing full network competition, and a break between operators owning and controlling assets and those operators providing services and applications to customers over those assets. Both the licensed operators and regulators are now faced with the challenge of being able to exercise less control over the sector as a result, and this trend is accelerating. OTT operators have not waited for regulation to catch up with their business model and way of making money out of data itself rather than carriage or transmission of that data.

> **… regulators and operators have to recognize there will need to be some more industry consolidation at the expense of network competition, industry fees and charges need to be cost effective and proportionate to try and preserve investment returns…**

A sustainable business model is increasingly difficult to achieve for the sector. Licensed operators find they have little choice but to invest in new technology and additional radio spectrum at an accelerating pace, before they have been able to recoup previous investments made. In many jurisdictions, operators have looked to the public sector to subsidise the investment gap, although this has been for fixed infrastructure. Apart from the technological disruption, for data, issues have emerged in relation to consumer security (privacy and information security and intellectual property) and national security.

Regulation has not caught up to address these new concerns. Taking into account these changes, regulators and operators have to recognize there will need to be some more industry consolidation at the expense of network competition, industry fees and charges need to be cost effective and proportionate to try and preserve investment returns, harmonization of data regulation rules across the region would be welcome, as would the timely release of new or refarmed radio spectrum through international co-operation.

SAMENA COUNCIL ACTIVITY

SAMENA Council Delineates Operators' Perspectives on Critical Issues at Mobile 360 MENA and Terms Collaboration with Regulators as Key to Future Industry Development

SAMENA Council took part in the recently held GSMA Mobile 360 MENA conference in Dubai, UAE. Director of Public Policy and Regulatory Affairs, Mr. Roberto Ercole, moderated the regulatory modernization policy keynote panel at the regional conference, voiced important industry issues, and highlighted the importance of working closely with regulatory authorities and providing industry players with incentives that are aligned with the modern communications era. The panel, which included Dr. Kamal Shehadi, CRO at Etisalat International, Mr. Zyad Alkhwaiter, GM Regulatory Affairs at STC, and Mr. Sam Blatteis, CEO MENA Catalysts and formerly Head of Public Policy at Google, addressed the key question of how regulators can ensure continued growth of investment in 3G, 4G, and catalyze future investment in 5G. During the discussion, a concern was also raised that some aspects of the current regulatory regime in some markets may not lead to best outcomes for consumers and for regional socio-economic growth. Two key issues were identified: the need for much more harmonized spectrum to allow 5G to flourish, and the need for reducing the difference in regulatory approaches for OTTPs and telecom operators in order to create a more level-playing field. It was also noted that a harmonized protection and security framework is essential to allow 5G services to be delivered in the most cost-effective manner. This includes, for instance, how network equipment can be shared among an operator's subsidiary networks in different countries. The panel then touched upon another critical dimension of modern digital communication: the free flow of data across national boundaries. Mr. Ercole summed up the discussion saying "Mobile network operators are commercial organizations and will only invest substantial sums needed to complete 4G and begin 5G if there is a plausible and well-supported business case. Some currently used regulatory models were developed in a different era, when telecom operators were state-run organizations and had certain conditions imposed to reflect that ownership. As some of those conditions now cause substantial revenue loss for operators in favor of OTTs, if allowed

to continue, they will undermine the business case for future investment and may also delay 5G deployment." The Mobile 360 debate also discussed the importance of ensuring that operators have enough harmonized spectrum to deliver on full potential of 5G digital services. Existing auction mechanisms and processes were identified as a potential impediment, since some can be designed as short-term revenue-raising exercises, and can drive up the underlying cost of mobile data. For 5G to succeed, it will need to be able to offer a lower cost per bit to consumers. Particularly, with regard to spectrum, SAMENA Council and its members have been active in trying to achieve the international harmonization of 5G bands with regulators via participation in the Arab Spectrum Management Group (ASMG). Mr. Ercole has presented detailed position papers on the bands Arab mobile operators believe are vital for providing much-needed accelerated support to timely and successful development of 5G in the region. SAMENA Council is working closely with its members and regional regulators in the run up to the next global spectrum harmonization conference in 2019. SAMENA Council has continued to voice its concerns and views on all three of these requirements for the industry to continue its path toward sustainable development and innovation; namely, creating a level-playing field for OTTs and operators, addressing the issue of creating policies that are long-term economics driven as opposed to short-term revenue-generation for governments, and accelerating spectrum harmonization efforts through collaboration among operators, regulators, and technology providers. SAMENA Council has recently also advocated the need for fulfilling the industry's needs and building public-private sector co-operation to better utilize ICTs during ITU Council Working Group on Internet's last meeting in Geneva and during the 2017 World Telecommunication Development Conference's recently held Private-Sector Roundtable in Argentina, with several Member States in attendance.

SAMENA Council Highlights Private Sector's Role in Advancing the Sustainable Development Agenda at ITU's WTDC-17 Private Sector Roundtable in Buenos Aires

SAMENA Telecommunications Council highlighted at WTDC-17's Private Sector Roundtable a fundamental role that the private sector plays in advancing the globally-adopted sustainable development agenda. The Private Sector Roundtable was held on October 8, 2017 as a pre-event to ITU's WTDC in Buenos Aires, Argentina, with more than 100 distinguished participants from the private and public sectors in attendance. Mr. Bocar A. BA, CEO of SAMENA Telecommunications Council and Chair of the Chief Regulatory Officer (CRO) Meeting, was invited to deliver the key note CRO presentation and to moderate the Private Sector Roundtable. Mr. BA, in his keynote, drew on the primary objective of the Roundtable, to serve as a forum for private-sector stakeholders to share and discuss experiences, challenges, and opportunities. He highlighted key success factors relating to the establishment of effective public-private partnerships in a converged ICT

ecosystem, and to fostering investment and socio-economic growth and greater involvement in the globally-agreed Sustainable Development Goals (SDGs). Mr. BA stated, "This Roundtable is special in its own right as it reflects on ITU's readiness as an institution to take

private-sector views into policy-level consideration at the Member States level. This Roundtable compliments existing platforms within the ITU, such as the Chief Regulatory Officers Meeting or CRO, and the m-Powering Development Initiative's WG on Partnerships,

both of which facilitate and support the establishment of public-private partnerships." Mr. BA then presented the activities and initiatives of the CRO and shared his views on how the private sector can play its role in revitalizing partnership development toward fulfilling the SDGs. Thirteen interventions were made by distinguished private and public-sector representatives that presented case examples, setting out challenges, opportunities and key success factors and the roles of policy makers and regulators in establishing innovative public-private partnerships on ICT4SDGs. Interveners expressed that the private sector takes a pivotal role in deploying Internet-related infrastructure and delivering a wide range of ICT services. Businesses also contribute to encouraging access through capacity building and education initiatives, promoting innovation, public-private research and development partnerships, where businesses work with other stakeholders. The key challenges that were highlighted included that old policies/regulations need to be updated to reflect the Digital Age (e.g., the inclusion of non-traditional stakeholders within frameworks) to promote new and

innovative projects and programs that complement existing/future network deployments. Many opportunities exist to deploy infrastructure and some of those relate to changes to licensing regimes, access to spectrum, and to revise or new funding programs. With the SDGs, the world leaders are calling for creative and innovative solutions by the private sector to scale-up investments in activities that contribute to the goals though public-private partnerships. SAMENA Council, as a sector development

partner to both the private and public sectors anticipates playing an important role in bridging gaps in stakeholder communication and in contributing to collective endeavors towards fulfilling the global sustainable development agenda through ICTs. SAMENA Council also believes that collaboration and co-operation among stakeholders have become more crucial to mutual success in translating the benefits of ICTs toward global socio-economic development and empowerment.

MEMBERS NEWS

STC Signs a Mutual Agreements with Nokia, Ericsson, and Huwawei to Boost Mobile Broadband Capacity

STC Signed Mega Deals with a number of international companies (Nokia, Ericsson, Huawei) on the margin of GITEX Dubai 2017. The first agreement was signed with Nokia to boost mobile broadband capacity and coverage in Saudi Arabia using Nokia's 4.5G-Pro technology. The

agreements were signed by Emad A. Alaoudah, Procurement and Support Services Sector VP at STC, in the presence of Dr. Khaled H. Biyari, STC Group CEO, and Nasser Alnasser, SVP of Technology and Operations at STC. The enhanced network will meet the ever-increasing demands of

end customers, including the millions of visitors who travel to the cities of Mecca and Medina each year, particularly during the Hajj and Ramadan seasons. Furthermore, the NB-IoT will enable STC network infrastructure to evolve into the new era of digitization, which is a solid step towards the new programmable world. The second agreement was signed with Huawei for 5G-Ready network with Huawei to support STC's 5G strategy, satisfy subscribers' ever-increasing demands, drive Saudi ICT industry development, and to support the Kingdom's 2030 Vision and the National Transformation 2020 Plan. The third agreement was signed with Ericsson upon which, Ericsson provides STC with managed services to enhance customer experience, network performance and process quality, as well as passive managed infrastructure services, electro-mechanical equipment for mobile access sites, facility management during crises and electromechanical management of technical sites.

STC Will Witness a Qualitative Change in its Investments, Dr. Biyari

Dr. Khaled Biyari, STC Group CEO, confirmed that Telecoms turning towards Digitization is a need imposed by local and international reality. He emphasized that STC will move gradually from conventional telecommunications to Digitization. The new STC Academy, which will start in Riyadh within weeks, will change the culture of all its employees to deal with a new era in the world of communications and information technology, noting that the company's focus in the future is to keep up with the variables on cloud computing, information security, Internet

of things, digital financial services, and digital media. Biyari explained that explained that the company's investment in the application of "Dawri Plus" through the company "Intigral" indicates the success of the new investment, there are 2 million subscribers in the application, which makes us expand this application in the Gulf countries and Arab countries, and that the journey of change in STC launched 3 years ago by the company`s staff, And the next three years is a radical change for the company, in light of the trend towards new investments

completely different from the reality of the current conventional communications, which will begin to decline gradually. He also stated that STC contracts in GITEX reached SR 6 BN. These contracts are part of the company`s capital investments. He tackled the STC Venture of USD500 MN, stating that this projects supports the Kingdom`s vision 2030. The forum also, reviewed experiences of youth who have the support of (InspirU) Incubator that is adopted and followed up by STC.

LTE Evolution to 5G Workshop Conducted by STC

STC, represented by Technology & Operations Unit in cooperation with Qualcomm Technologies, conducted a workshop titled "LTE Evolution to 5G", which was

attended by Eng. Nasser Alnasser, Technology & Operations Senior VP, and other STC leaders and experts. The workshop focused on the latest wireless technolo-

gies leading to 5G with emphasis on LTE Advanced Pro evolution. The workshop was interactive as several technical and business issues were discussed.

STC Supports the Second International Conference on C4I Solutions

STC, represented by Enterprise Business Unit, participated as a diamond sponsor of the International Conference on Command, Control, Communications, Computers, Intelligence (C4I) and cybersecurity systems which was launched yesterday in Riyadh at King Saud University and will last for three days. The

conference was held under the patronage of Crown Prince Mohammed bin Salman bin Abdulaziz Al Saud, the Deputy Prime Minister and Minister of Defense, under the slogan "Alliance Against Terrorism: Strategies and Capabilities". During the Opening, AbdulRahman Al-Binayan, Chief of Staff Gen, honors STC in the presence

of Abdullah Alsawaha, Minister of ICT. The honorary shield was received by Riyadh S. Muawad, Key Accounts VP. STC is keen to sponsor such international conferences as a part of its important role in protecting the nation and society from the terrorism.

STC Participates in GSMA M360MENA

Zyad Alkhwaiter, Regulatory Affairs GM, participated at GSMA M360MENA conducted in GITEX Dubai 2017. He talked about the most important developments that can be applied at the regional level and the best solutions to serve the telecom market. He also mentioned that the Kingdom and the region are witnessing regulatory developments and challenges that require the restructuring strategies of telecommunications companies as well as IT companies. GSMA (#M360MENA) has a great role in enhancing regional participation through subjects that impact Telecom sector locally and internationally.

Dr. Biyari Reviews Developing Infrastructure with CISCO

Dr. Khaled Biyari, STC Group CEO, met with the Senior Vice President of Global Service Provider Sales at CISCO Woody Sessoms and his delegation. They discussed developing STC`s infrastructure around the Kingdom in compliance with the increasing demand on high speed broadband, in addition

to 5G services that will be a key driver for digital transformation. As a national company, STC is keen to dedicate all of its capabilities and expertise to support the transformation through digital infrastructure development and strengthening of the national economy by building strategic alliances with

major international companies to transfer knowledge and localization of technology and to stimulate investment in telecommunications infrastructure as an important factor of transformation that will develop an organizational environment to achieve a balanced technical transformation.

STC Will Increase Its Purchases from SME

STC intends to support SMEs through increasing its purchases from them 15% comparing to last year. Emad Alaoudah, Procurement and Support Services Sector VP, explained that STC has not only supported these facilities, by signing an agreement to allocate a percentage of its purchases budget, but also to increase this percentage gradually. On the margin of his participation in "BIBAN" forum`s third session titled (purchases of government and major bodies are the way of SMEs Growth) he added: STC worked

during the past six years on initiatives that support small projects and SMEs. Noting the development of the suppliers system in the company, which is available through modern electronic platforms that provide opportunities for all to deal with the company in many areas with transparency. That serve the company and all sectors dealing with it and support economic cycle in the kingdom. This also, help accomplish the kingdoms vision that concentrates on private sector and its role in supporting and spreading businesses,

which create job opportunities for Saudis. Alaoudah stressed on STC`s keenness on supporting national projects through adopting business incubator (InspirU) which inspire youth. In this regard, STC adapted 21 projects of SMEs and enhanced localizing several products related to telecom sector such as: SIM cards and cables plants, which the company export them through national plants only.

STC and Thales Announce Cloud Data Encryption Service

STC, represented by enterprise business unit, signed a Cloud Service Provider agreement with Thales Group, a leader in the fields of Security, Defense, Transportation, Aerospace, and Space, Tuesday at GITEX Technology Week as part of its drive to enable enterprise digitization, essential to achieving the Kingdom's Vision 2030 transformation objectives. The agreement follows the Memorandum of Understanding signed by both parties last year to develop business in the ICT domain in Saudi Arabia, and based on it will have Thales provides data encryption solutions through the STC Cloud platform.

STC Signs Contract with Al Latifia Company to Build a Network Control Center

STC signed a contract with Al Latifia Trading & Contracting Company to build a Network Control Center (NOC). The contract was signed during the GITEX 2017 in Dubai by Emad A. Alaoudah,

Procurement and Support Services Sector VP, and Mussab Al Khudairi, CEO at Al Latifia Trading & Contracting Co. The contract will allow Al Latifia to implement the network control building as well as

the multistory parking lots. The building will be established inside King Abdul Aziz Telecom Complex in Al-Mursalat in Riyadh.

STC Reviews Latest Digitization Solutions at GITEX 2017

STC, represented by STC Business, will be unveiling a variety of ICT digitization enabling platforms - essential to achieving the Kingdom's Vision 2030 transformation objectives - during its participation at GITEX 2017 in Dubai during October 8 to 12, 2017. Digitization

in the public and private sector has increased the efficiency of the way government services are delivered to the public, with almost all services available online and the way retailers engage consumers in the Kingdom, with almost anything available for online delivery.

According to the General Authority for Statistics, each year, out of over one million small to medium sized enterprises (SMEs), around 100,000 small businesses embark on expanding to become medium sized enterprises.

Batelco Board Appoints New CEO for Batelco Bahrain

Manama, Bahrain: Batelco Group (Ticker: BATELCO), the international telecommunications Group with operations across 14 countries, has announced the appointment of Mohamed Bubshait as Batelco Bahrain's new Chief Executive Officer. Mr. Bubshait joins Batelco from the Bahrain TRA (Telecommunications Regulatory Authority) where he held the role of General Director. His career in the communications industry spans several years, including a number of years in senior roles with Batelco prior to joining the TRA. Mr. Bubshait brings a wealth of knowledge and relevant experience that will be invaluable as Batelco continues its

evolution as the leading digital solutions provider in the Kingdom of Bahrain. Batelco Chairman, Shaikh Mohamed Bin Khalifa Al Khalifa said that he welcomed Mohamed to Batelco Bahrain and looked forward to working alongside him to ensure the delivery of Batelco's future goals. "Mohamed has shown excellent leadership skills in directing operations in his previous roll. He has vast experience in the communications industry and his knowledge and wide skill set will be invaluable in addressing the many challenges that Batelco Bahrain faces in the rapidly changing communications landscape," he said. The Batelco Board of Directors congratulates Mr. Bubshait

on his appointment and extends its full support to him in meeting the Company's goals going forward.

Batelco Renews its Cisco Gold Certification Status

Batelco, Bahrain's leading digital communication solutions provider is proud to renew its Cisco Gold Certification status with a very strong line-up of specializations that positions Batelco as a leader in the local ICT market. To maintain this highly acclaimed accreditation, Batelco continues to meet rigorous standards set forth by Cisco in Technical competency, service & support and customer satisfaction. The Cisco® Channel Partner Program provides a framework for partners to build the sales, technical and Cisco Lifecycle Services skills required to deliver Cisco solutions to end customers. Through the program's specializations and certifications, Cisco recognizes a partner's expertise in deploying solutions based on Cisco advanced technologies and services. Using a third-party audit process, the program validates a partner's technology skills, business practices, customer

satisfaction, presales and post-sales support capabilities, and other critical factors that customers consider when choosing a trusted partner. The list of key specializations includes Advanced Collaboration Architecture, Advanced Data Centre Architecture, Advanced Enterprise Networks Architecture, Advanced Security Architecture, Advanced Unified Access, Advanced Unified Computing Technology and Advanced Core and WAN. The comprehensive portfolio is supported by Batelco's CCIE's (Cisco Certified Internetwork Experts) who are specialized across Security, Routing & Switching, Data center, Collaboration, Service provider and Wireless. The availability of such best in class ICT technical resources strengthens Batelco's wide-ranging portfolio and differentiates the Company from its competitors. Batelco Chief Operations Officer Abderrahmane Mounir said that

in order to retain its Cisco Gold Certified Partnership status, Batelco continues to invest in technology and training. "It is the result of Batelco's major investment in the most advanced technologies and the Company's ongoing efforts to offer the best services for its customers." "Additionally, the accreditation provides Batelco with access to comprehensive sales, technical, and lifecycle services training and support available from Cisco. Ultimately, this translates into considerable benefits for our customers allowing us to serve them better," Mr. Mounir added. "Being a major ICT provider, Batelco strives to attain the highest level of certification from global industry players such as Cisco to further enhance customers' confidence in the company's products and services, and thus enhance their experience with Batelco," he concluded.

Batelco Presented with High Performing Partner of the Year 2017 – Avaya Award

Batelco,Bahrain's leading digital solutions provider has been presented with the High Performing Partner of the Year 2017 – Avaya Award, by Westcon group, at GITEX 2017. GITEX, the biggest annual ICT event in the MENA region, took place at Dubai's World Trade Centre from October 8 to 12. Batelco Chief Operations Officer Abderrahmane Mounir, who attended the major event, said that Batelco is delighted and honored to receive this important Avaya award from its distributor Westcon Group. "This achievement would not have been possible without the diligent efforts of many teams at Batelco who continue to priorities the requirements of our business customers," he said. Batelco is an Avaya Diamond Certified Partner given in recognition of the Company's commitment, investment, experience and dedication to customer satisfaction and furthermore the Company has an ongoing commitment to provide the best-in-class solutions for its customers to support their efforts to grow and optimize their businesses. Westcon Group Managing Director Steve Lockie said, "We are very pleased to recognize Batelco as the

highest performing partner of the year for its outstanding efforts in delivering Avaya solutions for its enterprise customers in Bahrain. Our partners play a crucial role in driving Avaya's growth and customer-centric strategy." Batelco is a major ICT vendor in the region and is the largest partner of Avaya in Bahrain. The attainment of this award is a direct result

of the company's significant investments in the latest telecommunications and ICT technologies that ensure its customers are among the first to enjoy the benefits of such technologies. Batelco designs, engineers and implements Avaya telecommunication systems for businesses and government entities across Bahrain.

Batelco Presented With Best Cisco Channel Partner in Bahrain Award

Batelco, Bahrain's leading digital solutions provider has been presented with the Best Cisco Channel Partner in Bahrain Award, by Aptec - an Ingram Micro company, at GITEX 2017. Following the award ceremony, Batelco Chief Operations Officer Abderrahmane Mounir said that Batelco is delighted and honored to be recognized as Bahrain's Best Cisco Channel Partner in Bahrain. "This achievement would not have been possible without the diligent efforts of many teams at Batelco who continue to prioritize the requirements of our business customers. We are committed to providing the best-in-class solutions for them in order to grow and optimize their businesses," he said. Batelco is a Cisco Gold Partner given in recognition of its commitment, investment, experience and dedication to customer satisfaction. The Company has attained a number of Advanced Specialization certificates from Cisco in recent years and furthermore, has in its employment 10 CCIE's and CCNP engineers, who support top class delivery for customers. The availability of such best in class ICT technical resources strengthens Batelco's wide-ranging portfolio and differentiates the Company from its competitors. The very strong line-up of specializations positions Batelco as a leader in the local ICT market. To maintain this highly acclaimed accreditation, Batelco continues to meet rigorous standards set forth by Cisco in technical competency, service & support and customer satisfaction. Aptec Managing Director (Gulf and Near East) Bahaa Salah said, "We are very pleased to recognize Batelco by presenting this award. Their teams' efforts have been outstanding and they truly deserve the best Cisco Channel

Partner award." "The attainment of this award is a direct result of the company's significant efforts for its customers in collaboration with Cisco. Together we can ensure that Batelco's customers are among the first to enjoy the many benefits available under the Cisco umbrella," Mr. Salah added.

Batelco Presented with Best Sophos Partner in Bahrain Award

Batelco, Bahrain's leading digital solutions provider has been presented with the award for Best Sophos Partner in Bahrain, at GITEX 2017 by Bulwark, the regional distributor for Sophos products. GITEX is the biggest annual ICT event in the MENA region, currently taking place at Dubai's World Trade Centre. Speaking following the presentation, Batelco Chief Operations Officer Abderrahmane Mounir said that Batelco is very pleased to have achieved this success and received the Best Sophos Partner award for its efforts in delivering Sophos products

and solution for its business customers. "This achievement would not have been possible without the diligent efforts of many teams at Batelco who continue to prioritize the requirements of our business customers," he said. Batelco signed a platinum partnership agreement with Sophos, a key IT security and data protection company, on the side-lines of GITEX in 2016. Batelco is constantly on the quest to expand its security services portfolio in order to support the increasing security requirements for organizations across all sectors and the collaboration

with Sophos is effective in meeting this requirement. Bulwark Managing Director Jose Thomas Menacherry said, "We are very pleased to recognize Batelco as the Best Sophos Partner in Bahrain for its outstanding efforts in delivering Sophos solutions for its enterprise customers." "Together Sophos and Batelco can make a significant contribution in improving the IT security landscape of Bahrain and we are focused on supporting both organizations in their efforts," he added.

Batelco Recognized for its Support to Amazon Web Services First Middle East Summit in Bahrain

Batelco, Bahrain's leading digital solutions provider has been recognized for its support for Amazon Web Services' (AWS) first Middle East Summit in Bahrain which took place at the Four Seasons Hotel on September 25. Batelco provided end-to-

end communications solutions for the event including the installation of fiber and the Company's technical teams were available around the clock to monitor the network and ensure its reliability. Such provisioning helps in portraying Bahrain

as a world-class location capable of providing mission critical communication solutions for prominent events attracting international attention.

Batelco Board of Directors and Senior Management Attend Key Strategy workshops

Batelco's Board of Directors and Senior Management from Batelco Bahrain and across the Batelco Group have attended key strategic workshops under the theme of Focus for a Successful Transformation. The Group collaborated with leading international experts to deliver the workshops which took place in Bahrain recently. The workshops provided the platform for all concerned to discuss the many challenges and opportunities available and devise strong strategic plans that will support their shared goals, which include successfully transforming Batelco Bahrain and its joint venture companies for the next phase of their growth. Among the strategic objectives discussed were a focus on improving operational efficiencies and innovating for the future with the importance of digital transformation and cyber security highlighted as crucial elements. Batelco Chairman Shaikh Mohamed bin Khalifa Al Khalifa said that having the opportunity to bring together members of the Batelco Board and senior management from across the Group was invaluable. "The

opportunity to spend a number of days together to discuss the comprehensive strategic plans for Batelco in Bahrain and the Group, and devise focused initiatives and action points, was appreciate by all involved. With everyone on the same page, we will now be focusing on the agreed outcomes to achieve our strategic

objectives during the coming years" "Our combined efforts are designed to support the requirements of Batelco Group across all geographies by enabling each entity to meet the differing and specific communication needs of its business customers and consumers," Shaikh Mohamed concluded.

Etisalat Signs MoU with eCommerce Platform Noon

Etisalat and eCommerce platform Noon signed a Memorandum of Understanding (MoU) to appoint noon.com as one of Etisalat's key online partners offering consumers the flexibility to purchase Etisalat products and services online. The MOU was signed at GITEX Technology Week 2017 being currently held from 8-12 October at Dubai World Trade Center by Mohamed Alabbar, founder of Noon and Saleh Al Abdooli, Chief Executive Officer of Etisalat Group. Saleh Al Abdooli, Chief Executive Officer of Etisalat Group said: "We are proud to be associated with Noon, UAE's homegrown eCommerce platform enabling our subscribers an option to purchases online bringing in efficiency and flexibility for these customers. This in line with our overall strategy to move towards a digital future and make it a reality." Mohamed Alabbar, founder of Noon, said: "Our partnership with Etisalat, the leading telecom provider, to offer its products and services is a testament to our growing retail partnerships. Such great supplier relationships that add value to our customers is at the heart of Noon. We will continue to focus on working with regional brands and service providers to offer relevant and quality products that meet the lifestyle aspirations of our

customers." Faraz Khalid, Chief Executive Officer of Noon, added: "Etisalat provides a comprehensive array of telecom and digital products and services that bring tremendous value to customers. The partnership will ensure that Noon's customers have access to cutting edge digital solutions, and underpins our focus to create a vibrant digital marketplace."

Etisalat Hits 71Gbps in 5G Trial

Etisalat says it has achieved mobile data rates of 71Gbps in trials of 5G technology. The United Arab Emirates (UAE) telco used 2GHz of bandwidth for its tests, which are being carried out during Gitex Technology Week in Dubai. Etisalat expects to have a live 5G network up and running in the UAE by 2020. Meanwhile, Etisalat has revealed that its infrastructure investment will exceed AED3 billion (USD816 million) this year, with spending directed towards fixed and mobile network upgrades, robotics, Internet of Things (IoT) and artificial intelligence (AI). The firm says it has achieved 4G population coverage of 97.78%, and has fiber-to-the-home (FTTH) networks passing 93.28% of the population, making the UAE the world's most connected fiber market.

Technologies of the Future Take Center Stage at Etisalat during GITEX Technology Week

Keeping up with its theme 'Driving the Digital Future' at GITEX Technology Week, visitors took a journey experiencing all futuristic technologies at Etisalat stand during this week at the event. Etisalat aimed to create an unforgettable presence at GITEX Technology Week by showcasing a remarkable array of innovations and concepts driven by its advanced infrastructure, smart apps and solutions. The theme this year 'Driving the Digital Future' signified the company's mission to create a highly connected future for the UAE. GITEX attendees this year witnessed innovative ideas, concepts and solutions pioneered on through the company's digital platforms, infrastructure and communication. To

Etisalat, creating a digital future means enabling a connected lifestyle for the people as well as providing a plethora of highly efficient systems for government and business entities alike. From a humanoid robot 'Sophia' speaking to visitors to a robot conducting surgery over 5G, robotics were one of the major highlights at Etisalat stand. Robotics made its presence in retail where a robot assists you to shop and complete your shopping experience. There is a robot Einstein, a genius in Maths and science is an educational robot chatting with kids on weather, famous people, etc. In healthcare, the 5G robotic surgery is a demo that highlights mission critical use case for use of human skills remotely by

using the power of the network. In Smart home, robots displayed their skills in cooking and 'Buddy' the companion robot that protects your home, entertains kids and helps stay connected with family and friends. Augmented and virtual reality made their presence felt in all aspects of life, at GITEX this year; Etisalat highlights the use of these technologies in retail, education and in large-scale industry. In retail, augmented reality technology helps in choosing your favorite design on your shoes, clothes and merchandise. In education, augmented and virtual reality, collaboration and sharing highlight innovation in the classroom. IoT solutions also used augmented reality interfaces that could be used across industrial applications. Another technology that has made its presence across the different verticals is artificial intelligence (AI). In technologies for the visually impaired 'Drishti' developed by Accenture has smart glasses that recognizes objects and say what it sees through an audio to the person wearing the glass. AI also showcased in education where a digital library interacts with students to find the answers to their questions. Here the library recognizes the voice and responds back accordingly. In retail, the AI reception welcomes visitors, with a virtual assistant talking to you and a face recognition camera recognizing the visitor.

'Technology for Good' Major Attraction at Etisalat during GITEX Technology Week

'Technology for good' was a major focus at Etisalat this year during GITEX Technology Week' focusing on transformative technologies that will enhance the lives of the differently-abled, specially designed to help them in their day to day activities, many of them showcased for the first time in the country. The showcase of these technologies was also keeping in line with Etisalat's overall strategy of increasing the happiness quotient for all citizens in the country by introducing solutions and technologies that make a major impact and change lives of people. "This year at GITEX Technology Week, these transformative technologies also aimed to showcase how it can change lives and spread happiness in all segments of society. At Etisalat, our efforts strive to work with Dubai's Smart Office's happiness meter in the country prioritizing citizen's happiness and satisfaction levels. 'Technologies for Good' was a major focus this year with technologies from across the world exhibited and highlighting how it can make a difference in the lives of the impaired," highlighted Dr Ahmed Bin Ali, Senior Vice President, Corporate Communication, Etisalat Group. From the world's first, mass-producible, micro-braille smart watch to a smart glass for

the blind, these transformative technologies can make a major difference in the lives of the visually impaired and got a lot of attention from visitors at GITEX. The DOT Braille Smart Watch is lightweight and offers flexibility in manufacturing and design. 'Drishti' technology developed by Accenture through the smart glasses helps recognize objects and say what it sees through an audio to the person wearing the glass. Mind rockets, another assistive technology targets the hearing-impaired providing instant translation in different sign languages for multiple platforms such as websites, mobile apps, youtube videos etc. Virtual bionics, another innovative technology supported by Accenture focused on patients having missing limbs taking them to a virtual world where they can see actual hands giving their physicians better opportunities to assess their situation for better therapy. This year, pediatric gait exoskeleton made a major impact where a complete artificial muscle placed in each joint provides the effects of their movements but also muscle effect facilitating the natural walking pattern.

BBCWorldwide Pens First Ever SVOD Deal with Etisalat E-Vision

E-Vision, a fully-owned subsidiary of Etisalat announced its first content agreement with BBC Worldwide for the subscription of video-on-demand (SVOD) service. The content agreement was signed at the ongoing annual trade event MIPCOM held in Cannes, France between October 16-19. The event gathers the world's most influential industry players and is an exhibition that showcases the latest blockbuster programming and partners from the global entertainment market. The agreement delivers a broad spectrum of content to Etisalat's SVOD customers. War and Peace, the critically acclaimed modern take on one of the most famous stories of all time makes it SVOD premiere in the market, alongside Golden Globe™ award-winning drama Wolf Hall, spectacular natural history

series Wild Mexico, classic comedy Some Mothers Do 'Ave 'Em (S1-3) and feel-good family comedy Citizen Khan (S1-4). Music lovers can revel in Last Night of BBC Proms 2014 & 2015, and younger viewers can learn through play with BAFTA and International Emmy award-winning preschool title Hey Duggee alongside ratings hit Go Jetters and Sarah & Duck. Natasha Hussain, Vice President and General Manager for the Middle East and Mediterranean region, BBC Worldwide said, "MENA is one of the fastest growing online markets in the world, with changing viewing habits among data-savvy consumers. Everyone wants convenient, quick access to world-class entertainment. BBC Worldwide is delighted to be answering this need by bringing the very best of premium British

content at pace, directly to E-Vision clientele, including eLife TV subscribers." Humaid Sahoo, CEO, E-Vision said: "We are delighted to continue to enhance our content offering by partnering with BBC Worldwide. This first agreement with BBC Worldwide aims to be the start of a long partnership with a world-class content house." Jonathan Haysom, Vice President, Home Product Marketing, Etisalat UAE said: "Our award-winning eLife TV service continues to expand its content horizons and solidify itself as the biggest entertainment hub in the UAE. eLife TV customers will now enjoy more cutting-edge dramas, immersive documentaries and compelling children's content that the BBC is famous for."

Etisalat Sign MoU with Tasheel Enjazat

Etisalat and Tasheel signed a Memorandum of Understanding (MOU) to appoint Tasheel Enjazat as one of its key retail partner for Etisalat's prepaid and postpaid services as well as elife packages. The MOU was signed at GITEX Technology Week 2017 currently being held from 8-12 October at Dubai World Trade Center by Khamis bin Salim Al Suwaidi, chairman of Tasheel, and Khaled El Khouly, Chief Consumer

Officer, Etisalat. Khaled El Khouly, Chief Consumer Officer, Etisalat said: "We are pleased to appoint Tasheel Enjazat as our key retail partner making the availability of Etisalat products and services across a wider partner base. This will give our customers the flexibility of purchasing our services at their convenience at more locations across the country." Khamis Bin Salim Al Suwaidi, Chairman, Tasheel Board said: "Today's partnership aims

to bring efficiency in customer services by providing them services all under one roof. We are proud to be associating with Etisalat as a long term partner to improve our customer experience for all based in the emirate. Our services mainly include banking, general directorate of residence and foreign affairs, Federal authority for identity and citizenship, Ministry of health and Department of Economic Development."

Orange Jordan and Nokia Deploy Fiber-to-the-Home Network to Support New Ultra-Broadband Services

"We needed to quickly deploy a FTTH network that would provide the end-to-end capabilities we required to support our customers' evolving ultra-broadband needs. Today, we have successfully enabled Fiber connectivity for more than 30,000 homes–and are now focused on fiberizing the rest of the network, which is expected to be up and running by the end of 2017."

Jérôme Hénique, CEO Orange Jordan

Amman, Jordan - Nokia and Orange Jordan are deploying a fiber-to-the-home (FTTH) network that will bring new ultra-broadband access and triple-play services to thousands of homes and businesses across Jordan besides Orange Jordan's existing ADSL (Asymmetric digital subscriber line) technology. Using a combination of Nokia's GPON (gigabit passive optical network) technology, fixed network professional services, as well as Nokia Applications and Analytics advanced network and device management software, Orange Jordan will be able to quickly deliver over 200 Mbps services needed to meet surging demand for high-speed residential and commercial services. Today, broadband penetration in Jordan is predominantly wireless-based. Only five percent of the population accesses the internet via a fixed connection, a fraction of the six million total broadband subscribers,

according to 2017 report concerning ICT in Jordan. However, as demand for e-services, e-commerce, e-health, and e-education services grows across the Kingdom, the Jordanian government is focused on enhancing its fixed access infrastructure to ensure higher speed internet access is more broadly available. As the first operator to launch a FTTH service in 2016, Orange Jordan is applying its global expertise to initiate and maintain digital transformation in the Kingdom. These ambitions are in line with the Orange Group's five-year corporate strategy, Essentials 2020, which focuses on connecting people to all that is essential to them. Utilizing Nokia's GPON FTTH technology, Orange Jordan will be able to deliver enhanced services to new customers as well as extend the service to subscribers already served by the existing ADSL-based network. With the use of the Nokia Network Analyzer,

Home Device Manager, and Home Care solutions, Orange Jordan will be able to proactively manage the GPON network and communication devices in customers' homes. Orange Jordan CEO Jérôme Hénique, said: "We needed to quickly deploy a FTTH network that would provide the end-to-end capabilities we required to support our customers' evolving ultra-broadband needs. Nokia's credibility along with its innovations and expertise in fiber technology were strongly considered during the selection process for the current phase of technical deployment. Today, we have successfully enabled Fiber connectivity for more than 30,000 homes–and are now focused on fiberizing the rest of the network, which is expected to be up and running by the end of 2017.This is all in effort of confirming Orange Jordan's position as the strongest provider of high-speed internet and the leading provider of the most powerful telecommunications services." Jean-Francois Pigeon, head of the Orange Customer Team for Middle East & Africa at Nokia, said: "We are pleased to continue our long-term collaboration with Orange Jordan and support its FTTH project, from infrastructure deployment to homes connected. As a leading provider of GPON technology and associated services, we have the software tools, expertise and experience to cost-effectively address the various deployment needs of Orange in Jordan, addressing its network deployment needs and Quality of Experience challenge today and in the future."

Orange Jordan Sponsors BIG's Start-Ups in GITEX Technology Week

For the second consecutive year, Orange Jordan sponsored the participation of BIG Season 4 startups in GITEX Future Stars, which is within the 37th GITEX Technology Week, one of the major events for startups and entrepreneurs in the MENA region. GITEX Technology events included competitions on innovation and business propositions and is a great opportunity for entrepreneurs to showcase their ideas and business plans to representatives of major international companies interested in investing in startups, as well as chances to win in-kind and cash prizes worth more than AED 1.2 million, trips to Silicon Valley in the United States and providing special prospects for them. As part of Orange Jordan's sponsorship, the company provided BIG Season 4 startups with a special booth to showcase their products and services during the exhibition, which showcased, the services of "Aumet", a startup developing the medical industrial sector through establishing a platform that acts as an intermediary between medical machine manufactures and international distributors, "Mujaz", which shares digital content (videos) through its partnerships with web content producers on the internet and influencers on social media platforms, "Lunch Box" specialized in preparing meals for school students, and "Gasable" a mobile application which connects = Gas users with service providers. BIG is a program that helps and supports entrepreneurs at all stages of work, in order to expand into new markets and reach more segments of customers with different interests. The program offers its services using Orange Jordan's diverse resources and through its ever expanding and spreading international network, with the support of its partners in the program and Orange Group. The participating startups are connected to Orange's international network, to enable them to reach growth acceleration and guidance programs around the world and also, give them the chance to take part in various international exhibitions to widen their network and shed light

on them. Orange Jordan continues to support startups, small and medium sized companies, contributing to the growth and success of companies and entrepreneurship in the Kingdom, in order to strengthen socioeconomic development in Jordan. In line with its five-year corporate strategy "Essentials 2020" and its corporate social responsibility plan, Orange Jordan strives to strengthen its position as a local and responsible company in the community in which it operates in, therefore, it is committed to supporting activities and events that contribute to social growth and development.

Omantel Inks Deal with Al Khonji Holding

Omantel, the premier provider of integrated telecommunications services in the sultanate, has signed a memorandum of understanding with Al Khonji Holding in Oman to facilitate high speed telecommunications services through fiber optic cables for 'Rimal' and 'The Office' Projects. Sami al Ghassany, chief operating officer at Omantel, said, "At Omantel, we always work to deliver innovative telecoms solutions using the most advanced networking infrastructure and platforms possible and to the highest international standards. We are honored to have been chosen by Al Khonji to be their telecoms service provider of choice for this premiere project. This agreement further underlines the trust

major corporations in the sultanate have in the quality and reliability of our network and the services we provide. "In line with our Omantel 3.0 transformation strategy, this project aims to deliver on the promise of a tailored telecom solutions that not just meets but also far exceeds the expectations of our client. We aim to build on their trust and confidence by delivering the necessary infrastructure and services in a timely manner and to a level that will help them manage operations at the project in the most optimal and time-effective manner." Mohammed Ghamlouch, senior advisor to COO at Omantel, said, "Fiber optic network is the future of modern communications, and it has entirely

transformed telecommunications, both locally and regionally. Omantel is committed to adopting the most cutting-edge technological developments, and the company heavily invests in a team of experts who deliver top-notch value-added services and quality to our customers." Mohammed Abdullah al Khonji, chairman and chief executive officer of 'Aqar', said, "We are delighted to partner with Omantel to provide integrated telecommunications services for our real estate projects, especially 'Rimal' integrated complex. Also, 'The Office' project, one of the first smart office projects in Oman, is to be delivered this year."

VIVA Bahrain Together with Huawei Partner Launch World's First 'One Cloud Core' Network

VIVA Bahrain, the Kingdom's innovative telecom operator and Huawei, the leading global ICT solutions provider, have successfully tested and deployed the world's first 'One Cloud Core' network at VIVA Bahrain, merging the lanes that delivers data, voice, roaming and multimedia functions into one hybrid-model setup allowing for legacy and modern technologies to coexist. The transformation project spanned 12 months and involved the deployment of state-of-the-art telco-grade servers with the highest computing power available in the market. The new network solution – which puts an end to long-known technology lifecycles – paves the way for easy, cost-efficient and continuous software updates across all core network domains. VIVA Bahrain being the only telecom operator in the world to implement this technology opens the door for a true cloud-based future, bringing Bahrain one step closer to implementing the latest generation network. The

long-term yield hybrid-model looks to reduce time to deploy new networking services to support changing customer requirements, capture new opportunities and improve existing services. It also allows VIVA to easily trial and evolve services to determine what best meets the needs of customers. Moreover, the solution allows VIVA to quickly scale up services to address changing demands and support IoT innovation services such as fleet management, e-health, smart meters among others. Commenting on the deployment, Eng. Ulaiyan Al Wetaid, VIVA Bahrain CEO said, "The deployment of 'One Cloud Core' network with Huawei Technologies has put Bahrain at the front of technological innovation. This will accelerate VIVA Bahrain's network transformation with greater flexibility and scalability – and generate opportunities to deploy new technologies and services while maintaining the efficiency of our network operations. "This step will set the foundation for further milestones

in evolving operational capabilities to serve the coming latest generation network in 2020 with our partner Huawei Technologies," added Ulaiyan Al Wetaid. "Network Function Virtualization offers efficient use of the core network infrastructure compared to other platforms, creating more space to provide agile network and services, and delivering a better network experience overall," said Paul Fengnan, CEO of Huawei Bahrain. "It helps simplify and automate service providers' NFV operations, delivers applications and services faster to support user experience needs and provides a robust solution with carrier-grade performance, availability, security, and scalability. This is a ready-to-go, fully integrated and tested infrastructure." Senior representatives from VIVA Bahrain and Huawei met at Huawei Headquarters in Shenzen to mark the achievement of this worldwide breakthrough.

VIVA Participates in 37th GITEX Technology in Dubai

VIVA, Kuwait's fastest-growing and most developed telecom operator, announced its participation in the 37th GITEX Technology where its professional team featured latest range of products and services. The International GITEX Technology Week 2017 took place from 8 – 12 October 2017 in Dubai at the Dubai International Convention and Exhibition Centre. On this occasion, Eng. Salman Bin Abdulaziz Al-Badran, VIVA's CEO, said: "We are honored to take part in GITEX for the sixth year in a row. It is an exciting experience for VIVA to participate in one of the world's most anticipated IT and technology exhibitions". He added, "Our participation in the GITEX Technology Week 2017 comes in line with our corporate strategy to extend and present our services not only locally, but on a regional scale." Alongside VIVA, Saudi Telecommunication Company (STC) showcased its latest products and services through team of professionals.

GITEX Technology Week is the largest event in the Middle East, Africa and South Asia, where all technology leaders participate and identify the most

important global trends in the technology industry in the modern sectors, and reveal the latest advanced products and services.

Accenture Technology Vision Puts People at the Heart of the UAE Digital Agenda

People hold the power to shape and apply technology to create positive change, improve lives, and transform business and society, according to the Accenture Technology Vision 2017, an annual technology report from Accenture (NYSE: ACN) that predicts the most significant technology trends that will disrupt businesses over the next several years. As part of the Technology Vision, Accenture surveyed more than 5,400 business and IT executives worldwide. The theme of this year's report, "Technology for People," is a call to action for business and technology leaders to actively design and direct technology to augment and amplify human capabilities. The report states that we are beginning to see the emergence of technology for people, by people — technology that seamlessly anticipates our needs and delivers hyper-personalized experiences. Mike Sutcliff, group chief executive of Accenture Digital, said: "With the rapid pace of technological innovation we are witnessing today, companies are charting a new course and seeking to reshape their business models to compete in this digital world. Some have assumed that technological prowess will become the dominant source of competitive advantage. However, we believe that companies must strive to find the right balance between investing in their people and investing in technology. The winners of tomorrow will be characterized by their ability to put people first and use technology to amplify their capabilities."

The Technology Vision details how — with advances in areas such as artificial intelligence, the Internet of Things and big data analytics — humans can now design technology that's capable of learning to think more like people and to constantly align to and help advance their wants and needs. This human-centered approach to technology pays off for businesses, as leading companies will transform relationships from provider to partner — simultaneously transforming internally. The Technology Vision identifies five emerging technology trends that are essential to business success in today's digital economy:

- **AI is the new UI.** Artificial intelligence (AI) is coming of age, tackling

problems both big and small by making interactions simple and smart. AI is becoming the new user interface (UI), underpinning the way we transact and interact with systems. Seventy-nine percent of survey respondents agree that AI will revolutionize the way they gain information from and interact with customers. In the UAE, 90 percent of respondents agree that offering products/ services through centralized platforms or assistants will be extremely or very important to the future success of their organization.

- **Design for Humans.** Technology design decisions are being made by humans, for humans. Technology adapts to how we behave and learns from us to enhance our lives, making them richer and more fulfilling. Eighty percent of executives surveyed agree that organizations need to understand not only where people are today, but also where they want to be — and shape technology to act as their guide to realize desired outcomes. Almost 78 percent of UAE respondents agree that organizations that can truly tap into what motivates human behavior and design the customer experience accordingly will be the next industry leaders.

- **Ecosystem Power Plays.** Platform companies that provide a single point of access to multiple services have completely broken the rules for how companies operate and compete. Companies don't just need a platform strategy, they need a rich and robust

ecosystem approach to lead in this new era of intelligence. Already, more than one-quarter (27 percent) of executives surveyed reported that digital ecosystems are transforming the way their organizations deliver value. Meanwhile, 77 percent of UAE respondents agree that competitive advantage will not be determined by their organization alone, but by the strength of their chosen partners and ecosystems.

- **Workforce Marketplace.** The number of on-demand labor platforms and online work-management solutions is surging. Thus, leading companies are dissolving traditional hierarchies and replacing them with talent marketplaces, which in turn is driving the most profound economic transformation since the Industrial Revolution. Case in point: 85 percent of executives surveyed said they plan to increase their organization's use of independent freelance workers over the next year. In the UAE, respondents say that around 17 percent of their workforce is already made up of independent freelance workers, and more than a third (34 percent) expect their organization's use of freelance workers to increase by more than 51 percent over the next year.

- **The Uncharted.** To succeed in today's ecosystem-driven digital economy, businesses must delve into uncharted territory. Instead of focusing solely on introducing new products and services, they should think much bigger —
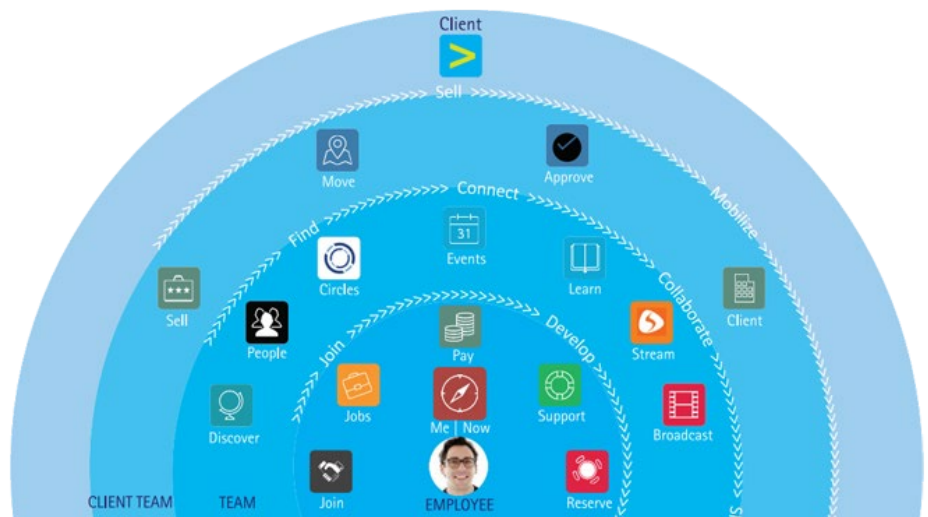
seizing opportunities to establish rules and standards for entirely new industries. In fact, 74 percent of the executives surveyed said that their organization is entering entirely new digital industries that have yet to be defined. Locally, almost 80 percent of UAE respondents surveyed agree that they have a duty to be proactive in writing the rules for emerging industries.

Omar Boulos, Regional Managing Director for Accenture in the Middle East, North Africa and Turkey said: "Success depends on a company's agility and willingness to embrace change. In the region, there is a real push towards increased digitalization, thanks to the leadership's visionary agenda. However, while the region strives to become the smartest in the world, the findings of Accenture's Technology Vision 2017 are clear: technology must not

replace humans, instead both must work together symbiotically to complement each other's aptitudes. As problems become more abstract, local business leaders must seize new opportunities, embrace new solutions and leverage strategic partnerships and this can only happen if they use technology to support their most valuable asset, their human capital." For nearly 17 years, Accenture has taken a systematic look across the enterprise landscape to identify emerging technology trends that hold the greatest potential to disrupt businesses and industries.

About the Methodology
Accenture's Technology Vision is developed annually by the Accenture Labs. For the 2017 report, the research process included gathering input from the Technology Vision External Advisory Board, a group comprising more than

two dozen experienced individuals from the public and private sectors, academia, venture capital firms and entrepreneurial companies. In addition, the Technology Vision team conducted interviews with technology luminaries and industry experts, as well as with nearly 100 Accenture business leaders. In parallel, Accenture Research conducted a global online survey of more than 5,400 business and IT executives across 31 countries and 16 industries to capture insights into the adoption of emerging technologies. The survey helped identify the key issues and priorities for technology adoption and investment. Respondents were mostly C-level executives and directors, with some functional and line-of-business leads, at companies with annual revenues of at least USD500 million, with the majority of companies having annual revenues greater than USD6 billion.

Alfa Telecom Lebanon to use Syniverse's LTE Roaming Services

Syniverse announced that it has signed a multiyear agreement to provide LTE roaming and real-time monitoring services to Lebanon-based operator Alfa, managed by Orascom TMT. The services support an enhanced 4G LTE experience for roaming subscribers and those visiting Lebanon. "4G LTE service has moved from a next-generation technology to a mobile-service standard, and our customers are expecting 4G LTE speed and capacity anywhere they go," said Marwan Hayek, chairman and CEO of Alfa. "LTE roaming is the normal evolution to cater to our customers' needs with data roaming traffic over our 3G+ network, which increased by 221% in 2016 compared to a year earlier." Hayek added, "Alfa is once again taking the lead and is the first operator in Lebanon to provide LTE roaming to our users offering them, in collaboration with Syniverse, a smooth and consistent 4G service wherever they travel. We will

start providing the service to Alfa's top roaming destinations and gradually expand our footprint to offer the most comprehensive LTE roaming coverage." A crucial part of LTE roaming involves the deployment of an IPX network, and Diameter, the industry-standard signaling protocol for messages from mobile devices, and the management of proper routing and delivery of Diameter signaling messages. Syniverse is providing its IPX with Diametre Signaling Service to Alfa Telecom in Lebanon as part of its global, reliable and secure platform. Syniverse's IPX provides a comprehensive solution for LTE roaming with a carrier-grade connection to the company's all-IP network connects over 1,000 operators, including over 280 direct connections. The LTE service, combined with real-time network monitoring, takes a holistic approach to roaming that enables operators to efficiently and proactively solve subscribers' problems and tailor

their individual experiences within a flexible, cloud-based framework. "With LTE connections projected to exceed 3.6 billion by 2020 and with 40 percent of global connections forecast to run on LTE networks by 2020, it is mission-critical that mobile operators gain global reach with their LTE networks," said Nour Al Atassi, regional vice president and managing director, Middle East and Africa, Syniverse. "As a pioneer in LTE roaming and provider of a completely private, global network through a secure, cloud-based platform, we'll use our expertise to ensure that Alfa launches 4G roaming service to provide the highest level of LTE service to its customers." Syniverse's agreement with Alfa in Lebanon continues a series of recent LTE accomplishments around the globe, including Cable & Wireless in the Seychelles, Warid Telecom in Pakistan, Ooredoo in Oman, Telinin Indonesia, LG Uplus in South Korea, and Saudi Telecom Company in Saudi Arabia.

Cisco Attracts Significant Attention at GITEX 2017

Cisco's participation at GITEX Technology Week 2017 received widespread attention as the global technology leader leveraged the region's largest tech event to showcase some of its latest innovations and solutions for the digital era. Aligned with the theme of 'Re-Imagining Realities,' Cisco's participation at this year's GITEX invited customers, partners and organizations to experience how Cisco solutions are helping businesses and society to securely connect and seize tomorrow's digital opportunity today. A large number of government and public sector officials and businesses leaders visited Cisco's showcase at the regional event to witness practical demonstrations of digital scenarios across multiple industries. With many GCC governments, and especially the UAE, announcing their national digital transformation visions and Smart City initiatives, Cisco took the opportunity to showcase 'The Network. Intuitive.' its new generation of intent-based networking systems, for the first time in the UAE. The company conducted simulations of its advanced technologies including machine learning, artificial intelligence and analytics to illustrate how they are helping address challenges, enhance competitiveness and deliver tangible benefits to businesses. "As we move into an era of complete digitization, we are keen to demonstrate the impact of our latest innovations with tangible examples that show the benefits our solutions deliver to countries, industries and businesses," said Shukri Eid, Managing Director – East Region, Cisco Middle East. "Our message is clear: digital transformation

is disrupting industries and changing the world at an unprecedented rate. Organizations and businesses across all sectors must act now to remain relevant and to position themselves ahead of their peers." At GITEX Technology Week 2017 Cisco invited Middle East organizations to re-imagine their businesses by highlighting real-life, industry relevant scenarios that demonstrate how its solutions can help accelerate their digital transformation journey. Partnering with Intel, Emircom and Alpha Data, Cisco brought digitization to life at its stand by showcasing customized technology solutions for key sectors relevant to the Middle East's digitalization priorities. These included vertical-specific solutions for the public safety and security, retail, education, healthcare, and transport and logistics sectors, as well as the public and government services domain. Governments and organizations across the Middle East are rethinking their digital infrastructure approach to improve quality of life, citizen services and business outcomes. A number of recent reports indicate that senior decision-makers across the region are more optimistic about digital disruption than their global counterparts. The prioritization of digital transformation on the agenda of leaders and boardrooms was evident by the level engagement Cisco executives witnessed during GITEX 2017. "The feedback and level of interest we received this year is unprecedented," added Shukri. "The digital era cannot be truly embraced without the full support and backing of country, city and organizational leaders. I am proud to say that we have seen a keen

willingness to adopt the latest thinking – not just from a technology perspective, but also from a business model, human capital and operational point of view." It wasn't only industry and organizational leaders that found inspiration in Cisco's outlook for the digital era. Students from UAE University, the University of Sharjah, Khalifa University and other academic institutions also visited Cisco's GITEX stand to hear from Cisco's specialists and engage with interactive games at the virtual reality experience zone. "There is widespread appreciation for the potential impacts and pace of the changes taking place across markets. There is also a growing understanding that innovation is not a luxury, but a necessity for survival and growth that must stimulated and given strategic priority. This is driving businesses to be proactive in forming robust digital strategies that meet the challenges of tomorrow, and is a very promising sign for great things to come in the region," added Shukri. During GITEX, Cisco showcased the future of education using Cisco Spark Board and Virtual Reality at Abu Dhabi Systems & Information Centre's (ADSIC) 'Innovation Oasis'. Cisco executives emphasized how organizations that aim to remain competitive in this quickly unfolding digital era must leverage new digital competencies and harness the power of the third platform - cloud, mobility, social business, and big data and analytics. Cisco also hosted an interactive Digital Network Architecture (DNA) center to present its enterprise networking and security solutions, offering visitors hands-on experience of how Cisco's software driven approach delivers services that turn network traffic data into actionable insights. As a foundation for digital transformation, Cybersecurity was incorporated across all solutions including the intelligent network, datacenter and cloud, with demos of the cybersecurity threat wall, and Cisco's integrated threat defense. In addition, Cisco demonstrated by how Cisco Kinetic is helping organizations extract, compute and move data from connected things to applications, enabling them to unlock the power of IoT data for smart cities to drive better business outcomes.

Cisco to Work with Monitoring Control Centre to Enhance UAE Capital's Security

At GITEX Technology Week 2017, Cisco and the Abu Dhabi Monitoring and Control Centre (ADMCC) announced further collaboration towards achieving the vision for a safe, secure and intelligent city. Building on their existing relationship, ADMCC will leverage the power of Cisco's technology solutions and innovation to support 'Falcon Eye,' an integrated, live surveillance system deployed across the city of Abu Dhabi. The strategic

cooperation focuses on adopting Cisco's latest innovations to enable ADMCC to stay at the forefront of technological updates and to harness new trends in the areas of safety and security. Launched in July 2016, the 'Falcon Eye' project will benefit from Cisco's state-of-the-art Data Centre architecture designed specifically to support virtualization in the Data Centre based on Cisco's Unified Computing System (UCS). This will support the expansion of Abu Dhabi's city-wide video surveillance project to

help protect citizens and residents and provide a suitable environment for the prosperity and growth in the nation's capital. "Safe cities create an environment that attracts the investments, businesses, and talent necessary for economic growth and development," said ADMCC Director General, His Excellency Saeed Saif Al Neyadi. "Interagency collaboration and real-time analytics are critical to our ability to help law enforcement provide

proactive, informed policing that pre-empts incidents and responds faster to emergencies. Given their technology leadership, domain expertise and comprehensive portfolio, Cisco is the optimal partner to support the evolution of our 'Falcon Eye' project and to develop new uses for our capabilities." ADMCC and Cisco are joining forces to create a more flexible, functional, and secure environment within the Data Centre. Cisco was selected for its leading cybersecurity solutions that help detect

and block threats faster with Advanced Malware Protection. When complete, the Cisco cybersecurity solution will apply threat-centric visibility and control to the environment, manage unauthorized access to the network, and gain more visibility to prevent malicious behavior. "Keeping citizens and assets safe and secure is a critical foundation for the economic and social prosperity of any city," said Shukri Eid, Managing Director – East Region, Cisco Middle East. "We are proud to contribute to Abu Dhabi's vision for a confident, safe society by working closely with ADMCC to enable government agencies to better pre-empt and respond to emergencies and to safeguard the city's inhabitants." The 'Falcon Eye' project provides coverage across the city of Abu Dhabi. It receives a live feed from thousands of visual surveillance devices distributed across Abu Dhabi, which connect into a single integrated control platform providing smart warnings and quick access to data creating events and initiating incident management. The solution is utilized by ADMCC stakeholders with functions tailored to each of their requirements and roles. The Abu Dhabi Monitoring and Control Centre (ADMCC) was established under the direction of His Highness Sheikh Khalifa bin Zayed Al Nahyan, Ruler of Abu Dhabi, as stated in Law no. (5), with the aim to manage and regulate the use of monitoring and control devices systems in public and private facilities and analyze the data provided by the devices, so as to prevent crimes and detect offenders and maintain public security in the emirate.

Capacity on Four Eutelsat Satellites Mobilized for TV Coverage by German and International Media Outlets

Capacity on four satellites operated by Eutelsat Communications (NYSE Euronext Paris: ETL) is mobilized by leading German and international media to cover the German federal election on September 4 which will see up to 62 million voters go to the polls. The equivalent of 300 hours is already booked

on EUTELSAT 12 West B, EUTELSAT 10A, EUTELSAT 16A and EUTELSAT 7B by customers that include Telenor Satellite and Luxembourg's ENEX, an association of world-leading commercial broadcasters. ENEX will draw on Eutelsat capacity to deliver to its members content produced by Medien gruppe RTL Deutschland,

its local German partner. Eutelsat's Booking Centre coordinates allocation of occasional-use capacity across Eutelsat's global fleet from minimum periods of 15 minutes, enabling media to report on sports, cultural, political and breaking news around the world.

GBI Partners with Social Media Networks Globally to Bring a Better, Faster Connection

The need for an enhanced and faster social media experience is more essential than ever. Understanding that need, GBI, a global cloud, connectivity and content enabler that owns and operates a smart, fully managed service network, is teaming up with social media platforms, content delivery networks and global cloud providers in the Middle East. Regional users will now experience a faster connection to the media and contents hubs, reducing the waiting time for content to reach the viewer. Through its regional landing partners, fixed broadband and mobile network operators, GBI has access to the most sophisticated and reliable terrestrial in-country networks. As the only operator to provide diverse routing from Europe to all the countries of the Gulf and the

lowest latency route between Europe and India, the network design utilizes the latest technology, including 40G and 100G, and offers resilient and safe technology to its customers. "As more people adopt digitally-aided lifestyles, we are thrilled to partner with social media networks to enhance their user's experience, providing a faster and more reliable connection. Ultra-low latency allows users to view content at almost real-time speeds," said Amr Eid, CEO of GBI. "We have and are continuing to deploy the latest technology designed to best address regional growth and provide our partners with greater choice and value." The Middle East is one of the fastest growing regions globally in terms of demand for bandwidth. According to a report issued by Google, watch time

on YouTube is growing by 60 per cent year-on-year in the region. Additionally, video content traffic is expected to grow to 69 per cent. With this in mind, GBI recognized the demand for bandwidth and capacity usage, which has increased by a whopping 68 per cent since 2014. GBI's low latency capabilities help simplify business for carriers, operators and content providers by reducing costs, giving them content access to the region and beyond. Besides connectivity, GBI also provides a smart way of delivering services with the highest levels of security and operational reliability. Since 2008, GBI has been instrumental in connecting the world to the Middle East. As a catalyst for growth, GBI is considered carriers' carrier for telecom operators, ISPs, and governments across the region.

Huawei's Platform + Ecosystem Show-Cased at GITEX 2017

Huawei, the leading global ICT solutions provider, showcased its 'platform + ecosystem' portfolio of innovations at GITEX Technology Week 2017, designed to equip Middle East organizations for the next big step on the road to digital transformation. Under the theme 'Leading New ICT, the Road to Digital Transformation' Huawei's booth Z-D20 in Za'abeel Hall will demonstrate not only the power of global technology platforms through the latest IOT, cloud, SDN and Big Data innovations, but also the digital ecosystem of collaboration through path-breaking business and technology alliances, and the latest co-created solutions from OpenLab Dubai. Governments in the region have embraced the digital transformation through their national agendas and organizations are reinventing their business models through digital strategies. All-cloud, or the full 'cloudification' of networks, operations systems, and services, is the most effective enabler to bring the digital vision into reality. "As the Digital

Age enters a new era driven by the evolution of the cloud, the Middle East is approaching a new milestone with Cloud 2.0. At Huawei, we make it our priority to ensure that organizations in the region are equipped for the next wave of digitalization. As a gathering of the Middle East's ICT government and enterprise ICT leaders, GITEX is an ideal platform to showcase our latest business-driven ICT infrastructure that empowers organizations to deliver value across a range of vertical sectors that are most relevant to the Middle," said Alaa ElShimy, Managing Director & Vice President, Enterprise Business, Huawei Middle East. At GITEX Technology Week 2017, visitors will experience Huawei's transformative platforms and solutions for various verticals including public safety and e-Government, transportation, digital banking, and smart utilities. Some highlights will include cutting-edge new product launches, new solutions and new partnerships in collaboration with industry-leading partners. Huawei will

also host Middle East Innovation Day with the theme 'Exploration, Lights the Way Forward', on Day 1 of GITEX at Sheikh Maktoum Hall, Zone B of Dubai World Trade Center. Part of a global series, the event will feature keynote sessions and a panel discussion by renowned ICT experts, scholars, and policymakers to envision how digital transformation will shape the future of enterprises in the Middle East and the role that governments and policy makers play in the future of ICT. The third annual Huawei Certified Internetwork Expert (HCIE) Panel Discussion and Award Ceremony will take place on Day 3 of GITEX to discuss the importance of ICT talent development in the changing landscape and honor outstanding talent performers in the HCIE program. Join Huawei at GITEX 2017 from 8 to 12 October at Dubai World Trade Center and see how Huawei's 'platform + ecosystem' strategy is helping to equip organizations for the sweeping changes of digitalization and empowering them to Build A Better Connected World.

Huawei Achieves Top Performance during Second-Phase 5G Technology R&D Test

Huawei was the first ICT solutions provider to complete the entire second phase of 5G technology R&D test organized by the IMT-2020 (5G) Promotion Group. The results obtained during the test were showcased at the PT/Expo China 2017. Huawei's leading position in test completion and newly acquired results further accelerate the progress of 5G technology R&D and help form a set of global unified standards to impressively conclude China's second phase of 5G test. Huawei achieved the best air interface test result to secure industry-leading dominance. Using 200 MHz bandwidth on the C-band, the downlink cell peak rate exceeded 32 Gbps. Huawei assumed the initiative to integrate all key 5G New Radio (NR) technologies. These include f-OFDM, new frame structure, new codes (such as Polar Code), new parameter sets, Massive MIMO, and SCMA. The overwhelming leadership shown during the second-phase test once again demonstrated Huawei's cutting-edge advantage in technical innovation. This was combined with the successful verification of multiple core technologies based on the results of the first-phase test, which were later incorporated into 3GPP standards. The 5G-oriented core network and access network were the first to pass verification. During the second-phase test, Huawei was the first to provide end-to-end (E2E) isolated network slices from 5G NR to networks using one set of telecom infrastructure. Network slicing enables ultra-large bandwidth, high reliability, low latency, and massive connections. The test results far exceeded 5G requirements of multiple vertical industries, as defined by the ITU. At the test location in Huairou District, Beijing, over 100 channels of 4K video were smoothly streamed in vehicle-mounted mobile scenarios, showcasing a superior experience for future C-band eMBB. Huawei recently updated the industry record of 0.3 ms one-way latency over the air interface with reliability of over 99.999% during test scenarios (such as vehicle platooning and emergency braking). For Huawei, this achievement marks a significant breakthrough in remote and autonomous

driving, while more importantly helping to realize the advancement of 5G core technologies. Additionally, Huawei is committed to promoting industry interoperability tests to accelerate the maturity of the 5G ecosystem. During the second-phase test, Huawei was the first to complete the device-pipe interoperability test in partnership with upstream and downstream enterprises, such as NTT DOCOMO and MediaTek. This comprehensively develops capabilities

for 5G commercial deployment by 2020. Huawei is proactively exploring key services during the 5G technology R&D test, which includes partnering with vertical industries to apply 5G to remotely controlled driving of vehicles and drones, holographic calls, smart manufacturing, and other use cases. The second-phase test results of 5G Mobile Edge Computing (MEC) showed that 5G will further help operators enable new smart use cases, such as at a campus, stadium, and office environment. Wang Zhiqin, Deputy Director of the China Academy of Information and Communications Technology (CAICT) and IMT-2020 (5G) Promotion Group, emphasized that, "Under global unified 5G standards, IMT-2020 (5G) Promotion Group and Huawei are engaging in close collaboration. During the second-phase test, this partnership helps to deliver considerable achievements both in R&D and tests involving the NR and network technology solutions. These tests further contribute

to add confidence in promoting the development of 5G technology innovation, while jointly accelerating the formation of unified 5G standards." Dr. Tong Wen, Huawei Fellow and Wireless CTO, indicated that "During 5G development, Huawei's outstanding performance in leadership has led to a large number of positive influences. For example, not only has Huawei produced industry-leading test results in cell throughput and single terminal data rate, but has also promoted

flexibility of 5G standards and established a capable E2E industry chain. With a broad mindset and global vision, Huawei will continue to lead in 5G technology innovation and maintain a competitive edge in 5G standards and architecture, while pursuing the development of cross-industry collaboration. This will speed up the formation of unified 5G standards and create a global ecosystem of coordinated spectrum." China's 5G technology R&D test procedures first began during 2016 and will continue to the end of 2018. These procedures involve three phases of verification, firstly targeting 5G core technologies, then 5G technology solutions, and finally the entire 5G system. Over the past two years, Huawei has achieved remarkable performance in both first- and second-phase tests, and continued efforts will concentrate on 5G system verification in preparation for commercial 5G deployment by 2020.

Huawei OceanStor Dorado V3 Certified for SAP HANA®

Huawei, a leading global ICT solutions provider, announced at GITEX 2017 that its all flash storage OceanStor Dorado V3 is now certified as an enterprise storage solution for real-time database SAP HANA®. Leveraging OceanStor Dorado V3 with SAP HANA offers outstanding performance and reliability to Government, Oil & Gas, finance, public service and many other industries. Customers today are challenged by surging data volumes, increasing performance requirements, as well as storage efficiency. An end-to-end high-performance real-time computing platform is required to help them meet these challenges. SAP HANA, based on in-memory computing, provides a data platform for transactions, business analytics, predictive analytics, planning and business processing. OceanStor Dorado V3 can support two times more SAP HANA nodes than a traditional storage system with the same

capacity, enabling SAP HANA nodes to scale up and out more flexibly. "We strive to ensure that our customers are using the latest technologies, and our products are certified with the latest standards. It keeps our customers at ease, and gives them access to innovative data services. The certification of our OceanStor Dorado V3 enterprise storage solution for SAP HANA is further proof of Huawei's dedication to providing customers with better data services, with data reliability and processing efficiency placed on top," said Walid Gomaa Ahmed Moustafa, General Manager of Data Center Solutions for Huawei Middle East. "This certification signifies a milestone in the long-running cooperation between Huawei and SAP. We hope to further our partnership with SAP and continue offering customers new, innovative data-service experience," he said. Riding on Huawei's best practices related to SAP® software in industries,

OceanStor Dorado V3 can improve the efficiency of a system running SAP software by at least 30%, with the data query time shortened to the microsecond level, expediting online data transactions and real-time analytics. OceanStor Dorado V3 is equipped with such value-added features as HyperMetro gateway-free active-active design that supports business availability; remote replication for enhanced disaster-recovery; and lossless snapshot. Taking advantage of SAP's extensive and professional experience regarding platform and enterprise solutions as well as market insight, Huawei intends to work together with SAP to develop a series of solutions based on SAP HANA. These solutions will be designed to provide real-time data processing and insight capabilities, targeted at enhancing operational efficiency and accelerating digital transformation.

Mobily Business Expands its Cloud Computing Footprint with Virtustream and Dell EMC

Etihad Etisalat (Mobily), a leading mobile and data service provider in the Kingdom of Saudi Arabia along with Virtustream, the enterprise-class cloud company and a Dell Technologies business, and Dell EMC today announced a new strategic agreement to support the development of Saudi Arabia's cloud computing market. As part of the new agreement, cloud computing services will be established at the Mobily Melgha 2 data center in Riyadh, which will be linked to the two existing cloud computing data centers located at Dammam and Jeddah. With this development, Mobily Business will own the largest cloud computing network in the Kingdom, enabling the company to offer unprecedented levels of secure cloud services to the Kingdom's business sector. At present, Mobily Business provides cloud computing services from its data centers situated in Dammam and Jeddah. By expanding its cloud footprint to its Riyadh-based Melgha 2 data center, Mobily Business's customers will have the flexibility to choose the most suitable location to operate their applications and systems, without any impact to the

standard of service. Mobily Business's cloud computing services are currently being used by businesses across various sectors for its high operational efficiency, enhanced productivity and significant reduction of operating expenses. Virtustream will provide professional services to upgrade Mobily Business's existing cloud footprint and will build new cloud environments for future cloud services. Commenting on the signing of the agreement, Eng. Ismail Alghamdi, Mobily CBO said, "Four years ago, Mobily Business embarked on its journey to provide cloud computing services across the Kingdom. Today, we ascertain our commitment by expanding our offerings in cloud services by signing a strategic partnership with the world's leading technology companies, Virtustream and Dell EMC, to provide highly-reliable services to meet the strong growth in cloud adoption in Saudi Arabia." "Demand from enterprises migrating their mission critical applications to the cloud within Saudi Arabia has reached an all-time high," said Simon Walsh, COO, Virtustream. "Consequently, we are working expediently with our regional partner,

Mobily Business, to lend our expertise to the market and create opportunities for companies within the region to make the move to cloud." Omar Akar, Director, Saudi Enterprise & Telco Levant, Dell EMC said, "We are happy to partner with Mobily Business to further expand its pioneering effort of providing secure cloud computing services to help organizations in the Kingdom meet their business needs of tomorrow. Dell EMC is committed to delivering world-class technologies and advanced, innovative infrastructure to ensure increased efficiency and productivity for its customers." As industry leaders in cloud computing systems, Virtustream and Dell EMC will provide Mobily Business with advanced digital infrastructure and best practices to enable businesses in the Kingdom to unlock new enterprise value through cloud computing. Mobily Business possesses extensive experience in ICT solutions and owns the largest portfolio of products in this field, including managed services, M2M device services, cloud computing and data centers.

NOKIA

Nokia: Unleashing the Power of Digital Health

1. Driving better outcomes in healthcare: a global objective

It is widely recognized today that the global health and healthcare system is ill-equipped to deal with the demographic transformation (by 2050, the world's population is expected to rise to 9.7 billion, with 2 billion over the age of 60). The United Nations 2030 agenda for Sustainable Development has defined 17 Sustainable Development Goals (SDGs) including SDG 3 for health which aims to ensure healthy lives and promote well-being for all at all ages. To keep populations healthy, treat patients more effectively, and attain the SDG targets, the traditional healthcare requires a profound transformation to move to value based care, drive better outcomes, lower cost, and enhance the delivery of healthcare globally.

Transforming healthcare IT

2. The value of digital health

Nokia believes that digital health will revolutionize the concept of health care, from a technological and social standpoint and beyond, and will transform the 'doctor-hospital' model. Healthcare professionals will continue to monitor patients, but patients will be empowered to take their healthcare needs into their own hands. Advanced digital technologies such as connected health and well-being devices and sensors, IOT (Internet Of Things), Ultra-broadband connectivity networks, and the Cloud can help healthcare organizations work more efficiently, reach more patients, and gain deeper insight into both individual and population health trends and patterns. Digital health is a horizontal enabler for many global initiatives such as advancing the NCD (non-communicable diseases) agenda, containing global disease outbreaks and future epidemics, etc. As the digital health care ecosystem

matures and solutions scale up, preventive care, early intervention, and personalized predictive care will take a center stage, reducing spending on chronic conditions and on high-cost emergency room visits, bringing efficiency and quality of health care to all. As a matter of fact, remote monitoring can now be done cost-effectively, because devices benefit from industrial volumes, connectivity is becoming more accessible, and artificial intelligence tells the clinician exactly where to look. From a modest 60 patients per nurse at the time hypertension was followed by phone, care coordinators can now follow hundreds of patients each digitally, a ten-fold productivity increase. This is not a futuristic vision. It is happening now in major healthcare institutions thanks to Nokia's technologies: in the US (at Kaiser Permanente, Ochsner Health Systems, Duke Hospitals), but also at the Leiden Hospital in the Netherlands, and in the UK with the National Health Service. They are using Nokia's new Patient Care Platform, allowing doctors and care teams to remotely monitor patients via their smart devices.

3. How to unleash the power of digital health?

The Health sector needs to unleash the power of technology to fundamentally reinvent how care is delivered. While considerable success has been achieved demonstrating how digitalization and the adoption of digital health can improve health services delivery, most achievements consisted so far in pilot programs and small scale initiatives. In order to integrate digital health interventions as part of the global health service delivery, and attain large scale digital health impact, both public and

private sectors need to collaborate and embrace a digitally enabled care by driving some of the key actions described here next:

a. Promote Investment in good and reliable infrastructure to bring better and faster healthcare for all. Evolutions to ultra-Broadband technologies such as 5G, IOT, and Cloud are examples of technologies driving innovation. Nokia is working with Finland's Oulo University Hospital on becoming the world's first 5G hospital. It is a test lab for trials of new devices and equipment that will help doctors make faster, more reliable diagnosis with the help of data analysis.

b. Provide proper training/awareness building to health professionals and patients alike to encourage greater adoption of digital health solutions. Ensure continued investment in experimentation and certification demonstrating the efficacy of digital healthcare innovations.

c. Reassure doctors and patients about connected devices and sensors. Devices for medical use must be certified before being introduced on the market. Also, the explosion of connected health applications in the market will pose a true challenge for health authorities. At the same time, the regulatory framework today makes a distinction between regulated and unregulated health devices. It's important to keep a clear differentiation to enable new innovative solutions to flourish.

d. Enable Big Data analytics. Huge amount of data is created by the health information systems that need to be easily accessible in a consistent manner. Digital health data integration with Electronic Health Records is necessary, to establish data repositories allowing for Big Data analytics to generate novel insights into citizens' health status, disease progression and management, public health and personalized healthcare. Research teams in the United-States and Europe are now studying how Nokia wearable devices can help detect exacerbations from patients

suffering from Multiple Sceloris (MS) and Cystic Fibrosis (CF). While these two diseases are very different, both studies aim to test how patient self-monitoring using a wide array of sensors can help detect and better manage exacerbations. Studying alerts can help clinicians develop a patient's personalized educational plan, enabling better management of exacerbations, including ability to make informed choices.

e. Invest in experimentation and evaluation. Nokia teamed up with the American Medical Group Foundation (AMGF) as an example to work on an 18-month project seeking to improve blood pressure control in patient with uncontrolled hypertension, in conjunction with the national Measure Up/Pressure Down® hypertension campaign. Also, in association with the French National Railway company, Nokia organized a public challenge around physical activity, which recruited 6200 members who tracked their steps for a period of 10 weeks. These same participants were asked to participate in a public health study, aimed at assessing the real impact of public transports on physical activity.

f. Reassure about data protection. Medical data is sensitive personal data. It is essential to reassure users and doctors about the security and privacy of the data and associated solutions. The status of data changes depending on whether the device is used for recreational purposes, in which case it's personal data, or in a medical context, in which case it requires conformity to specific hospital norms. The relevance of the collected data is not the same depending on whether the individual uses it himself or not. In the first case, it is the patient's own responsibility. When a doctor uses data, he is held responsible for it and for the diagnosis he generates based on it. In this case, an accredited hosting of health data becomes necessary.

g. Promote interoperability and standards especially around data exchange and semantic interoperability. We need to promote interoperability and open platforms, and move away from complex information silos where records and other data sit across multiple systems. For instance, our Nokia connected devices come with an extensive and cloud enabled API ecosystem allowing more than 100 partners and clients to develop and deploy their own innovative applications & services as needed.

h. Sustain government leadership. Digital health investments need to be enabled by committed long term funding and robust program management. This will give newly introduced digital health solutions time and support to be implemented and to scale up in phases, and also to integrate with existing systems and practices. The Broadband Commission Working Group on Digital Health, chaired by Nokia and the Novartis Foundation, convened leading digital health experts from governments, international and non-governmental organizations, academic institutions and the private sector for the purpose of producing a report: Digital Health: A Call for Government Leadership and Cooperation between ICT and Health. This report documents the results of the exploration with a view to providing practical guidance on leadership governance and intra-governmental cooperation to leaders in health and ICT who wish to adopt a digital health strategy.

i. The financial and regulatory framework. Today, billing for medical care does not sufficiently encourage early detection and home monitoring. Insurance for instance should put greater emphasis on reimbursing preventive care. Connected devices open the door to a new model of prevention. If today a disease treatment is reimbursed, it is conceivable to fund good health itself in the future. Lastly, sick patients and healthy people alike lack incentives to adopt prevention tools. Sedentary lifestyle, smoking habits and lack of exercise increase the odds of cancer and cardiovascular diseases. In this context, a system rewarding healthy behaviors could be imagined.

Nokia Demos Wireless PON WiGig Gigabit Solution

Nokia has unveiled its hybrid Wireless Passive Optical Network (PON) solution, claiming an industry first which enables operators to offer gigabit broadband services to customers using WiGig wireless technology, eliminating the need to extend fiber all the way to a home or building. The Finnish vendor will be demonstrating the Wireless PON solution at Broadband World Forum in Berlin this month, with pilots, commercial trials and general product availability planned for 2018. The fixed-wireless solution integrates Nokia's PON technology with WiGig, a high speed 60GHz standard otherwise known as 802.11ad, which mounts on telephone poles, street lights or building facades, using beamforming to bring connections of up to 1Gbps to user premises located up to 300 meters away (via Nokia Wireless PON units mounted on the outside of a home/building). With the ability to connect multiple access points in a row or create a meshed network, the technology is aimed at fiber rollouts 'to a street corner or neighborhood' instead of customer buildings, thereby saving costs.

Nokia to Improve Capacity and Coverage of Zain Iraq's Network for Zeyara and Beyond

Nokia will modernize and expand Zain Iraq's radio networks with its most advanced technologies across Karbala, Najaf and Basra, with a special focus on the holy cities of Karbala and Najaf, to support the expected increase in data and voice traffic during Zeyara* as millions of people converge on the region. Once completed, the upgrade will allow users to enjoy improved indoor and outdoor coverage in both urban and rural areas as well as increased data throughput, leading to an overall superior customer experience. Nokia's project management and proven services expertise will be used to expand and modernize Zain Iraq's 2G and 3G network, providing ubiquitous coverage and faster mobile broadband. Additionally, the Nokia Mass Event Handler will be deployed to address the surge in data and voice consumption expected during Zeyara. The network modernization will allow visitors to remain continuously connected with their loved ones through superior voice and data connectivity during Al Arba'een and beyond. Ali Al-Zahid, Chief Executive Officer of Zain Iraq, said: "Our top priority is to provide superior services for our subscribers. This network modernization

and expansion is only the beginning of providing the best possible service quality and coverage with the most advanced technologies across the overall Karbala and Najaf and rest of southern region. We selected Nokia, our longstanding technology partner, for this important project, as we are confident that its advanced technologies will enable our network to provide such superior services. The current project will also enable a best-in-class mobile experience for visitors to Zeyara when we expect a high turnout this year." Bernard Najm, head of the Middle East Market Unit at Nokia, said: "Nokia fully understands Zain Iraq's requirements and is committed to providing leading technologies to enable pioneering services for its subscribers. Nokia's solutions cater to the unique connectivity requirements of mass events, and will help Zain Iraq address the expected surge in data and voice consumption during Zeyara."

Overview of the solutions:
- The high capacity and energy-efficient Nokia Flexi Multiradio 10 Base Station will be used to add the third carrier of 5 MHz on the 900

MHz band, to enhance capacity and increase coverage in suburban and rural areas.
- Nokia's Mass Event Handler will ensure network performance is not adversely affected because of heavy traffic during Zeyara. Another feature of the software - HSUPA Interference Cancellation - handles data more efficiently, enabling end users to upload pictures without any network glitch.
- Nokia FlexiZone will be deployed to enhance coverage and capacity of the existing 3G network in Karbala.
- Nokia's refarming service will refarm GSM 900 MHz frequency to expand the operator's 3G network.
- Nokia's NetAct virtualized network management software will provide robust capabilities for troubleshooting, assurance, administration, software management and configuration.
- Nokia's Network Planning and Optimization (NPO), Network Implementation, and Care services will ensure smooth execution of the project and maximize the return on Zain's technology investments.

Nokia's Optical Transport Technology to Help Idea Cellular Meet Massive Bandwidth Demand

Nokia will help Idea Cellular meet ever-increasing bandwidth demand by deploying Nokia's 1830 Photonic Services Switch (PSS) based Wavelength Division Multiplexing (WDM) solution. The optical transport network solution will be implemented across fiber-constrained geographies on the Idea network. Once the technology is deployed, Idea will be able to provide high-bandwidth services to its subscribers. Nokia's 1830 Photonic Services Switch allows service providers to extend reach by providing a cost-effective alternative to expensive fiber. Nokia's solution will be strategically deployed in fast-growing areas to allow Idea to offer high-bandwidth services to its subscribers without worrying about

the added load on the network. Nokia WDM helps in creating a new access layer, is easily scalable and ensures optimized power consumption and space utilization. The new transport network will also be able to support the increased demand in the future. Anil Tandan, Chief Technology Officer, at Idea Cellular, said: "With the roll-out of Idea's pan-India wireless broadband network in the last one year, we have witnessed massive data growth leading to high bandwidth demand. We have a long standing partnership with Nokia and we are confident that Nokia will bring the same expertise and commitment in deploying optical network as it does in Radio, Core and IP domains. This collaboration marks a new phase

in our relationship, and we look forward to leveraging Nokia's strength in optical network domain to meet our requirement." Nitin Dahiya, Head of Customer Team - Idea, at Nokia, said: "Through a combination of new operator offerings, aggressive data plans and continued mass adoption of smartphones, India has witnessed unprecedented data usage growth since the beginning of 2017. We are delighted to be working with Idea to deploy an optical transport network that will help address the high-bandwidth data demands of its customers. It's an important collaboration for us, and we look forward to working closely with Idea as a key technology partner in this new chapter."

Nokia First to Contribute Open Source Software to Accelerate Adoption of Software-Defined Fixed Access Networks

Nokia is playing a leading role in the Broadband Forum's effort to spark fixed access network innovation by spearheading the new Broadband Access Abstraction (BAA) project. The initiative, led by Nokia, seeks to drive the adoption of software-defined access networks through the contribution of open source software, uniting vendors and operators to ensure they are aligned with industry specifications to meet the needs of operators globally. The project seeks to define a software reference implementation for an open BAA layer, which would eliminate dependencies on vendor-specific equipment and proprietary software functions by providing standardized interfaces and decoupling implementation from the underlying hardware. Nokia is the first vendor partner to contribute open source code under the BAA project. Fully aligned with BBF standard data models, the open source code delivers common management functionality, making it easier to operate multi-vendor, multi-technology access networks and letting operators and vendors focus on developing new innovative cloud capabilities instead. The project is created within the BBF - a non-profit industry organization focused on engineering smarter and faster broadband networks - under the Open Broadband (OB) program and taps into deep experience in defining network architectures that fulfill a wide range of requirements and operator needs. Developing both the specifications and reference codes under a single organizational umbrella

will shorten feedback loops and reduce the development efforts and testing cycles required. Robin Mersh, CEO of Broadband Forum, said: "We are excited to have Nokia be the first vendor in the Forum to contribute open source code under the Broadband Access Abstraction open source initiative. This will help reduce the time and efforts needed to achieve interoperability and help operators to develop a framework for cloud infrastructure in the central office. By aligning open source code to industry specifications, the Forum can effectively collaborate with the open source community to aid in development and testing." Federico Guillén, President of Nokia's Fixed Networks Business Group, said: "Open source software is a powerful tool that can make us more efficient as an industry. However, one of the biggest hurdles is simply getting started. Together with BBF, Nokia is driving an agile and collaborative environment that produces reusable software for fixed access operators across the globe. By

opening and standardizing the common, generic part of the network software, we avoid the need to re-write that same software for every technology, every vendor and every node. In turn, we can now focus our efforts on developing new applications and capabilities that make the network faster, better, and smarter: for example, converging fixed and mobile networks; fronthauling 5G over fiber-access networks, automating operations and building self-healing and self-optimizing networks." Mauro Tilocca, Project Manager of Wireline Innovation and Access Network Automation at Telecom Italia, said: "The BAA open source initiative creates an open environment amongst vendors and operators that helps to accelerate the creation and introduction of new and innovative services. The alignment with the BBF gives us confidence and assurance that any software conceived under the initiative will be interoperable and meet the various specifications of our network."

"Together with BBF, Nokia is driving an agile and collaborative environment that produces reusable software for fixed access operators across the globe. By opening and standardizing the common, generic part of the network software, we avoid the need to re-write that same software for every technology, every vendor and every node."

Federico Guillén,
President Fixed Networks

NOKIA

Nokia Introduces New, Carrier-Grade In-Home Wi-Fi Solution

Nokia introduced its carrier-grade, in-home Nokia Wi-Fi, which will bring an unmatched gigabit connectivity experience to every corner of the home. The Nokia Wi-Fi portfolio consists of a new line of Wi-Fi gateways and extenders, and ensures that any service - be it video, gaming or plain surfing - is possible with a superior user experience. In addition, the Wi-Fi experience and coverage is optimized by industry first Wi-Fi interference detection and identification. For service providers, the Nokia solution

will result in happier subscribers and help decrease Wi-Fi related support costs. Around 30% of calls to a Communication Service Provider's (CSP) helpdesk today are related to poor in-home connectivity. While CSP's have been bringing gigabit broadband connections to the home, they typically don't control the in-house coverage situation. With the Nokia Wi-Fi portfolio, CSPs will be able to offer a managed whole-home Wi-Fi solution which will reduce customer churn and provide opportunities for new CSP

services. One of the main challenges of the in-home Wi-Fi network is intermediate interference which can be caused by other Wi-Fi devices (the neighbor's network for instance) or non-Wi-Fi devices including microwaves, baby monitors, LTE, cordless phones and wireless game controllers. This interference is even more problematic in an apartment building with a large number of neighbors. By using Broadcom's BCM4363 WLAN chipset with Air-IQ technology, Nokia is enabling best-in-class Wi-Fi performance by

analyzing and avoiding these interference effects, allowing the extension of the Gigabit experience to every corner of the home. Air-IQ helps to minimize connectivity issues, significantly reducing the associated helpdesk costs and number of truck rolls required for a service provider. Nokia's meshed Wi-Fi solution consists of a premium and basic tier which will provide a flexible solution to meet every type of deployment needs. The Nokia Wi-Fi gateways can identify as much as seventeen different interference sources occurring at 2.4 GHz or 5 GHz, outperforming any current product on the market, which typically detects about four. With the knowledge and statistics provided by Air-IQ, the Nokia wireless gateways can choose the best channel of operation or band, steering devices to avoid disruptive interference. Federico Guillèn, president of Nokia Fixed Networks, said: "Everyone knows how tedious malfunctioning Wi-Fi networks can be. People demand instant connectivity and perfect coverage throughout their homes. Nokia in-home Wi-Fi delivers just that. Nokia Wi-Fi will be a great tool for service providers to increase customer loyalty and focus on new revenue streams. As they lease the central home gateway and have a trusted relationship with subscribers, they have a key role to play in delivering the Digital Home." Greg Fischer, senior vice president and general manager, Broadband Carrier Access, said:

Broadcom is excited to partner with Nokia to bring to market the unique advantages of Air-IQ technology. Wi-Fi is becoming a managed service offering at many broadband operators around the world and, as a result, the unique insight provided by Air-IQ becomes essential to ensure best-in-class performance while minimizing total cost of ownership." Chris DePuy, Founder and Technology Analyst at 650 Group, said: "The home Wi-Fi market is undergoing a revolution as consumers demand smarter, coordinated Wi-Fi systems that can scale seamlessly as additional wireless devices are added. In recent years, growth rates of Wi-Fi Extenders and Mesh Wi-Fi systems have outpaced other consumer wireless infrastructure devices."

Nokia introduces new, carrier-grade in-home Wi-Fi solution

New Nokia FTTx Solutions Give Operators Greater Flexibility and Choice to Meet Ultra-Broadband Demand

Nokia is bringing several new products to its extensive FTTx portfolio so operators can accelerate ultra-broadband deployments and deliver more bandwidth to more people sooner. Nokia's enhanced FTTx portfolio includes fiber and high-speed DSL deployment options including a mini outdoor fiber node, a 212 MHz reverse-power G.fast solution and DSL backhaul remote nodes. Operators are evolving their access networks to better meet consumer demands for higher speeds and deliver on the promise of ubiquitous coverage. However, with vastly different challenges across their networks, a "one size fits all" approach does not always make sense. Having the flexibility to choose the right technology and deployment practice allows operators to overcome these challenges, fill coverage gaps in the network and deliver on the promise of ultra-broadband for all. Nokia is introducing a number of new micro-nodes that provide operators with the flexibility, speed and scale required to effectively deliver ultra-broadband access and services to more people sooner. The FTTx solutions introduce several fiber and DSL access nodes, covering a wide range of applications and use cases including:
- A weatherized fiber access micro-

node that can be deployed in any outdoor location, eliminating the need to invest in the central office, cabinets or remote weather protected locations. Supporting GPON, XGS-PON and TWDM-PON, the new solution also simplifies and accelerates the operator's fiber network evolution.
- Reverse-powered G.fast micro-nodes that can be used in areas where access to the power grid is challenging. The solution is supported by Nokia's cloud-native software platform, Altiplano, which allows for provisioning of the access node even when its powered down.
- 212 MHz G.fast micro-nodes capable of supporting up to 1 symmetrical gigabit speeds aggregate over a single copper pair or Coax cable. With 212 MHz G.fast, operators can extend gigabit speeds into multiple dwelling units (MDU) without installing fiber cable.
- DSL nodes that provide operators with extensive copper networks with a CTTx (copper-to-the-x) option capable of delivering 200Mbps up to 1,000 meters away using bonded DSL pairs in the uplink, extending ultra-broadband access into areas where fiber may not be practical.

Operators can also leverage fiber and DSL remote nodes including the Lightspan SX-16F, DX-16F and CF-24 announced under Nokia's Lightspan portfolio which leverage software defined networking and network function virtualization (SDN/NFV) to automate network configuration management, accessibility, serviceability and turn-up time. Roland Montagne, principal analyst at IDATE, said: "The ability to support a wide range of use cases in a cost-effective manner is key for operators seeking to bring ultra-broadband to more people sooner. Nokia already has an extensive portfolio of fixed access technologies and these new FTTx solutions will further enhance the toolkit, providing operators with the additional technology options they need to accelerate ultra-broadband access and meet objectives in a competitive manner." Federico Guillén, president of Nokia's Fixed Networks Business Group, said: "As customer demand for ultra-broadband access continues to increase, operators need a wide range of technology options to meet evolving requirements and effectively address different use cases. With the industry's most advanced and complete portfolio of solutions across fiber, DSL, cable and wireless, Nokia is uniquely equipped to

help operators address any situation they may face today and in the future." Part of Nokia's Intelligent Access vision, the new FTTx solutions highlight the various ways Nokia is working with operators to deploy faster, better and smarter networks. Nokia will be demonstrating and showcasing these FTTx options in the Nokia Booth E104 at the Broadband World Forum in Berlin, October 24-26.

New micro-nodes displayed at BBWF include:

- Nokia's 7362 ISAM SF-8GW is a hardened fiber access micro-node can be deployed anywhere and delivers 10/10 Gbps symmetric and/or 10/2.5 Gbps asymmetric speeds depending on network requirements.
- Nokia Lightspan Access Node SX-16F is a sealed, self-contained micro-node supporting 16 ports of 106MHz G.fast with the option for reverse power feeds.
- Nokia's Lightspan Access Node DX-

16F is a dense, self-contained micro-node supporting 212 MHz G.fast on coax.
- Nokia 7367 ISAM SX-48U supports 48 vectored VDSL 17a/35b or ADSL ports with an additional ports for bonded uplinks. By using these three DSL technologies in specific combinations, operators can go long delivering 10Mbps @ 6km or go fast with speeds of 200Mbps @ 1km.

Nokia and Zain Saudi Arabia Successfully Trial Country-First NB-IoT

Nokia and Zain Saudi Arabia have taken a significant step towards the creation of an IoT ecosystem with the successful trial of NB-IoT (Narrowband Internet of Things) technology at a live site in Mina area of Makkah Province. In the trial - which used smart metering as a potential use case - NB-IoT was applied to communicate temperature, humidity and air pressure from a remote location via a Nokia LTE base station at 900 MHz, demonstrating the role NB-IoT could play in applications such as smart metering for electricity departments, smart parking and smart waste management.

Nokia Intelligent Access Introduces New Solutions that Make Fixed Networks Faster, Better and Smarter

Nokia helps operators to evolve ultra-broadband demands with an enhanced portfolio of fixed network solutions and services that make broadband networks faster, better and smarter. Operators will now have access to additional technology choices needed to deliver more bandwidth to more people sooner, bring gigabit experiences to and into every home and better manage network complexity through virtualization. Nokia's expanded portfolio adds new options to the ultra-broadband toolkit including fixed-wireless access, introduces new carrier-grade in-home Wi-Fi solutions and delivers a new virtualized portfolio of technology that supports the widest range of software-defined (SDN) use cases in the industry. Several factors are impacting operator's ability to bring ultra-broadband services to customers. First, the need to leverage a mix of ultra-broadband technologies across copper, cable, fiber and wireless to deliver gigabit services and ubiquitous ultra-broadband coverage. Second, it's no longer enough to simply bring ultra-broadband access to the home; with more than 30% of calls to a Communication Service Provider's (CSP) helpdesk related to poor in-home connectivity, operators must be able to ensure gigabit Wi-Fi coverage can be delivered to every corner and device in the home. Finally, added network complexity is making it difficult to unlock new

capabilities, drive automation and scale the network. To help, Nokia is introducing several new solutions that will bring intelligent access to the network and help operators to:

- Deliver more bandwidth to more people sooner through an expanded portfolio of ultra-broadband technologies and services across fiber, DSL, cable and wireless that give operators all the tools they need to make the business case work
- Deliver a gigabit experience to and into every home with carrier-grade meshed Wi-Fi solutions that enhance in-home connectivity helping operators deliver new services that provide an unmatched in-home user experience
- Automate and scale the network - through cloud native hardware, virtualization and software-defined networking solutions that enable operators to build networks which can be self-installed, self-optimized and self-healed.

Erik Keith, principal analyst at GlobalData, said: "Nokia's Intelligent Access solution addresses several key pain points operators are challenged with today. First it provides a broad set of deployment options - across fiber, DSL, cable, and now fixed wireless access - that are essential for connecting everyone to everything, and to ensuring the success of evolving operator business cases. Intelligent

Access also unlocks whole-home Wi-Fi which is critical to enabling a truly end-to-end gigabit experience. Finally, it delivers virtualization elements which will be key to automate, simplify, scale the network, and deliver new capabilities. Complementary new solutions - including fixed wireless, meshed wi-fi, and a refreshing software-defined access approach with a focus on use cases - confirm Nokia's ongoing leadership in the fixed networks space."

New solutions part of Nokia's Intelligent Access vision includes:

- A Software-Defined Access Network (SDAN) solution that delivers a comprehensive set of cloud-native software, open programmable hardware and automated operations that drive real world use cases with benefits.
- The cable industry's first virtualized distributed access architecture and cable solution. Based on a virtualize cable modem termination system (vCMTS), Nokia's enhanced Unified Cable Access solution gives cable operators a choice for implementing a vDAA and supports R-PHY, R-MACPHY or a combination of both approaches through a simple configuration option
- A carrier-grade in-home Wi-Fi solution that brings an unmatched gigabit connectivity experience to every corner of the home and allows

operators to deliver new services and reduce customer churn that can result from poor Wi-Fi connections
- The industry's first wireless PON solution which fully integrates WiGig technology in a Passive Optical Network (PON), allowing operators to wirelessly bring gigabit services to end customers and accelerate Fiber-to-the-home (FTTH) deployments
- New Fiber and high-speed DSL deployment options including outdoor and data center fiber nodes, a 212Mhz reverse power G.fast solution and DSL backhaul remote nodes

- Predictive care services which use a set of algorithms to predict and solve issues in the network before they occur.

Federico Guillén, President of Nokia's Fixed Networks Business Group, said: "Operators are seeing unprecedented network demands as the need for ultra-broadband performance, coverage and availability continues to grow. Additionally, those looking to provide a true end-to-end gigabit experience can no longer simply focus on bringing high-speed access to the home; they must bring it into the home with carrier-

grade solutions that deliver gigabit Wi-Fi coverage to every corner and device in the home. The technologies, nodes, traffic and services needed to support today's ultra-broadband requirements are adding significant complexity to the network and those who can master this complexity the fastest will come out ahead. Nokia is providing operators with a smarter approach to fixed access that combines the intelligent application of technology with the intelligence of the network to help make broadband networks faster, better and smarter."

PCCW Global and DHQ Tech to Explore Multi-Currency Tap & Go Mobile Payment Technology

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, and Zhuhai Da Hengqin Science and Technology Development Co., Ltd. (DHQ Tech) will together explore the technological and regulatory viability of promoting multi-currency Tap & Go mobile payment in the Greater Bay Area of Zhuhai, Hong Kong and Macau, in order to boost e-commerce, business trade and tourism in the region. The Tap & Go service is currently provided in Hong Kong through HKT Payment Limited, a member of HKT Group, under a Stored Value Facilities License (Stored Value Facilities License Number: SVF0002) granted by the Hong Kong Monetary Authority in 2016. Tap & Go enables cashless transactions between consumers and merchants using a mobile phone app. The process makes use of either an all-in-one SIM in an NFC-enabled mobile phone or an NFC-enabled Tap & Go Card. In Hong Kong, Tap & Go account can receive top-up funds via inter-account transfers from over 40 designated banks, via credit card or manually using cash at local top-up locations, of which there are over 2,000 in Hong Kong alone. Users can make payments via POS devices, using QR codes, in-app for transactions involving

both web-based and traditional "bricks-and-mortar" stores. For money transfers, Tap & Go supports instant peer-to-peer money transfer and traditional primary to subsidiary card relationships, as well as integration with management systems at schools, large-scale housing estates or clubs. Mr. Frederick Chui, Senior Vice President of Global Data Sales and Presales, PCCW Global, said, "Our collaboration with DHQ Tech will enable Tap & Go users to pay for goods and services regardless of where in the world they originate from, or in which currency they wish to pay. Having to convert between currencies is an inconvenience for tourists and business traders. Tap & Go is uniquely positioned to overcome all the hassles associated with making payments between currencies, and we expect ease of operation to deliver real benefits for regional trade and tourism." Mr. Lianbing Deng, Executive Director and General Manager of Zhuhai Da Hengqin Science and Technology Development Co., Ltd, said, "The first step of the project is to test the technology and to ensure regulatory compliance. As one of China's Pilot Free Trade Zones, Hengqin represents the ideal market to explore the service. With their close proximity to each other, there is already tremendous tourism

and business trade between Hengqin and Hong Kong." Hengqin, located 34 sea miles from Hong Kong, offers massive trade and business potential. It is optimally located, covering an area of 106.46 square kilometers and is less than an hour from Hong Kong via the new Hong Kong-Zhuhai-Macao Bridge. Mr. Chui added, "Hengqin represents the ideal region to roll out the Tap & Go service and technology. PCCW Global and DHQ Tech will work together to ensure there are appropriate compliance measures within the framework of advanced technology application. After initial rollout, we look forward to expanding the service to the entire Greater Bay Area and other countries through cooperation with international service providers." The collaboration is an extension of the agreement signed between PCCW Global and DHQ Tech this March to explore the technological and regulatory viability of developing Hengqin into a global business and communications hub, and to position Hengqin as one of the world's leading internet business environments to attract foreign investment and to support enterprise customers, new start-ups and hi-tech research and development centers with the latest ICT technologies.

PCCW Rumored to be interested in Cyta Hellas

Hong Kong telco PCCW has emerged as an unexpected third bidder for the Greek ISP Cyta Hellas, a report from Kathimerini suggests. Cyta Hellas is wholly owned by

Cypriot telco Cyprus Telecommunications Authority (Cyta), which is itself owned by the government of Cyprus. PCCW has worked with the parent company in

Cyprus in the past, supplying international submarine cable capacity. Greek telcos Vodafone and Wind Hellas have also been named as potential buyers of Cyta Hellas.

GCC Mission Critical Market Could Double in 10 Years

There have been several incidents around the world, where lives have been lost and property damaged that could have been saved where a faster first response is available. According to Strategy& (formerly Booz & Company), part of the PwC network, governments and enterprises need broadband communications networks, known as mission critical communications, with a high degree of reliability, accessibility and security to ensure fast and effective response times to such events.

Mission critical networks vs commercial networks:

Mission critical networks differ significantly from commercial networks, which are constructed for the mass market and are not designed to handle peak traffic and support real-time group communications. Specific mission critical networks are necessary for public protection and disaster relief (PPDR) units and critical national infrastructure (CNI) operators. Jad Hajj, Partner with Strategy& in the Middle East said, "On New Year's Eve 2015, a fire broke out in the Address Downtown hotel in Dubai. Using a unified communications network first responders were able to coordinate their activities ensuring residents were evacuated quickly with minimal casualties. Examples such as this highlight the critical need that PPDR units and CNI operators have for voice communications and, increasingly for broadband data usage. It has become clear that just one network should be used by all orga-

nizations to ensure that interventions are effectively coordinated." Today, a number of initiatives are underway in the GCC: One telecom operator in KSA is currently planning to deploy a single, national mission critical LTE network to serve PPDRs and CNIs across the country. Another government-owned professional communication corporation has been mandated by the UAE government to deploy mission critical LTE for public safety and situational awareness.

The role of telecom operators:

Existing telecom operators are ideally placed to deliver the mission critical communications for governments and enterprises as they are well acquainted with long term evolution (LTE) networks, which they rely on to meet the mass market demand for mobile high-speed data services. It would seem sensible for telecom operators to build upon these existing relationships and offer mission critical services, with the client benefiting from having all its communications needs covered by one operator. Given that mission critical network deployments require heavy investment and mainly target governments and enterprises that manage critical infrastructure, telecom operators should consider public – private partnerships (PPP) with governments. Telecom operators have three options to pursue jointly or individually to become mission critical LTE providers: an upgraded commercial network, a greenfield mission critical

network, and a hybrid brownfield network. Ramzi Khoury, Principal with Strategy& Middle East commented, "Operators need to address the widely varying goals of government entities and enterprises. For instance, the police force requires mission critical services that are different from those of oil and gas refineries. Other opportunities may be unique to a country, for example, crowd monitoring during the Hajj season in Saudi Arabia." To succeed in mission critical services, telecom operators should consider: Network deployment strategy: Telecom operators should rely on a combination of the different deployment models available, each adapted to a specific type of area, thereby rolling out a mission critical network while simultaneously optimizing the underlying investments. Go-to-market approach: Telecom operators should put communications services at the top of the priority list, followed by video streaming services. Operations capabilities: Telecom operators should consider separating certain activities into two distinct parts, one for commercial and one for mission critical services "Although it seems likely that the mission critical market will expand at a significant rate, many operators are still to make important strategic decisions about the precise services they will offer. Those that move quickly can expect to reap the rewards", concluded Khoury.

Sudan's Sudatel Plans International Expansion

Sudan has a relatively well-equipped telecommunications infrastructure by regional standards, including a national fiber optic backbone and international fiber connections. Sudan makes up the northern part of a country which in 2011 was separated to form the new state of South Sudan. Three quarters of the former population live in the north, where mobile market penetration is far higher. The economy has performed poorly in recent years, partly due to the effects of

having lost much of its oil reserves to South Sudan and partly due to domestic volatility and social unrest. This has hindered the ability of operators to develop revenue from services and sufficiently invest in infrastructure upgrades. Sudatel since 2016 has invested in rural tower infrastructure to improve connectivity, though such measures remain far below what is required. The operator has launched LTE-A in Khartoum, and has announced a USD267 million investment

plan to 2020. It reported a 5.2% increase in revenue for H1 2017. Competition in the fixed-line market comes from Canar Telecom, which was also majority-owned by Etisalat until Etisalat sold its 92.3% interest to the Bank of Khartoum in mid-2016. The operator opted to adopt CDMA2000 technology to cost-effectively roll out fixed services. In April 2017 the company secured spectrum in the 2.5GHz band which has enabled it to launch LTE services.

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ARTICLE

Nokia's 5G FIRST Solution

Let's take a snapshot of how the industry is working together on 5G and then we can move on to understand what is Nokia's 5G FIRST for better understanding.

We are pushing 5G to follow a set of universal standards. It means with the universal standards, devices will work with every network, and operators can use the same suite of solutions in every market across the world. Those standards are being developed by 3GPP, and the industry expectations are that the first set of those standards will be finalized in time for first full-blown commercial 5G networks by 2020.

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2020 is still further away. Our most ambitious CSP customers can already see early use cases that could be delivered against the industry specifications in late 2017/2018. Additional functions like enhanced mobile broadband and sliceable core network will be part of the first 3GPP standards to be published in 2018. So, the first commercial 5G networks will be launched by 2020, whereas first adopters will deploy 3GPP compliant trial networks already by end of 2018.

One other important asset for 5G networks is spectrum. High bandwidth services are spectrum-hungry, and 5G opens the door for using higher frequencies such as cmWave and mmWave that simply cannot be used by LTE. In the US and Korea, one of the early adopter markets, 28

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Nokia

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and 39 GHz are already licensed for early trials. High frequencies and the available bandwidth provide the ability to offer hyper-local services but they only have a very short range. Wide area coverage and in-building penetration needs lower frequencies to be opened up, which will come later.

Nokia offers industry's first end-to-end 5G solution based on pre-standards and this is called 5G FIRST. This includes:

Radio:
• 5G Massive MIMO radio
• AirScale baseband upgraded to 5G and AirScale cloud RAN, with 5G software to run pre-standards or early 3GPP versions.

Core:
• Cloud packet core with features to support 5G Next Generation Core

Transport:
• 5G-ready microwave transport, fiber optics for the 5G era, and IP Backhaul

5G is not just another G more than 4G. It's much more than that. Our society has been through a series of industrial revolutions, each making fundamental changes to the way we live. The 5G era will be based on cloud and digitalization, bring augmented and virtual reality into mainstream use, enable billions of sensors not just connected but feeding and fed by artificial intelligence, and enable smarter factories and processes. 5G is more than radio. It includes new radio, for sure. But to deliver the massive capacity, to keep offering higher and higher speeds we know we need to re-think the way entire networks are built.

5G will be built first in 'islands', hyper-local capacity that meets the needs of very specific use cases, without even needing mobility. Coverage aspect comes next to allow hyper-mobility within extended islands.

We can already see many opportunities for 5G.

• Operators could provide 5G hotspots for very high bandwidth needs, such as for streaming virtual reality content. HD virtual reality streams already need several gigabits per second – and when we move to 4K or 8K, that increases exponentially.
• Operators could provide islands of coverage within public transport modes such as ships and trains for in-vehicle infotainment – or even on a station platform.
• It could be used to stream data from a drone.
• It could be used between trucks, so that they can form a 'platoon' – several trucks in a very close convoy where the lead truck can communicate in real time with all the trucks behind it simultaneously.

All of these use cases let operators face the investment to 5G step-wise – build islands of coverage, grow demand for initial use cases, monetize, invest in extending coverage which opens the door for further use case and so on.

The first use cases of 5G will be based on ultra-broadband around the world.

The initial deployments of 5G FIRST are expected in early 2018. This will start mainly in the US and Korea, however, we expect to have the 5G field trials in the Middle East in late 2018. Nokia is working with the leading operators in the Middle East on 5G. we recently signed 5G MoUs with STC and Zain Saudi Arabia to collaborate further on 5G trials and deployments in the region, in addition to the 5G MoU signed with du UAE earlier. The first commercial deployments of 5G in the Middle East are expected to be around major events like Expo 2020 in the UAE, and world cup event in Doha in 2022.

The Nokia way for the 5G marathon is: "If you want to go fast, go alone but if you need to go far, go together". Ultimately, the creation of a successful 5G standard requires the best ideas to be adopted, no matter where they come from. And requirements from outside the telecom industry are very important to consider.

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Nokia has established a broad range of innovation partnerships to find a common direction through collaboration in requirement setting, technology research and finally in standardization. Therefore, we are driving collaborative research with leading customers, governmental bodies, regulatory and industry bodies (e.g. NGMN and 4G Americas…), industry and scientific community, 5G labs (e.g. 5G Lab at TU Dresden and 5G Test Network Finland) and universities (e.g. New York University for channel measurements and characterization, and University of Kaiserslautern for 5G architecture).

Nokia is the consortia leader of the 5G NORMA and FANTASTIC 5G research projects inside the 5G PPP, which will deliver input, for example, for the 5G air interface and network architecture work in 3GPP.

REGIONAL NEWS

UAE Opens 'RIPE 75' Meeting to Explore Opportunities in Developing Policies on Internet Numbering Resources Allocation

The 'RIPE 75' meeting, hosted by the UAE Telecommunications Regulatory Authority (TRA) kicked off with participation from leading local, regional and international players in telecoms and information and communications technology (ICT), including Google, Microsoft, Amazon, Apple, Facebook, LinkedIn, Nokia, Deutsche Telekom, Netflix, Orange, Omantel, OGERO, VIVA, du, and Etisalat. The meeting represents a major step towards supporting UAE's relentless efforts to create an integrated infrastructure aimed at positioning the country as a global leader in Electronic/ Smart Transformation Index by 2021. This was demonstrated by the UAE telecom operator "du", the official connectivity sponsor, providing the meeting and the attendees with Internet connectivity using the Internet Protocol version 6 (IPv6). The RIPE 75 Meeting, which will take place until October 26, 2017 at the Conrad Hotel, has gained strategic importance as a leading forum that brings together industry leaders, experts, governments, international players in ICT, and some of the world's leading Internet service and content providers. The participants will deliberate about the state of the Internet and the effective policies applied by RIPE NCC in the allocation of Internet numbering resources. The leading international event includes discussions, debates, and expanded meetings for exchanging and sharing expertise regarding international policies and best practices in developing the Internet in the UAE, Middle East and worldwide. On the first day of the meeting, RIPE NCC Managing Director Axel Paulk signed two MOUs. The first was with the TRA, which was represented by Hamad Al Mansoori, Director General of the TRA and second was with the American University of Beirut, represented by Dr. Youssef Asfour, CIO of AUB, which was aimed at strengthening the cooperation and exchange of expertise among the different sectors involved in further developing the Internet. The MoUs are aimed at improving

internet-based researches and activities and enhance the operational efficiency of networks in the Middle East. Both MOUs serve as an impetus towards developing Internet services by organizing a series of conferences, meetings, training programs, and awareness campaigns about IPv6 and other technologies. The MoUs also promotes 'RIPE Atlas', a global, open, advanced Internet Measurement Platform aimed at providing a global network of analyses that measure Internet connectivity and reachability, apart from a bundle of effective tools to help measure the performance of Internet data within the local, regional and international Internet clusters. Among other initiatives include the 'RIPE Academic Cooperation Initiative' (RACI), which serves as a platform for promoting and strengthening the links between the students and scholars and the Internet community through meetings, conferences, and other activities. RIPE NCC and the TRA also agreed to cooperate with universities and research centers in the UAE for briefing students and researchers on the latest Internet-related innovations and developments. Hamad Obaid Al Mansoori, Director General, TRA, said: "Hosting the RIPE 75 Meeting reflects the profound trust of the regional and international community in the UAE which has succeeded to establish the sector on par with the most advanced countries in ICT indices, following the directives of our wise leadership." "We appreciate RIPE NCC role in supporting the telecommunications sector as one of the most vital sectors in sustainable development. The ninth goal of the United Nations-led Sustainable Development Goals indicates that investment in basic infrastructure including transport, irrigation, energy and information and communication technology is a vital component in sustainable development and empowerment of societies in many countries. It has long been recognized that growth in productivity and income and improvement of health and education

outcomes require investment in basic infrastructure. One of the goals of this activity is to significantly increase access to information and communication technologies and to seek comprehensive and affordable access to the internet in developing countries by 2020. RIPE NCC is in a very strategic position to support economic and social development in the region," Al Mansoori added. Saleem Al Blooshi, Chief Infrastructure Officer at du, said: "We are proud to partner with RIPE and provide state of the art IPv6

connectivity and infrastructure for the RIPE 75. du is putting in place next-generation infrastructure across the UAE in the knowledge that a robust network will carry the economy forward and ahead of the rest. It is necessary to maintain the sustainable, long-term development of technologies such as 5G, smart cities and the Internet of Things. du's strategic investments aim to future-proof the nation and to exceed the expectations of the UAE leadership." Hans Petter Holen, RIPE Chair, said: "The high-profile regional and international participation at RIPE 75 reflects the great interest in this international meeting being held in the Middle East to discuss Internet protocols, information systems and network operation. We were delighted to choose Dubai as the host for this

series of discussions, meetings and RIPE Working Group sessions, organized by the TRA to address pertinent issues that support the efforts aimed at developing the Internet number resource allocation and assignment policies and enhance the networks efficiency. These activities are aimed at meeting current and future needs in line with smart and digital transformation at the national, regional and international levels." "The first day's sessions have met our expectations, as the event unfolded to become ideal platform to explore new opportunities to further develop the ICT infrastructure, to support the strategic directions towards building strong economies based on knowledge, innovation and technology. We are looking forward to the discussions scheduled in the coming days, which

will play a key role in strengthening communication between the leading players in the global Internet sector, to develop frameworks that cope with the rapid developments in the regional and international landscape." The 1st day's sessions highlighted the talks of top international speakers, including Hans Petter Holen, RIPE Chair; Hamad Obaid Al Mansoori, Telecommunications Regulatory Authority (TRA), and Benno Overeinder, RIPE Program Committee Chair. The attendees shed light on topics which include: 'Uncovering Traffic Pattern in Saudi Arabia', 'Ruru: Real-Time Wide-Area TCP Latency Monitoring', 'State of the Internet in France: Data Interconnection Market Evolution and Transition to IPv6', 'Decoding the IoT Ecosystem', 'An Introduction to DDOS Attack', 'IPv6

Deployment in Cellular Networks' and 'IPv6-only in non-cellular networks'. The discussions were held by leading experts, including Luai E. Hasnawi, Taibah University; Richard Cziva, University of Glasgow; Samih Souissi, ARCEP, the French independent administrative Authority in charge of Post and Electronic Communications regulation; Lee Howard, Retevia; Jad El Cham, RIPE NCC; Khaled Fadda, Arbor Networks; Brian Nisbet, RIPE Diversity Task Force, and Jordi Palet Martinez, The IPv6 Company. The agenda of RIPE 75 features Plenary and Working Groups on address policy, anti-abuse, connect, cooperation, database, IPv6, measurement, analysis and tools (MAT), open source, RIPE NCC Services, DNS and routers, as well as IoT session, tutorials and workshops.

UAE Presents Strategy for Artificial Intelligence

UAE has launched the Strategy for Artificial Intelligence, which aims to speed up government's performance, and create conducive creative environment with highly productivity. Launched by Sheikh Mohammed bin Rashid Al Maktoum, Vice President, Prime Minister and Ruler of Dubai, the strategy is part of the UAE Centennial 2071 objectives. This is the first such strategy of its kind in the region and the entire world to promote government performance and create an innovative and highly-productive environment by means of investing in AI, and its applications across multiple domains. The strategy is premised to ensure best utilization of all resources

and invest in all available potential in creative manners that accelerate the execution of developmental projects. "UAE Centennial 2071 forges ahead now by launching mega enterprises like Artificial Intelligence to lay a solid basis for the coming period," said Sheikh Mohammed, affirming that AI is "the new wave after the Smart Government upon which all our services, sectors and future infrastructure will rely on." "We initiated electronic services 16 years ago and today we are launching a fresh stage relying on Artificial Intelligence," Sheikh Mohammed added, noting that "we are seeking to adopt all tools and methodologies related to artificial intelligence to expedite and

ensure more efficiency for government services at all levels." The UAE seeks to be a major hub for developing AI techniques and legislation, he said, adding that "our 2071 Strategy is founded on a set of fundamentals, primarily Artificial Intelligence across all our government and private sectors." The coming period requires qualified Emirati cadres well-versed with artificial intelligence to meet our supreme national interests," His Highness said, affirming that AI applications will generate revenues and provide fresh opportunities for the national economy.

PTA's Regulation "DIRBS" to Block Illegal Mobiles in Pakistan

PTA's New Regulation "DIRBS" to Help Block Illegal/Smuggled Mobile Devices in Pakistan. Millions of Illegal and stolen mobile handsets, tablets, SIM based routers, Laptops and replica devices with invalid IMEIs are now being sold and used in the country. The misuse of these unregistered handsets, for criminal and fraudulent activities, cannot be traced or monitored through mobile networks, hence posing serious threats to public safety. Realizing this issue, the Pakistan Telecommunication Authority (PTA) is now launching a comprehensive initiative to discourage smuggling and theft of mobile-devices, by blocking these illegal and counterfeit handsets operating in the country. The new system will be called 'Device Identification, Registration and Blocking System' (DIRBS), which will use the distinct IMEI number of each device, along with other parameters, to help in identifying, monitoring and regulating such devices. The IMEI of illegal devices will be reported to the cellular companies and other concerned bodies. The telecom regulator of Pakistan will operate the DIRBS as a 'Centralized Equipment Identity Register' to discourage the use of mobile devices that are smuggled through the Grey channel. This system will generate different lists, categorizing the legal status and authenticity of all handsets. Each distinct IMEI will be paired with a specific 'Computerized National Identity Card' (CNIC) belonging to its registered user, who must be officially connected through a particular cellular network. According to PTA's new regulation, companies or individuals importing/carrying devices for personal use will be required to register their devices and get a certification of compliance to technical standards. Any device with an IMEI that does not meet the legal criteria will be blacklisted. Hence, it will not be able to register or operate through any cellular network in the country. DIRBS will provide; updated 'Black Lists', 'Exception Lists' and 'Notification Lists' to the Mobile Network Operators (MNOs) at regular intervals. Consequently, the MNOs will use these lists for blocking and unblocking of mobile devices and intimation to the subscribers, wherever required. Mobile communication services will be denied to all devices who's IMEIs are included in the updated 'Black List'. However, the specific IMEIs and their subscription Pairings included in the operator-specific 'Exceptions List' will continue receiving mobile communication services, even if their

IMEIs appear in the Black List. The 'Notification List' will also be MNO-specific and it will be used to indicate mobile devices with certain issues. The relevant MNOs may communicate with such devices and help resolve the issues. If the device's issues remain unresolved for a specific period, its IMEI will be sent to the Black List. Any device blacklisted by PTA will not be activated except for lost, stolen and type-approved devices, which are verified by DIRBS in accordance with the SOP. According to the regulations 'Compliant and Approved' devices that are roaming in Pakistan, will be allowed to temporarily operate in the country. MNOs shall not permit the installation of any terminal equipment/ device that is not approved by PTA. PTA will install the required hardware, software and infrastructure for DIRBS to enable the mobile phone producers and network operators to report to PTA and block any illegal device or businesses that deal in stolen devices. However, all MNOs shall upgrade their hardware and software systems at their own cost, to support this new system and block the mobile devices placed in the Black List. The innovative solution will enhance government revenue and benefit the entire mobile ecosystem, by ensuring that devices are only imported through legal channels. Besides creating lists of illegal, smuggled and stolen phones, PTA is also committed to shut down all mobile shops that offer the flashing/changing of IMEIs on devices. Similar monitoring systems are already implemented in numerous other countries, where positive results are being achieved to protect the consumers' interests.

PTCL to Overhaul Last Mile Infrastructure

Fixed line incumbent Pakistan Telecommunication Company Limited (PTCL) is planning a PKR27 billion (USD254 million) upgrade of its fixed broadband infrastructure over the next 30 months, covering principally the operator's last mile access network. Company will reduce the length of loops and replace old copper elements with fiber or high capacity copper: 'We are upgrading our network with future-proof

technology and replacing the underground cable with fiber and rehabilitating or laying new copper network as and where required.' Post-upgrade, fiber-to-the-cabinet (FTTC) multi-service access gateways (MSAGs) are expected to have been deployed within between 1km and 1.5km of all premises. In areas of high-demand, however, PTCL will deploy fiber-to-the-home (FTTH) instead of FTTC. At present, the company's infrastructure

is almost entirely copper-based and the average loop length is between 3km and 4km. After the infrastructure overhaul, PTCL will be able to offer consumers peak download speeds of 50Mbps-100Mbps over FTTH and 8Mbps-20Mbps over the upgraded DSL lines. Capitalizing on the overhaul, the operator will launch a new series of triple-play bundles combining broadband, pay-TV and fixed line telephony.

Saudi Arabia Undergoes Digital Transformation

As Saudi Arabia is undergoing a digital transformation strategy based on a new customer-centric approach, its National Digitization Unit (NDU) is eyeing smart cities solutions that will realize Vision 2030's goal of building the new hub for the Arab World. A digital disruption is on its way as the Kingdom aims to focus on the customer satisfaction of citizens' services, according to Deema Alyahya, CEO of the NDU, a recently created independent entity to take up the ambitious task of digitizing citizens' services while working with the private sector. "Whereas government entities were used to working in silos and had their own strategies, now we need to unify all these efforts as it would reduce cost and increase efficiency and customer

satisfaction," she told journalists on the sidelines of GITEX Technology Week. A highly consuming population made up of a majority of youth, the government considers the potential to transform them into producers rather than consumers. Its plan to digitizing sectors, including healthcare, education, smart city, e-commerce would create around 200,000 jobs by 2025. "We need to create a mindset of a job creator rather than a job seeker," she said. "Entrepreneurship is a big player where we want to focus on the innovative spirit and the generation to start create jobs and export Saudi talents and software." One program that recently launched is Fekratech, a competition inviting citizens to share their solutions for problems faced by the public sector. Asked about the challenges, Alyahya told Saudi Gazette: "In any digital disruption, there will be resistance by various parties because of the legacy way of doing work." It's a gradual process and plans could change along the way, she further said, adding that the economic and social impact it will bring will eventually attract more people. As part of the digital transformation strategy, several elements are being developed including its infrastructure, connectivity, digital identity, and shared data. German software company SAP has chosen Saudi Arabia as their hub for their commercial cloud in the region with an investment of SR285 million. SAP executives further revealed it is one of the early adopters of dedicating an entity to cater to the Kingdom's NDU. The company's latest system of innovations, SAP Leonardo, centers around machine learning, artificial intelligence, big data and block chain to drive digital transformation projects. The NDU is considering such solutions for smart cities that can enhance ports capacity, parking space allocation, and measurement of soil potential in harvesting crops. For pilgrims and visitors, SAP's Smart Haj solution offers government entities to gather and analyze data, using sensors for pilgrims and real-time analytics. "This would enhance pilgrims' experience as it manages crowds and improves traffic flow," says Taha Almadani, SAP's presales director. Further, the Live Hospitality solutions deliver seamless end-to-end visitor experience for travelers. Solutions include targeted marketing campaigns, virtual tours, personalized room settings, and business apps with KPIs to measure hotel performance. "Saudi Vision 2030 can lead to exciting innovations such as personalized and incentivized citizen services, integrating wearables on government workers, and using artificial intelligence for predictive citizen services," said Ahmed Al-Faifi, managing director of SAP. Data centers have been established in Dammam and Riyadh. A localization center has also been built to ensure that all the solutions are aligned with the government's regulations, Al-Faifi added.

Djezzy to Invest USD878m in Five Years

Djezzy, Algeria's second largest mobile operator by subscribers, plans to invest DZD100 billion (USD878 million) over the next five years, according to its director general Mathieu Galvani who was addressing a conference in Algiers on Sunday. As reported by Maghrebemergent. info, Galvani added that so far in 2017 the cellco has invested DZD15 billion in projects including extending 3G and 4G network coverage to roughly three-quarters and one quarter of the population respectively, as well as strengthening IT and other infrastructure. Around half of all Djezzy users now had smartphones, the executive also highlighted, whilst flagging up the cellco's launch of an 'unprecedented' pre-paid pricing offer called 'BAYNA', with call charges of DZD1 per five seconds, unique to the Algerian market. Djezzy (registered as Optimum Telecom Algerie) is 51%-owned by the Algerian government but managed by Egypt-based Global Telecom Holding (GTH, itself part of the VEON [formerly VimpelCom] group) which owns a 45.6% stake.

AJK, Gilgit-Baltistan to Get 3G/4G Services by February 2018

Pakistan Telecommunication Authority's (PTA) plan to bring fast-paced information technology services – 3G/4G – in Azad Jammu and Kashmir (AJK) and Gilgit-Baltistan (G-B) is expected to materialize by February next year, reveals an official. The arrival of 3G/4G in these far-off areas will bring socio-economic change in the entire region and also benefit those situated along China-Pakistan Economic Corridor (CPEC) routes in AJK and G-B. PTA has already sought expressions of interest (EoI) for hiring a consultant or consultancy firm for working out the base price and design of the auction process for the next generation mobile services (NGMS). The subscribers of 3G/4G in Pakistan have risen to 44.4 million and PTA expects to see a fair number of interested users in AJK and G-B who are eager to receive this service, which will swiftly connect them with the rest of the world. The technology will help boost tourism, local economy and also create job opportunities for the local people. In general, transportation in the area is very difficult, but the arrival of 3G/4G can greatly help resolve this issue and ensure better connectivity for all. The broadband technology will also give a boost to commerce in these areas. "NGMS in these areas will bring an investment of more than USD100 million over the next

two to three years," said IT expert Parvez Iftikhar. People of AJK and G-B are heavily dependent on remittances and the 3G/4G service will provide people with easy access. The hospitality industry and tourism value chain will also improve as it will make online marketing more efficient and effective. "I saw appetite for this modern technology when I visited Kashmir last year, not only the locals will avail themselves of this service, but it will also benefit a huge number of tourists who visit these areas every year," said Aslam Javed, a resident of Faisalabad. AJK and G-B have approved the policy for introducing 3G/4G services and asked PTA to make arrangements for the

NGMS spectrum auction. According to the policy, PTA will hire a local consultant who would hold consultation with cellular service providers of Pakistan and relevant AJK and G-B departments in order to suggest a base price after studying telecom markets of these areas. Experts say these kinds of auctions are not an everyday occurrence and finding a consultant for the 3G/4G auction in AJK and G-B is really a difficult task as such consultants are rare around the world. If PTA cannot find a consultant, it will make a decision by January or February next year without any suggestions from the consultant, said PTA spokesman.
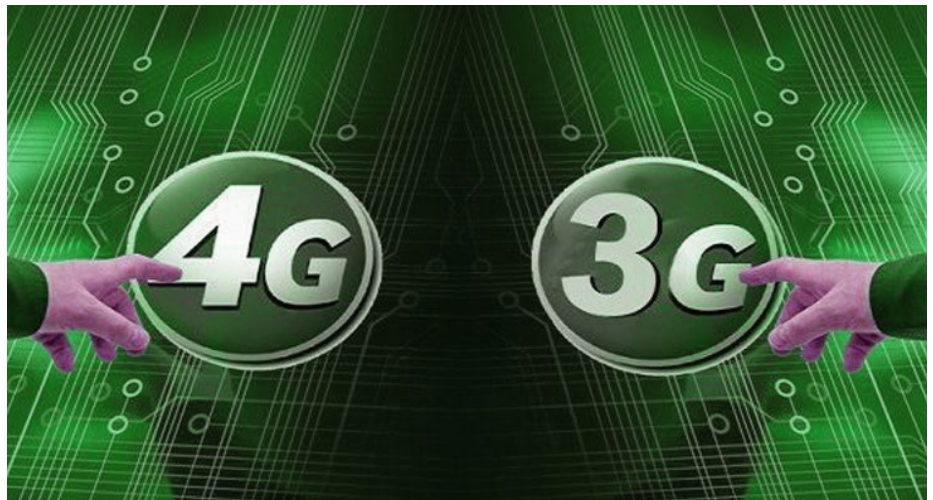
Pakistan 3G, 4G Penetration Accelerates

Pakistan's mobile internet penetration continued a steady climb through July and August, though the bulk of subscribers remain on 3G rather than 4G tariffs, figures from the Pakistan Telecommunications Authority (PTA) revealed. The country's 3G penetration increased by almost 1 per cent to 27 per cent at end-August as operators Zong, Jazz, Telenor India and PTML (Ufone) added a combined 1.3 million 3G subscribers compared to end-June. The 3G penetration rate is up from 21 per cent at end-June 2016 (PTA did not break out monthly figures for 2016 in its latest update, meaning a year-on-year comparison of August figures is not available). Jazz added 747,664 3G subscribers between end-June and end-August, taking its 3G base to 13.2 million or 25 per cent of its 52.7 million total

mobile subscriber base. Ufone signed up 338,339 3G subscribers for a total of 5.3 million (29 per cent of its overall subscriber base); Zong added 131,887 3G subscribers, leaving it with 8.8 million in total (30.8 per cent); and Telenor added 114,809 for a total 3G subscriber count of 10.6 million (26 per cent).

4G growth
Figures for 4G also increased rapidly between end-June and end-August. Zong, Jazz and Telenor – the three operators offering 4G services – added more than 1 million LTE subscribers taking the country's total to 6.6 million, or 4.8 per cent of total subscriber numbers. In contrast, 4G penetration at end-June 2016 was less than 1 per cent. Zong picked up 532,204 new 4G

subscribers between end-June and end-August, Jazz added 299,098 and Telenor 242,126. The additions mean Zong, the country's third largest mobile operator, expanded its 4G lead, with 4.57 million subscribers accounting for 68.7 per cent of total LTE subscribers at end-August. Overall market leader Jazz ended August with 1.24 million 4G subs, and Telenor had 849,139. According to data from OpenSignal's State of LTE report at end-June, Pakistan's average 4G download connection speed of 11.7Mb/s was higher than in Sri Lanka, the Philippines, Indonesia and India. Pakistan's mobile subscriber base rose to 139.9 million at end-August from 139.7 million at end-June. At end-June 2016, total subscribers stood at 133.2 million.

UAE's ICT Sector Sees Sales worth USD 4 Billion During 2016

Sales within the UAE's ICT sector reached USD4 billion in 2016, driven by growing demand for products and services within the country's public and private sectors, according to new analysis from by the Dubai Chamber of Commerce and Industry. The analysis, based on recent data from Business Monitor International (BMI) and Euromonitor International, was released during the ongoing Gitex Technology Week 2017 in Dubai, UAE and looked at sales within product categories such as computer hardware, and software, as well as IT, communication, and telecommunication services. The data showed that increased use of computers in homes and offices and the adoption of new ICT technologies has led to increased demand for ICT goods and services in the UAE and foreign markets. Sales within the UAE's computer hardware and peripheral segment amounted to around 3.5 million units last year, a 52 per cent surge compared to 2012. Products sold in this segment include computer products such as PCs, laptop computers, tablets and peripherals such as printers and monitors. The growth in mobile computing has led to a robust increase in the share of smaller tablet computers compared to the total value of computer sales. Tablet computer sales accounted for 67 per cent of the total volume of computer sales in 2016, up from 32 per cent in 2012.

Market trends and opportunities

Demand for ICT products and services has also grown across Asia and Africa providing UAE businesses with opportunities to sell ICT products to tourists and to export/re-export them for use in foreign countries. According to data from trademap.org, UAE exports of automatic data-processing machines and units were valued at around USD1.17 billion in 2015, while imports were valued at around USD2.49 billion. Key trends impacting the UAE's ICT sector include the use of technologies that enable devices to communicate with each other, known as the Internet of Things (IoT). IoT is being used especially in the UAE's logistics sector, and could see increased adoption in other sectors of the economy. Another important trend is the growing demand for new technologies that can be used for Smart City solutions. According to recent estimates by CISCO, Dubai's public and public sectors can potentially achieve value of around USD4.8 billion by 2019 by implementing IoT in Smart City technologies.

Uptick in cloud computing spending

Spending on cloud computing in the UAE increased from USD51 million in 2011 to USD381 million in 2016, marking a compound annual growth rate (CAGR) of 49 per cent over the period. Demand for cloud services has been particularly strong, and this trend is expected to continue in the future and create new opportunities in the market. Other key segments where momentum is growing are network security and mobile computing. Network security in the UAE has the potential for future growth, especially in new niche categories such as mobile network security and secure cloud computing resources. The mobile computing segment is also witnessing an uptick in activity with the number of mobile subscribers in the UAE increasing from about 11.6 million in 2011 to about 19 million in 2016, according to data from Business Monitor International.

Pakistan Witnesses 98% Growth in IT Industry Exports During 4 Years: Anusha Rehman

36th meeting of Board of Directors of PSEB was held to review the progress on various IT initiatives under PSEB. Acting Managing Director Syed Iftikhar Hussain Shah apprised the team regarding the key milestones achieved in the last four years. Pakistan Witnesses 98% Growth in IT Industry Exports during 4 Years: Iftikhar informed that PSEB has exhibited at eleven international trade fairs along with other 65 IT companies and has generated more than two thousand leads.

He revealed that exhibiting in such trade fairs improve perception of Pakistan as a viable destination for outsourcing and Investment. Anusha explained that performance of IT sector of Pakistan can be measured from the fact that IT industry exports register 98% growth in just four years. This growth has resulted in substantial contribution to Pakistan's economy through foreign exchange earnings and job creation. Anusha said: "Due recognition must be extended to

our freelancers who have catapulted Pakistan on the 4th spot on the largest freelancing website in the world. With the technical and financial assistance of PSEB, more than 30 IT professionals and 28 IT companies have received certifications in Capability Maturity Model Integration (CMMi) platform. More than 134 companies have received certifications in ISO 9001, ISO 27001 and ISO 20001, hence enabling them to solicit exports from the developed markets.

MENA to Have 50 Million 5G Connections by 2025

Telecom operators in the Mena region will be among the first in the world to launch commercial 5G networks, said a new report from GSMA, forecasting that there will be more than 50 million 5G connections across the region by 2025. The new study titled "The Mobile Economy: Middle East and North Africa 2017", which was published at the GSMA Mobile 360 Series – Mena conference in Dubai, added that 5G networks will cover approximately 30 per cent of the region's population by that point. The report also highlights how mobile broadband (3G/4G) networks account for about half of total mobile connections in the Mena region today and are forecast to increase to 70 per cent of the total by the end of the decade. "With rising mobile broadband adoption, growing subscriber numbers and increasing smartphone use, mobile is having an incredible impact across this diverse region, ushering in an era of innovative tech start-ups and new mobile services, as well as helping to connect the unconnected," said Mats Granryd, Director General, GSMA. "At the same time, we urge operators to continue investment in 4G networks to ensure future growth and encourage governments to set policies that promote technological, social and economic progress to create a society where all citizens can benefit from mobile technology."

Fast 5G adoption

The GCC states will be amongst the first in the world to launch commercial 5G networks. High 4G adoption rates and government support is helping leading operators to challenge both North American and Asian operators in driving 5G development. Both Etisalat and Ooredoo are already undertaking live 5G trials on speed, equipment, latency and beam steering, with commercial launches expected in 2020. The early launches are expected to be based on 3GPP Release 15 and be deployed in dense urban areas as mobile operators look to offer increased

performance and supplement existing mobile broadband capacity. Further enhancements will be made with 3GPP Release 16, including the development of massive IoT and critical communication services.

Smartphone adoption, subscriber and revenue growth

There were 365 million unique subscribers across the region at the end of 2016, accounting for 63 per cent of the population, which is expected to rise to 399 million or 65 per cent by 2020. However, subscriber growth continues to trail the global average due to the diversity of the region, with the more advanced markets approaching saturation and the less developed markets facing the challenge of growing penetration. As a result, subscriber penetration will reach only 65 per cent by 2020, below the global average of 72 per cent. Smartphone adoption is expected to increase to an estimated 463 million by 2020, representing growth of 167 million from the end of 2016.

A diverse regional landscape

The report highlights that there are significant variations in mobile market maturity between the different countries across the region. In the GCC States, 76 per cent of the population are mobile subscribers, with three of these markets (Bahrain, Kuwait and the UAE) having a subscriber penetration rate of 90 per cent or above, placing them among the most penetrated mobile countries in the world. By contrast, North Africa has an average subscriber penetration rate of 67 per cent, and across the Other Arab States, penetration stands at 46 per cent, including three markets where less than a third of the population subscribe to mobile services (Comoros, Djibouti and Somalia).

Mobile contributing to employment and economic growth

In 2016, the mobile industry contributed more than USD165 billion to the regional economy, or 4.2 per cent of GDP. This is expected to increase to almost USD200 billion (4.3 per cent of GDP) as countries in the region benefit from improvements in productivity and efficiency brought about by increased take-up of mobile

services. The mobile ecosystem also supported more than 1 million jobs in 2016. This includes workers directly employed in the ecosystem and jobs that are indirectly supported by the economic activity generated by the sector. Mena's mobile industry also makes a substantial contribution to the funding of the public sector with USD20 billion raised in 2016 through taxation.

Mobile driving engagement and innovation across region

The study highlights that, due to the huge rise in smartphone adoption across the region, a wide array of mobile services are being consumed, such as video, social media, e-commerce and financial services. In a number of markets across the region, mobile has become the platform of choice for creating new digital solutions, such as smart city services, which are helping to address challenges around urbanization, pollution and resource management. Mobile operators in the region are also collaborating with tech start-ups to help build innovative and sustainable mobile services as well as deliver socioeconomic impact.

Mobile addressing social challenges

The report also highlights how mobile is playing a key role in tackling various social and economic challenges as outlined by the UN Sustainable Development Goals (SDGs), including poverty, education and employment amongst others. Mobile internet penetration has doubled across the region over the last six years, reaching just under 40 per cent of the population or 228 million subscribers by mid-2017. However, there remains a digital divide remains in many parts of Mena, where there are still 350 million people without access to the mobile internet and challenges such as infrastructure, affordability, consumer readiness and the availability of locally relevant content. If these are properly addressed, an additional 67 million people will be able to gain access to the mobile internet by the end of the decade, bringing the total to just under 300 million, or 48 per cent of the population. The report also highlights that mobile is helping to provide financial services for the unbanked, with 24 live services in 9 countries as of December 2016.

Turkcell Launches Entirely Internet-Based Lifecell Mobile Packages

Turkish mobile operator Turkcell has expanded its Lifecell digital brand to launch complete mobile communications packages including calls based entirely over the internet, with no standard mobile voice minutes/SMS included. Executive Vice President of Marketing Ismail Butun announced that the new range of three Lifecell mobile packages was in response to huge demand from internet users on the cellco's national 4G network, claiming that the operator is 'redefining the rules of the game in communications' along a journey 'from being a technology-focused network operator to being a service-oriented experience provider'. The latest development builds on the high take-up of Turkcell's online applications including its over-the-top (OTT) messaging/calling app 'BiP'. Butun added: 'Our customers will be able to meet all their communication needs via mobile data. They will make regular and video calls and use instant messaging service via BiP … to call both landlines and GSM numbers … which will enable Lifecell users to make unlimited calls not only to BiP users but also non-BiP users.' Package subscribers can also access unlimited music via Turkcell's 'fizy' app (included in the Lifecell tariffs), watch TV channels/movies via the 'TV+' app and store photos, videos and other files in the cloud via 'LifeBox', alongside other Turkcell-run apps including online news/book libraries. All Lifecell plans – Super, Extra or Pro – include 50GB of mobile data for apps, plus 2GB of mobile data for Facebook and Twitter, alongside unlimited calls and messages among BiP users and 1,000 BiP minutes for calls to landlines and all mobile networks. Turkcell has also unveiled the GM6 Lifecell branded smartphone shipped with all Lifecell apps installed.

GSMA Mobile Connectivity Index Highlights UAE as Mobile Internet Leader

The United Arab Emirates (UAE) has increased its overall score on the "GSMA Mobile Connectivity Index" by 5 points within the last 2 years according to the new report published at the GSMA Mobile 360–Middle East and North Africa. During 2014-2016, the UAE has showed a phenomenal growth in in the all 4 basic enablers of mobile internet adoption as measured by the Mobile Connectivity Index:

- Affordability
- Infrastructure
- Consumer Readiness
- Content

The overall score of the UAE over the 2 years duration increased from 67 to 72. "The UAE added around half a million new mobile internet subscribers between 2014 and 2016, which means that almost 80 per cent of the country's population is now using mobile devices to access the internet, underlining the UAE's position as one of the most advanced markets in the world in terms of mobile internet adoption. This improvement was driven particularly by increasing mobile network quality and the availability of more locally relevant mobile apps and social media content." Said Jawad Abbassi, Head of MENA region at the GSMA.

Pakistan Overhauling Communications System

Pakistan is working on a massive project with China as part of the USD 55-billion CPEC project to develop a communications system. The roadmap of the Long Term Plan (LTP) for the China Pakistan Economic Corridor (CPEC) was developed from November 2013 to December 2015 by officials and experts from both countries. The plan spans up to 15 years, starting in 2016 and concluding in 2030. The project includes components such as a fiber optic cable connecting Pakistan and China, a new submarine landing station for internet traffic flow, e-governance and digital TV for all. The project includes a new fiber optic cable network which spans across Pakistan and crosses the border to connect directly with China. The cross-border fiber optic cable is expected to handle the anticipated increase in communication between China and Pakistan. The new network would provide central Asian states with a shorter route for connectivity.

Artificial Intelligence Investments in UAE to Touch USD8.9bn

The UAE is taking significant strides toward embracing Artificial Intelligence (AI) technologies as AI investments have increased over 70 per cent in the past three years and is expected to touch Dh33 billion (USD8.9 billion) by year end. Businesses in the UAE across different sectors including as healthcare, education, oil and gas, and aviation are on their way to start integrating cognitive systems into their business. Saeed Al Dhaheri, Chairman of Smartworld, said during the CIOMajlis held recently in Dubai: "UAE is on the forefront when it comes to adopting the latest smart technologies. Technology is driving businesses now and as chief information officers (CIOs) we need to see the impact of artificial intelligence on our operations and how we can leverage on it. It is also about training - training the systems

and training the network for higher efficiencies." CIOMajlis is an initiative by Smartworld, a joint venture between Etisalat and Dubai South that aims to contribute to realizing the vision of the National Innovative Strategy with the goal of making the UAE the world's most innovative country by 2021. Addressing CIOs from across the UAE, on the topic 'Enable cognitive business to drive innovation', Anthony Butler, IBM Cloud CTO, Middle East and Africa, said: "Business strategy and technology are now inseparable and that businesses today are using cloud and cognitive technologies to deliver more insight-driven, innovative customer experiences." Worldwide revenues for cognitive and artificial intelligence (AI) systems are estimated to reach USD12.5 billion in 2017, an increase of 59.3 per cent over 2016, according to International Data Corporation (IDC) forecasts. Global spending on cognitive and AI, termed as the Fourth Industrial Revolution, will continue to see significant corporate investment over the next several years, achieving a compound annual growth rate (CAGR) of 54.4 per cent through 2020 when revenues will be more than USD46 billion, according to the forecast. Businesses in the UAE across different sectors including healthcare, education, oil and gas, and aviation are on their way to start integrating cognitive systems into their business. Worldwide, interest in implementing AI systems is surging among companies and institutions, according to market intelligence firm Tractica. Revenue generated from the direct and indirect application of AI software will grow from USD1.4 billion in 2016 to USD59.8 billion by 2025, Tractica forecasts.

Pakistan Ranked 9th Globally for its Booming Digital Economy-UN Reports

Around 16 million Pakistani went online for the first time in history between 2012 and 2015. This Figure accounts to the overall internet users in the country. The arrival of 3G & 4G in Pakistan has contributed a lot in connecting people and increased the internet penetration from 3% to 15% just in short period of 1 year. Pakistan among top 10 economies in terms of its internet users. Pakistan Ranked 9th Globally for its Booming Digital Economy-UN Reports. Due to this Pakistan ranked in one of the top 10 economies in terms of the number of people going online during the period. Pakistan ranked 9th on the list as compared to India (1st), Iran (7th) and Bangladesh (10th). However the Information Economy Report 2017 released by the UN conference on Trade and Development revealed that there are many states in Asia Pacific region that are not ready for digital era. E-commerce is growing fast in Asia. Three of the four largest national e-commerce markets are Japan, China and South Korea. In Pakistan E-commerce is flourishing too with Daraz as the top e-com company trusted by millions of people. The introduction of International chain such as Careem and Uber has also added to the Internet subscriber base of Pakistan. Moreover e-commerce and other digital applications are helping a growing number of small businesses and entrepreneurs in developing countries to connect with global markets and are generating income. However report

further revealed that more the half of world's population still remains offline. In least developed countries the internet users are growing slowly. In order to make Pakistan's eCommerce industry prosper, the tax imposed on internet should be cut down. Recently Punjab Government reimposed 19.5 Percent Tax on Internet. Punjab has total 60% of Pakistan's economy but out of utter surprise internet penetration is still as low as 15%. However Punjab Government, instead of making internet accessible to more people, has imposed 19.5% sales Tax on DSL, 3G and 4G, making it more expensive. To bring Pakistan from 9th to number 1, government should draft a framework to make Internet accessible to maximum areas. Government must give tax relaxation to the service providers and at the end to consumer as well to make internet more accessible.

PAKISTAN AMONG TOP 10 ECONOMIES IN TERMS OF ITS INTERNET USERS

ACCORDING TO A UN REPORT:
Nearly 16 million Pakistanis went online for the first time between 2012 & 2015, accounting for half the number of the overall internet users in the country

OTT Driving Growth of TV Sets in UAE

Netflix has become a big enabler for the growth of big-size televisions in the UAE, an industry expert said. "The Netflix content has become much cheaper after it was launched officially in the UAE. It now has rich content for Full HD and 4K," said Nilesh Khalkho, CEO of Sharaf DG. Netflix is offered in the UAE in three packages — basic for USD7.99 (Dh29.32), standard for USD9.99 and premium for USD11.99. Khalkho said that people who used to watch Netflix on mobile phones are returning to view it on TVs, especially bigger screens, above 75 inches. According to research firm GfK, TVs gained positivity in value in single digit year on year in the second quarter in the UAE, with heavy promotional offers on the big-size televisions.

Pakistan Telecom Sector's FDI Jumps 154.9 % between July-August FY18

Pakistan Telecom Sector's FDI Jumps 154.9 % between July-August FY18. These figures shows that investment in telecom sector is gradually increasing once again in Pakistan with the expansion and advancement of infrastructure of telecom companies in different cities. The central bank revealed on Monday that the foreign direct investment -FDI coming in Pakistan is more than doubled to USD457.2 million during the first two month of this year. Maximum FDI flow in country is due to investments specifically in Power and communication sectors. The State Bank of Pakistan announced figures which clearly shows that FY18 has a very good start. According to it telecom sector has received an FDI of USD92.5 million during July and August. This rise is also due to Zong's 3G and 4G services. Khurram Schehzad, Chief Commercial Officer at JS Global Capital Limited Said: The cross-border investments into the country are expected to go up with most [flows] going into power and telecommunications firms. The technology start-up companies can generate ample interest in times to com. Pakistan received the largest amount of FDI from China, US and Malaysia. Out of these three countries China was the biggest contributor with USD258.3 million FDI in July and August. We can expect the investment figures to rise and remain bright due to CPEC. Many long term projects regarding electricity generation are in process under CPEC. Pakistan's economic growth, which the IMF expects to increase to five percent in 2017 and 5.2 percent in 2018. These figures will surely make Pakistan an attractive destination for foreign investors. Overall, Pakistan's telecom sector has been doing pretty well so far with the government also putting in an effort. IT Minister, Anusha Rahman also stressed the importance of digitizing Pakistan. She aims to take Software and Telecom exports to USD6 billion by 2020. Pakistan's close ties with China have also been a contributing factor in uplifting the telecom sector.

Orange Egypt to Receive 4G Frequency

Orange Egypt is set to receive the wireless frequency it needs to deliver 4G mobile services, the company said. The subsidiary of French telecoms group Orange has so far invested 8.6 billion Egyptian pounds (USD487.53 million) to develop the service and has taken a 750 million euro loan from its parent company to cover the costs, it said in a statement. (USD1 = 17.6400 Egyptian pounds) (USD1 = 0.8530 euros).

ARTICLE

Delivering Value Where it Works

The use and sophistication of technology are expanding exponentially, and enterprises' dependence upon them is growing in tandem. We are turning into a smart society, reliant upon digital, automated machinery to keep our world running smoothly. All industries—from healthcare to government to education—are affected by these changes, and all industries are becoming more interconnected and more complex. As industries integrate and customer demands evolve, enterprises need to be more open and flexible in order to stay competitive. In this environment of change, Huawei seeks build and nurture the ICT ecosystem in the budding smart society of the Middle East – providing the 'soil' (platforms and infrastructure) and 'sunlight' (impetus for strong alliances) that push the industry forward and promote ongoing social progress.

> **As industries integrate and customer demands evolve, enterprises need to be more open and flexible in order to stay competitive. In this environment of change, Huawei seeks build and nurture the ICT ecosystem in the budding smart society of the Middle East**

Huawei owes its success in becoming a global leader in the ICT industry to a two-pronged strategy: firstly its prioritization of a customer-centric approach to innovation, and secondly the collaborative partnerships it has forged with partners to ensure that end-users gain maximum value from its innovative solutions. The latter is Huawei's Transforming Together channel strategy that recruits and enables a core community of trusted partners who bring with them a keen understanding of local market needs that is essential to delivering value.

As of the start of 2017, Huawei has more than 12,000 channel partners and 2,000 service partners working to deliver solutions to private and public enterprises, and governments around the world. Huawei collaborates with players across the value chain, including upstream and downstream partners, to jointly develop high quality and build long-term competitiveness in quality. Their over 400 solutions partners include industry leaders.

Hazem Bazan
Vice President of Channels and Commercial Sales
Huawei Middle East

HUAWEI

Huawei's channel partners play an important role in delivering sustainable market growth in the region. Huawei's priority in the Middle East is to create solutions that are optimally tailored to the needs of key sectors in the region, and this business objective works in tandem with its channel strategy to ensure that channel partners are empowered to be vertical-focused. Through strategic and close collaborations, Huawei strives to develop and deliver business-driven ICT solutions that will help enterprises to adapt to changes brought about by the digital transformation in each vertical sector, thus ensuring the economy has a smooth transition into the Digital Age.

To illustrate this point, one could look at the diversity of uses to which Huawei's IoT solutions have been adapted. In 2016, Huawei announced a partnership with Intel Corporation to combine the latter's X86 Platform with the former's IoT gateway. The resulting technology allowed buses across Dubai to incorporate in-vehicle surveillance, passenger tracking, emergency services communication, and real-time health data analysis of the vehicle. Similarly, Huawei collaborated with the free zone technology park Dubai Silicon Oasis Authority (DSOA) to create the first smart street solution.
The basic IoT technology was the same, yet in this case the emphasis was on environmental sensors that monitored outdoor temperature, air quality and humidity, resulting in better energy conservation and efficiency. This is only two of a myriad of uses to which IoT solutions can be adapted, and demonstrates how Huawei works with partners to tailor different solutions to different vertical sectors.

Huawei has worked with over 500 partners to provide cloud computing solutions for customers in over 130 countries and regions. The company has delivered over 2 million virtual machines and 420 cloud data centers, and became a Platinum Member of the OpenStack Foundation in March 2017.

In the transportation sector, Huawei works with more than 60 industry partners to develop collaborative solutions for road, rail and air transportation. Over 220,000 kilometers of railways and highways, are powered by Huawei's digital urban rail solutions. 15 airports with annual traffic of over 30 million passengers rely on Huawei's smart airport solutions.

Huawei seeks to ensure that its partners across the region have the knowledge and expertise to showcase how these solutions can deliver impactful results. Huawei's channel program provides partners with a wealth of information and education, giving them the tools to realize the full potential of new ICT solutions to transform their customers' businesses. Customers can improve their individual employees and departments' work efficiency through Huawei's training and certification services and offer employees a suitable technical development path. Huawei's specialized training and technical knowledge programs include the Huawei Certified Internetwork Expert (HCIE). HCIE certification acknowledges the skills of an organization to construct, optimize, and manage complex large and medium-sized enterprise networks. It enables channel partners to offer more confidence in service delivery to their valued customers and end users. Huawei also partners with educational institutions like universities to improve the effectiveness of the learning material for their students and improve the students' competitiveness.

While the process of digitalization speeds up, new technologies, new players, and cooperation modes emerge, allowing customers more control and power while collaborating with partners in the ecosystem. The ICT industry is becoming more and more 'developer-defined', and Huawei remains committed to its customers and partners while building a developer-defined ecosystem through joint innovation.

Huawei is dedicated to its mission of having a positive influence on the

Huawei has worked with over 500 partners to provide cloud computing solutions for customers in over 130 countries and regions. The company has delivered over 2 million virtual machines and 420 cloud data centers, and became a Platinum Member of the OpenStack Foundation in March 2017.

community in the Middle East. The most effective way for a corporation to make a long-lasting impact on a community is by building local capabilities and empowering them to play an active role in the economic growth of their nations.

Based on a deep understanding of customer needs, Huawei continues to build the partner ecosystem that empowers its customers to deliver innovative, customized and impactful solutions that are helping their governments reach the goals set out in their respective national visions and plans.

In order to keep building a Better Connected World, Huawei will stay customer-centric, pursue shared success, and create a sustainable ecosystem. It will step up efforts to develop and invest in industry alliances, business alliances, open source communities, and developer platforms, fully leverage its partners' advantages to grow the industry as a whole, and form a symbiotic, interdependent, and regenerative community of common interests.

SATELLITE NEWS

Myanmar to Launch Orbiter in Mid-2019

The Myanmar government has confirmed plans to launch its own satellite system, MyanmarSat-2 in June 2019. The orbiter is expected to cost around USD155.7 million, and will be jointly-owned with another as-yet unspecified entity, Global New Light of Myanmar reports, citing a coordination committee for the project chaired by Vice President Myint Swe. MyanmarSat-2 will feature six C-band transponders and six Ku-band transponders.

Americans Want Space Businesses to Improve Life on Earth

Americans want private companies to seize opportunities in space — but they also want that to translate into better life on Earth, according to a survey released by the Brodeur Partners' Space Group. The poll, which surveyed the opinions of 600 Americans, found that most still view space technology through the lens of defense and national security. "But we also found that there is support for commercial activity in space, even government funding for that activity, if those businesses are reasonably regulated and can demonstrate benefits on Earth," said Jerry Johnston, the author of the study. While, historically, space has been a government activity, Americans today actually prefer private over government investment in space-based activities. According to the survey, a majority of Americans support government financial incentives for those private space companies. At the same time, nearly two-thirds (65 percent) of Americans believe that government investments should be in those space

programs that have an immediate benefit to life on Earth. The survey also found that space tourism needs to make the case that it will benefit the majority of the population: 75 percent of Americans agree that space travel will only benefit a few wealthy people. Support is also tepid for government investment in deep-space exploration: less than a majority (46 percent) of Americans support spending government money to send a mission to Mars. The industry expects the skies will soon be filled with small satellites capturing increasingly detailed data about activities on Earth. Americans are wary of the privacy implications: strong majorities believe there should be privacy limitations on satellite companies capturing this data (72 percent), and government should have a regulatory role regarding private companies engaged in space enterprises (61 percent). Space-based systems operators promise to improve life on Earth in a variety of ways, including communications, climate, navigation and crop monitoring.

According to Brodeur, none was more important to the respondents than defense, the clear priority among seven services mentioned. At the same time, the survey suggests that people may not realize the important role that space commerce plays in everyday activity like GPS and navigation systems. A solid majority of Americans surveyed believe the U.S. is a leader in space technology, with more than one-third of Americans saying the country is the "the clear global leader." Fewer consider the U.S. the clear leader in medical technology, energy, automotive and environmental technology. "This new data reveals a tricky communications challenge for the entrepreneurial space industry," said John Brodeur, chairman of Brodeur Partners, who is leading the Brodeur Space Group. "Although enthusiasm for entrepreneurship in space is high, companies will need to clearly articulate their concern for privacy, their worthiness of financial incentives, and their relevance to life on Earth."

Orbit to Provide Satellite Tracking Ground Stations for EnduroSat

Startup CubeSat developer EnduroSat, headquartered in Sofia, Bulgaria, has placed an initial order for Orbit's 4.5-meter Gaia 100 system to serve as the foundation for its satellite-tracking ground stations. Orbit expects to deliver the system, which includes installation and support, in the first quarter of 2018. Gaia 100 is a small-footprint series of remote sensing ground

stations for real-time data capture from Low Earth Orbit (LEO) or Medium Earth Orbit (MEO) satellites. Built to withstand harsh environmental conditions, its key features include real-time data capture and flexible deployment — for example, on the roof of a building or a top a rig platform. EnduroSat promises satellite configuration in a matter of minutes and

delivery in a matter of days for its full range of 10-cm satellites and related accessories. With a focus on swarm satellite applications and inter-satellite connectivity, the EnduroSat team aims to push CubeSats to applications beyond LEO.

Eutelsat Consolidates Its Presence In Middle East With The Acquisition Of Noorsat

Eutelsat Communications (NYSE Euronext Paris: ETL) has acquired NOORSAT, one of the leading satellite service providers in the Middle East, from Bahrain's Orbit Holding Group. Established in 2004, NOORSAT is the premier distributor of Eutelsat capacity in the Middle East, serving blue-chip customers and providing services for over 300 TV channels almost exclusively from Eutelsat's market-leading Middle East and North Africa neighborhoods at 7/8° West and 25.5° East. The acquisition of NOORSAT fits with Eutelsat's broader strategy of streamlining distribution within selected core video neighborhoods where it can create value. It will allow Eutelsat to strengthen the long term commercial development of its market-leading video positions in the Arabic world and increase its direct access to end-customers, facilitating stimulation of High Definition TV take-up and the upselling of incremental video services. Michel Azibert, Eutelsat Chief Commercial and Development Officer, said: "NOORSAT's capabilities and market knowledge will further consolidate our longstanding position in the dynamic Middle East video market. By integrating NOORSAT's service platform and teams we are underlining our commitment to serving customers in one of the key markets within in our global footprint." Eutelsat has acquired 100% of NOORSAT for a consideration of USD75 million, debt free and cash free. The acquisition will add upwards of USD15 million to Eutelsat's consolidated revenues on an annualized basis after the elimination of the capacity leased by Eutelsat from NOORSAT. Its slightly dilutive impact on Eutelsat's EBITDA margin will be absorbed within the current margin objectives.

Satellite Launches to Increase Threefold Over the Next Decade

According to the 20th edition of Euroconsult's "Satellites to be Built & Launched" report, the firm anticipates that 300 satellites with a mass of more than 50 kg will be launched on average each year by 2026 for government agencies and commercial organizations worldwide. This is a threefold increase over the past decade as the satellite market experiences a paradigm shift with the rise of small satellites and mega constellations, such as that of OneWeb. The 3,000 satellites to be launched between 2017 and 2026 should represent a market of USD304 billion for the space industry in terms of building and launching — an average of USD30 billion per year (up 25 percent over past decade), Euroconsult stated. The research firm has observed a price decrease in this core market of the space industry, driven by 23 commercial constellations launching a total of 1,800 small satellites (of which about 1,000 are for OneWeb) into Low or Medium Earth Orbits (LEO/MEO) for communications or Earth Observation (EO). "The space industry is undergoing a massive change in volume as cubesats/ nanosats and the large constellations of small satellites have begun to revolutionize satellite design, testing and production, and launch as well, as illustrated by OneWeb," said Rachel Villain, principal advisor at Euroconsult and editor of the report. "However, it remains to be seen how these new satellite concepts will incentivize demand for satellite services on Earth through lower costs, especially considering that, ultimately, the cost of ownership for satellite services also includes a large investment on the ground." More than three-quarters of the future space market remains with governments; the 1,000 satellites to be launched for civilian and military agencies in 60 countries will represent a market of USD239 billion, according to the report. Governments dominate the space industry as established space-faring countries replace and expand their in-orbit satellite systems and more countries acquire their first operational satellite systems, usually for communications, EO and imagery intelligence. More than 85 percent of the government market will remain concentrated in the 10 countries with an established space industry (the U.S., Russia, China, Japan, India and the top five European countries). Still, the other 50 countries engaged in space activities will launch almost 200 satellites, twice the number they launched over the past 10 years. These countries will procure half of these 200 satellites from foreign manufacturers as domestic industry capabilities develop further. Almost two-thirds of the commercial space market of USD65 billion will remain concentrated in Geostationary Earth Orbit (GEO), the destination of 150 new satellites for communications and broadcasting services. The 1,800 satellites to be launched into Non-Geostationary Orbits (NGSO) for the 23 constellations to collect or transport data should represent a market of USD2 billion per year on average over the decade.

SpaceX Orbits Dual-Purpose Satellite for SES, EchoStar

SpaceX has successfully launched the EchoStar 105/SES 11 satellite from the Kennedy Space Center in Florida. After deploying the satellite to Geostationary Transfer Orbit (GTO) yesterday evening, SpaceX completed another smooth re-landing of the rocket's first stage on one of the company's drone ships off the coast of Cape Canaveral. Built by Airbus, EchoStar 105/SES 11 is a dual-mission satellite, providing SES with 24 C-band transponders of 36 MHz and EchoStar with 24 Ku-band transponders of 36 MHz. The satellite replaces C-band capacity for AMC 18 and Ku-band capacity for AMC 15 at the 105 degrees west orbital slot. SES intends to use SES 11 to deliver High Definition (HD) and Ultra-HD channels. It offers comprehensive coverage over North America, including Hawaii, Mexico and the Caribbean. According to the company, the satellite's C-band capacity is optimized for digital television delivery, and will join SES 1 and SES 3 at the center of SES' North American orbital arc, which reaches more than 100 million TV homes. EchoStar 105 will provide EchoStar Ku-band transponder capacity with coverage of the 50 U.S. states and expanded reach

to the Gulf of Mexico and the Caribbean for satellite communications services for the company's enterprise, media and broadcast, and U.S. government service provider customers.

Eutelsat's Airbus-Built Full Electric EUTELSAT 172B Satellite Reaches Geostationary Orbit

The EUTELSAT 172B spacecraft, built by Airbus for Eutelsat, one of the world's leading satellite operators, has now reached geostationary orbit, breaking the record for the fastest satellite electric orbit raising (EOR). EUTELSAT 172B was launched by Ariane 5 from Kourou, in French Guiana, on 1 June. The Airbus spacecraft control center in Toulouse took control for early operations, initialization, deployment of the solar array and electric propulsion arms, and completed initial testing prior to starting the Electric Orbit Raising phase on 8 June. During this four-month phase, electric thrusters smoothly and efficiently propelled the satellite to the targeted orbit, consuming almost six times less propellant mass than for a satellite with chemical propulsion. Following completion of the payload in-orbit tests and drift to its operational location led by the Eutelsat team, EUTELSAT 172B is scheduled to enter commercial service in November to provide enhanced telecommunications, in-flight broadband and broadcast services for the Asia-Pacific region. Its

life span is expected to exceed 15 years thanks to electric propulsion for in-orbit raising and station-keeping. "We are the first company to demonstrate full electric propulsion for satellites of this size and capacity, enabling their launch in the most cost-efficient manner. Furthermore, with our system design, operation strategy and the plasma thruster technology we implement, we have completed the fastest electric orbit raising ever from transfer to geostationary orbit, which will allow Eutelsat to put their electric satellite in service in a record time," said Nicolas Chamussy, Head of Space Systems at Airbus. Yohann Leroy, Eutelsat's Chief Technical Officer, added: "EUTELSAT 172B confirms the relevance of Eutelsat's early adoption of electric propulsion technology to optimize capex. In combining electric propulsion, High Throughput capacity, robotic arms and 3D printing techniques, our new satellite also reflects Europe's capability to push the envelope of innovation in order to increase the competitiveness of our business. We look forward to bringing

EUTELSAT 172B into service next month for our clients in the Asia-Pacific region." EUTELSAT 172B combines 13 kW of payload power with a launch mass of only 3,550 kg, thanks to the latest EOR version of Airbus' highly reliable Eurostar E3000 platform. EOR success and record was made possible by two Airbus innovations:
- A pair of deployable robotic arms which orientate the satellite's electric propulsion thrusters, and control thrust direction and attitude during different phases of the mission.
- The WALIS (Wide Angle Localization Integrated System) network of ground stations around the world, developed by Airbus, which has enabled engineers to control orbit raising operations until the satellite reached geostationary orbit.

The development of Airbus' Eurostar all-electric satellites has been supported by ESA and space agencies of European countries, in particular in France by the CNES in the framework of the PIA program (Plan d'Investissements d'Avenir) and in the UK by the UK Space Agency.

Japan Launched Fourth Satellite for High-Precision GPS

Japan launched a fourth satellite on Tuesday for a new high-precision global positioning system (GPS). This satellite is named as Michibiki satellite that encourage new businesses and help economic growth. Japan Launched Fourth Satellite for High-Precision GPS The fourth satellite lifted off from Japan's southern Tanegashima space port aboard an H-2A rocket. Furthermore, according to the Japan Aerospace Exploration Agency It takes just over 28 minutes to reach orbit. Moreover, the four satellites that loop over Japan and Australia in a figure of eight orbit will permit for continuous coverage and puts engineers on course to switch the system on in April. Additionally, Japanese GPS can locate devices to within several centimeters compared with the commonly-used US system. This US system has an accuracy of about 10 meters. Furthermore, Japan plans to have seven of the geo-positioning satellites in orbit by 2023.

Experts Urge FCC to Expand Spectrum Sharing Opportunities

During a panel focusing on regulatory issues at the DC5G 2017 Summit, speakers from different industry markets stated that the only way to fund 5G deployment is to incentivize new players to invest in its rollout. Dynamic Spectrum Alliance (DSA) President Kalpak Gude argued that the Federal Communications Commission (FCC) must evolve its spectrum allocation policies to be more inclusive of new technologies and potential 5G participants. "The cost of 5G deployment is looking like it's going to be enormous," Gude said — a figure that potentially scales into the hundreds of billions. "At the spectrum bands that we're talking about it cannot be one entity or one set of entities building this 5G universe. It has to be a collection of different technologies and services." As Gude noted in a recent interview with Via Satellite, he believes regulators must shift away from the idea that spectrum is scarce simply because it is already allocated to certain carriers. "The reality is spectrum in most places is underused or unused. That creates tremendous opportunity to use spectrum in a different way," he said. Jennifer Manner, senior vice president of regulatory affairs at EchoStar, stated that despite the 5G "network of networks" catchphrase, the industry continues to disproportionately focus on mobile carriers, particularly when it comes to allocating resources such as spectrum. While she acknowledged that the industry probably cannot share in every band in the near-term due to some widely distributed services, she stated that there needs to

be an "honest evaluation" of where and how operators are likely to deploy their systems. "Sharing should look at the physics of the frequency band and the services involved and provide something a little more realistic," she said. "I think there's a very strong favoritism to certain carriers in the industry." Jill Canfield, senior regulatory counsel at the National Telecommunications Cooperative Service (NTCA), said that the FCC must ensure rural telco providers are able to participate in the 5G ecosystem as well. One solution, she suggested, would be maintaining small license areas rather than mandating the larger (and sometimes prohibitively expensive) license territories that exist in the cellular world. "One of the problems that we've seen with going to these larger license territories is that it plays into certain business models. It doesn't allow for the full spectrum of the different users in the band because the larger the license territory the more expensive the license becomes," she explained. Canfield warned that if smaller telco providers are locked out of the 5G experience due to restrictive policies, rural areas will continue to lag when it comes to reliable connectivity services. "My fear is that as we move forward with these new policies and rulemaking, that a lot of this is going to exacerbate the divide between what's available in rural America and what's available in urban America," she said. According to Iyad Tarazi, Chief Executive Officer (CEO) of Federated Wireless, the biggest concern around 5G is the lack of "killer" use cases that will provide the

massive Return on Investment (ROI) 5G deployment will necessitate. To fetter out new applications and profitable business cases, Tarazi echoed the other panelists in urging the FCC to consider new entrants as it develops new licensing models. "The number one challenge for 5G is business applications that will generate revenue. If you go back to 3G and 4G it was the iPhone. What is that for 5G?" Tarazi said. He highlighted augmented/virtual reality, automation and machine learning as early possibilities, and pointed out that companies such as General Electric (GE) and Siemens are already investing in predictive analytics and sensor technology, while Apple, Alphabet and others are aggressively pursuing machine learning. "These applications are beginning to emerge, but they need a lot of investment to happen," he said. "If we don't have a million companies investing in 5G, it's not going to happen … Ultimately, expanding the ecosystem is good for everyone." Gude pointed to the FCC's Citizens Broadband Radio Service (CBRS) as a scheme that could be extrapolated across the industry to more efficiently distribute spectrum. exclude others from using the spectrum. "This battle in 3.5 GHz and at 6 GHz between terrestrial wireless opportunities and satellite is an unnecessary one," Gude said. "Using dynamic sharing techniques to open up spectrum to new entrants without disturbing the uses and growth cases of incumbents I think is a model that can drive U.S. leadership."

UAE Space Agency Signs MoU with Luxembourg

The UAE Space Agency has signed a Memorandum of Understanding, MoU, with the Government of the Grand Duchy of Luxembourg, defining a framework for collaboration and the exchange of information and expertise in the fields of space science, research, and technology. The MoU was signed by Dr. Ahmad Belhoul Al Falasi, Minister of State for Higher Education and Chairman of the UAE Space Agency, and Etienne Schneider, Deputy Prime Minister, Minister of the Economy, Internal Security and Defense of the Grand Duchy of Luxembourg. The signing of took place as part of an official visit to Abu Dhabi by a high-level delegation from Luxembourg, headed by HRH Prince Guillaume, Crown Prince of Luxembourg, and including HRH Princess Stephanie, Crown Princess of Luxembourg, and Elisabeth Cardoso, Ambassador of Luxembourg to the UAE. The delegation met with UAE Space Agency officials including Dr. Ahmad Belhoul Al Falasi and Dr. Mohammed Nasser Al Ahbabi, Director-General of the UAE Space Agency. The MoU promotes cooperation in various aspects of space exploration, including space science, research, technology, remote sensing, and navigation. In addition to this, the MoU encourages collaboration on space policy, law, regulation, and personnel training for space activities.

Eutelsat Travelxp 4K Gearing up for Commercial Launch

Eutelsat Communications announces the commercial launch in Europe on 1 October of Travelxp 4K at its popular HOTBIRD video neighborhood. Travelxp 4K, the world's first 4K HDR channel, will leverage HOTBIRD's market-leading penetration into cable and IPTV networks across Europe, the Middle East and North Africa. Travelxp 4K will be available in English, Spanish Polish, Serbian, Croatian and Dutch in the coming months. Localization in other languages will shortly be announced. The channel will initially feature 100 hours of world class travel programmes filmed across the world with multicultural hosts. The 4K version of the Travelxp brand follows the success of Travelxp HD that offers 100% of originally-produced premium travel and lifestyle programming distributed to over 50 million homes globally. Now encrypted, Travelxp 4K is encoded in HEVC, at 50 frames per second (50p), with 10 bits of color depth (1 billion colors), in the BT2020 color space, and High Dynamic Range (HDR) with the Hybrid Log Gamma (HLG) standard developed by the BBC and NHK that creates richer and more dynamic images by increasing the contrast ratio between the lightest and darkest areas of the screen and expanding the volume of colors displayed. The HLG standard enables Standard Dynamic Range (SDR) TV sets to display an Ultra HD image (in SDR mode). Travelxp 4K CEO, Prashant Chothani, commented: "We started the test feed on Eutelsat's HOTBIRD neighborhood at the beginning of the year and kept it Free-to-Air to enable operators and hardware vendors to access an HLG HDR content feed. As the world's first 4K HDR channel, we are extremely grateful to all partners, vendors and stakeholders who have made this happen. Quality is at the forefront of Travelxp 4K and viewers are going to love the quality of content that we have produced."

HughesNet Launches Satellite Broadband in Colombia

US satellite solutions provider Hughes Network Systems has confirmed the launch of its Hughes de Colombia (HughesNet) satellite broadband service in Colombia. The launch represents the company's second international deployment beyond North America, following its introduction in Brazil in July 2016. Operating over the EchoStar XIX high-throughput satellite (HTS), HughesNet delivers coverage to around 75% of Colombia, and supports download speeds of up to 30Mbps. Pradman Kaul, President of Hughes, commented: 'Colombia has many of the same market dynamics as in Brazil, primarily large untapped demand for high speed internet access in areas either unserved or underserved by terrestrial internet providers.' TeleGeography notes that Hughes is currently the largest satellite broadband provider in the US by subscribers, claiming a total of 1.085 million subscribers at 30 June 2017.

Australia Launches Space Agency with Eye on Satellite Tech

Australia is setting up its first space agency in a much-anticipated move to ensure that the nation is not left behind in the new global space race. The agency is expected to create 10,000 jobs over the next five years - especially for engineers and technicians - as it oversees Australia's involvement in a sector worth more than A$420 billion (S$447 billion). Experts said the agency will be able to quickly pay for itself. Australia now spends A$5.3 billion a year for satellite information from overseas firms. Dr. Alan Duffy, a space industry expert, said the agency could encourage Australia's involvement in the manufacture of satellites as well as the capture and use of satellite data. There are growing uses for this data in Australia, including helping farmers irrigate crops, produce heat maps for controlling bush fires, track weather patterns and marine life in the Great Barrier Reef, as well as explore the country's vast tracts of land to boost resource extraction, he said. Dr. Duffy, an associate professor of astrophysics at Swinburne University of Technology, told The Straits Times: "This is not so much about sending people into space as about creating jobs for people on Earth." In 1967, Australia became only the third country after the United States and the then Soviet Union to launch its own locally built satellite. But it has since fallen behind, and typically relies on other nations to help launch and design satellites. Aside from Iceland, Australia is now the only member of the Organization for Economic Cooperation and Development - the Paris-based club of rich nations - without a space agency. The Australian government announced the creation of the agency last week, after decades of calls for Australia to boost its role in the space sector. A panel of experts appointed to consider the charter for the agency is due to report back by the end of March next year. Experts welcomed the announcement, noting that the emphasis is likely to be on developing satellite technology for use in innovation, telecommunications, defense and the environment, rather than on space exploration. Dr. Michael Brown, an astronomer at Monash University, said: "I'm optimistic that Australia can develop its own satellites and be partners in multinational space projects." International space agencies, too, welcomed the announcement, saying it could boost cooperation. The European Union's special envoy for space, Mr. Francois Rivasseau, said other nations would benefit from Australia becoming more active in the space sector. He added that the EU could cooperate with Australia on research, data sharing and analysis, and even developing space exploration projects. Australia's space sector currently involves a host of firms and agencies that employ up to 11,500 people. The sector has an annual revenue of more than A$3 billion. But the industry lacks direction and coordination, and is worth just 0.8 per cent of the global sector. The space race now is being fueled by the pursuit of commercial uses rather than by the traditional focus on defense and security. Scientists said the agency could help Australia develop facilities for preventing water theft in its food bowls, and extending broadband technology to remote areas. "Australia has this huge land mass," Professor Brian Schmidt, a Nobel Prize-winning astrophysicist and vice-chancellor at the Australian National University (ANU), told ABC News. "We, more than almost any country on planet Earth, can benefit from using satellite technologies to manage our country," he said. Dr. Duffy said Australia's share of the global sector should be "double or triple" its current levels. "We could be creating so much more value in space," he said. "This will mean we can finally explore and commercialize space together as a nation."

Pakistan to Launch Its First Remote Sensing Satellite Soon

The Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) announced at World Space Week 2017, that Pakistan's first remote sensing satellite called PRSS-1 will be launched in March 2018. After the satellite's launch, Pakistan won't have to pay huge sums to foreign space companies for satellite-dependent data. Ayaz Aziz Member of Range and Instrumentation (R&I) was the chief guest at a ceremony in the National Center for Remote Sensing & Geo-Informatics. He said, while addressing the ceremony, our first optical remote sensing satellite PRSS-1 is all set to be launched in 2018 with which Pakistan will become self-reliant in multispectral imaging thus saving a huge foreign exchange on account of satellite imagery and satellite-based monitoring of various national projects. Our communication satellite Paksat-1R is up and running with efficient provision of communication and broadcast services throughout the country and neighboring regions. World Space Week 2017 is an annual ceremony which is officially defined as an international celebration of science and technology, and their contribution to the betterment of the human condition. An inaugural ceremony was held at the Institute of Space Technology (IST) Islamabad. Chairman of SUPARCO, Qaiser Anees Khurram inaugurated the ceremony as the chief guest. The World Space Week will be celebrated in 16 cities of Pakistan from October 4 till 10. At the end of the ceremony held at NCRG, the chief guest and Suparco officials exhibited their "space education bus" to create awareness related to space education in schools and especially rural areas in Sindh. World Space Week is exciting for people, especially for young students because of their curiosity about our universe and what it has to offer. It encourages the students to seek education and knowledge in the fields of space, science, and technology.

Iridium Begins On-Orbit Testing of its L-Band Service

Iridium Communications has begun live testing on-orbit of its Iridium Certus service on operational Iridium Next satellites. Iridium Certus will be the company's new global broadband service, offering safety and critical L-band communications connectivity through the Iridium Next satellite constellation. The testing and validation process started on September 25 and has involved uploading and activating software to the Iridium Next satellites already in orbit to enable Iridium Certus. As of October 4, several Iridium Next satellites in operation were already undergoing live on-orbit testing. As each

new additional satellite comes online in the coming months, Iridium Certus service will be activated through those satellites as well until all 66 operational satellites in the constellation are active, expected in 2018. Iridium Certus terminals are being built by Cobham, L3 Communications, Rockwell Collins and Thales USA, all of which are participants in the Iridium Global Value Added Manufacturer program. Iridium expects to conduct live on-orbit tests on the terminals as they are ready. According to Iridium, once all service classes are fully deployed, Iridium Certus will be capable of speeds up to 1.4

Mbps. Current on-orbit testing is focused on Iridium Certus 350, the initial service class to be introduced, which will deliver internet and voice services to compact terminals built specifically for maritime, aviation, and terrestrial/vehicular applications. These terminal products will be upgradable to Iridium Certus 700 with a firmware update once the service is available. The third launch for the Iridium Next constellation is currently scheduled for October 9 out of Vandenberg Air Force Base, and will carry another 10 Iridium Next satellites to Low Earth Orbit (LEO) on a SpaceX Falcon 9 rocket.

First GPS 3 Satellite Ready for Launch

Ushering in a new era of advanced GPS technology, the U.S. Air Force declared the first Lockheed Martin-built GPS 3 satellite, GPS 3 SV01, "available for launch" on October 10. The Air Force's declaration is the final acceptance of GPS 3 SV01 prior to its expected 2018 launch. According to the Air Force, GPS 3 SV01 will bring new capabilities to the United States and allied military forces, and a new civil signal that will improve future connectivity worldwide for commercial and civilian users. GPS 3 SV01 now awaits a call up to begin pre-launch preparations. In the meantime, Lockheed Martin is storing the satellite in an environmentally controlled clean room, where engineers can perform maintenance and continue to service the satellite. According to Lockheed Martin, the satellite boasts a range of improvements over previous GPS satellite designs, including three times more accuracy, improved anti-jamming capabilities and an extended life span of 15 years. Additionally, GPS 3 SV01 will be the first GPS satellite to broadcast L1C, a new common signal being adopted by other Global Navigation Satellite Systems (GNSS) such as Europe's Galileo. In the future, users of civilian GPS receivers will be able to connect to L1C from multiple GNSS constellations. Lockheed Martin stated it has already begun work on

future requirements such as an accuracy-improving laser retro-reflector array and a search and rescue payload. With all major development risks behind them, the company is now in full production on 10 GPS 3 satellites at its GPS 3 Processing Facility near Denver, Colorado. "As we designed GPS 3, we knew that mission needs would change in the future and that new technology will become available. We wanted the satellite to be flexible to adapt to those changes," said Mark Stewart, vice president of Lockheed Martin's

navigation systems mission area. "To do that, we intentionally developed GPS 3 with a modular design. This allows us to easily insert new technology into our production line." The Global Positioning Systems Directorate at the U.S. Air Force Space and Missile Systems Center is leading the GPS 3 team. Air Force Space Command's 2nd Space Operations Squadron (2SOPS), based at Schriever Air Force Base in Colorado manages and operates the GPS constellation for both civil and military users.

Plasma Antennas Hopes to Cut 5G Base Stations Cost in Half

Plasma Antennas has unveiled its mmWave Plasma Silicon Antenna (PSiAN), which aims to offer improvements in performance for 5G base stations compared to the current generation of technology. According to the company, the antenna cuts the cost of a 5G base station by up to 50 percent by eliminating phase shifters, reducing and consolidating amplification and reducing computation. The PSiAN has no moving parts. The technology does not need calibration and can handle practically unlimited power, Plasma Antennas stated, having already been tested up to 40 watts. The PSiAN also has an omni mode, when it draws no power at all. The company has tested the technology in a variety of scenarios, including 360 degree field of view beam forming and steering 28GHz 5W PSiAN, useful for pole-mounted small cells, indoor small cells, or on a vehicle, and a high power, long range, low loss small cell base station antenna for standalone and Multiple Input/Multiple Output (MIMO) 5G, Fixed Wireless Access (FWA), and connected vehicle applications. These devices can also be stacked to form and steer beams in two dimensions (azimuth and elevation), or to form multiple beams and MIMO applications.

Gulfsat Partners with Thuraya to Expand Services to Kuwait

Thuraya Telecommunications announced it has signed a partnership with satellite communications company Gulfsat at the ongoing Offshore Patrol Vessels (OPV) event in Kuwait. According to Gulfsat, the strategic alliance will enable it to launch data services in Kuwait and also allows both companies to increase both their distribution channels among government, maritime, media and enterprise sectors in the surrounding region. The new agreement gives Thuraya, for the first time, a data service presence in Kuwait and enhanced broadcasting capabilities, backed by Gulfsat's media broadcasting influence. Meanwhile, Gulfsat intends to further its service capabilities over land and sea in the Middle East and North Africa (MENA) region via Thuraya's range of data products. Starting in November, the product range accessible to Gulfsat customers will include the full range of Thuraya's land and maritime broadband terminals such as the IP+, IP Voyager, Orion IP and Atlas IP. "We are delighted to work with Gulfsat, through whom we are able to gain a foothold in Kuwait

and extend services into some of the country's key sectors, including its prominent maritime market. Together, our joint offerings will also facilitate the remote operational capabilities of the Middle East and North African utilities and oil and gas sectors," said Danny Cote, Thuraya Chief Commercial Officer (CCO).

AT&T Responds to California Wildfires with Satellite COLTs

To help customers and emergency responders stay connected, AT&T's Network Disaster Recovery (NDR) team is deploying numerous mobile cell sites, or Cells on Light Trucks (COLTs) and equipment to areas impacted by ongoing wildfires. According to AT&T, it has deployed satellite COLTs to Santa Rosa, Willits, and the Napa Town and County Fairgrounds in Napa. The assets are being used to provide network support and for wildfire incident command responders. These satellite COLTs are mobile cell sites that link to the AT&T network via satellite and don't rely on commercial power availability, the company stated. In addition to deploying temporary cell sites, AT&T is staging and refueling additional generators and has deployed an emergency communications vehicle to Santa Rosa. "Our highest priority is to ensure that our customers have the necessary resources to communicate with their loved ones and emergency services, and access important information during these difficult times," said Ken McNeely, president of AT&T California. "Our teams are working closely with first responders to get our service up as quickly and safely as possible."

Ursa Now Monitors Oil Inventory in MENA

Ursa Space Systems has announced the release of its Middle East/North Africa (MENA) Oil Storage Report. Following China and the Caribbean, MENA is the third region in Ursa's expansion to global coverage of oil storage inventories, providing a new dataset to a product line that is already in use by traders. Ursa's MENA report covers more than 1,400 tanks across 24 sites, representing more than 570 Thousand Barrels (Mbbls) of shell capacity monitored on a weekly basis. In addition, Ursa provides contextual information such as tank owner and whether each tank is associated with a refinery, which enables subscribers to filter the data for deeper insights. This is Ursa's largest regional expansion to date, covering the most sites and countries, according to said Adam Maher, Ursa's Chief Executive Officer (CEO). "Adding this third region brings our total coverage to over 50 locations and more than 1.5 billion barrels of shell capacity. We plan to complete our global coverage expansion in the next several months," he said. Eight out of the 14 Organization of Petroleum Exporting Countries (OPEC) countries are covered under Ursa's MENA report. "MENA is a key region in global crude prices due to the role of OPEC in determining production for its members, many of whom are in this region," said Matt Wood, Ursa's vice president of sales and marketing. "Our customers rely on our detailed information, regular cadence and weekly refresh of every site to make important business decisions."

Spaceflight to Launch U-Class Payloads for NASA

The NASA Kennedy Space Center (KSC) has awarded Spaceflight its first contract for launch and integration services. The multi-year contract covers launch services in 2018 for a maximum of 24 U-Class payloads, with options to provide launch services for up to 24 additional payloads in 2019 and 2020. The potential total contract value is more than USD5 million, according to Spaceflight. U-Class payloads are miniature space research satellites that typically use Commercial Off-the-Shelf (COTS) electronic components. The U-Class payloads flown by NASA, often created by universities and nonprofit organizations, play a foundational role in the agency's technology development and include investigations in planetary exploration, Earth Observation (EO), and fundamental Earth and space science. Spaceflight works with many global launch vehicle providers, brokering rides on SpaceX's Falcon 9, ISRO's Polar Satellite Launch Vehicle (PSLV), ISC Kosmotras' Dnepr, Orbital ATK's Antares and Cygnus, Rocket Lab's Electron, Arianespace's Soyuz and others, to ensure organizations can access space when they want. The "rideshare service" model provides more options for organizations to reach a desired orbit at a potentially lower cost than buying their own launch vehicle.

Lockheed Martin Completes Flexible Solar Array for LM 2100 Satellite

After years of development, Lockheed Martin completed the first flight build of its new Multi-mission Modular (MM) Solar Array. The new design is a major component of Lockheed Martin's multi-year modernization of its LM 2100 satellite bus, which is part of its newly-enhanced family of buses. According to Lockheed Martin, the flexible array design delivers 50 percent more power than previous rigid array designs at 30 percent less mass. By swapping rigid panels for thin sheets, the upgraded design achieves reduced weight and compact stowage. Typical rigid panels range from 0.75 to 1.5 inches thick, but the MM Array's synthetic polymer material is just 0.002 inches thick. Its first customers are for LM 2100 series of satellites, but engineers can adapt the design for other types of spacecraft, Lockheed Martin stated. "The new arrays can generate 20 kilowatts of energy in orbit, enough to power an entire home. These new arrays deliver enough energy for even the most advanced communications or remote sensing payloads," said Wahid Azizpor, manufacturing director at Lockheed Martin Space Systems.
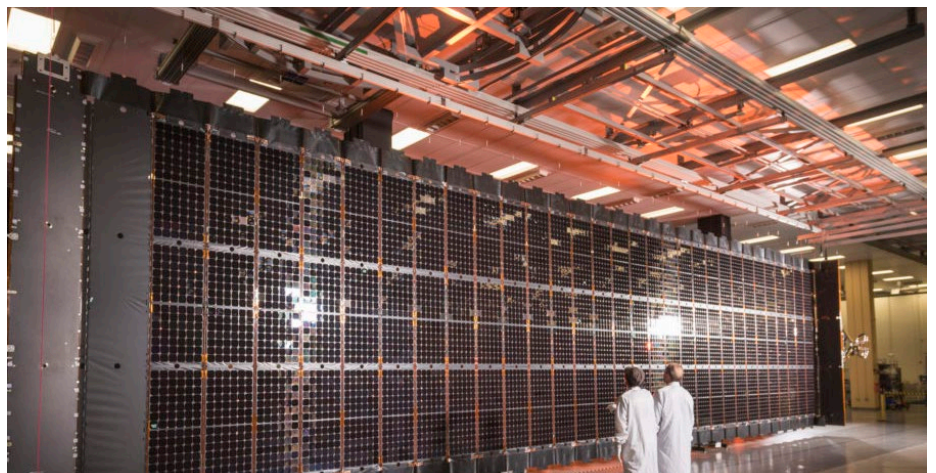
Satellite Connectivity Driving Socio-Economic Growth in Africa

To sustain socio-economic growth and development, people need to be connected. This is important to communities based in remote regions, and to individuals, businesses, NGOs and governments in growing metropolitan cities. And, with Africa home to three of the fastest growing economics in the world, the need to support on the rapid deployment of connectivity is even more essential. One such technology that is driving growth across the African digital economy is satellite communication. Since African satellite communication services were introduced over a decade ago, they have been responsible for numerous economical and societal benefits across schools, medical centers, commerce and banking in addition to many other sectors. In fact, there is a significant correlation between investment in satellite broadband connectivity and the growth in economic activity. According to World Bank research for every 10 per cent increase in broadband connectivity, the Gross Domestic Product (GDP) of developing nations rises by 1.38 per cent. It is therefore safe to say that the socio-economic development of developing countries can greatly improve with inclusive access to communication networks. Therefore, increased access to satellite broadband communications including for the most remote parts of the world can help communities take a giant leap forward whilst also creating a level playing ground for everyone to achieve social development regardless of the location. While it is clear that satellite broadband communications is essential, the African continent is still in need of satellite broadband penetration – specifically high performance broadband such as the new generation of Ka Band technology that is not subjected to the costs and physical limitations faced by the cable-based systems. Broadband powered by satellites reaches users in the remotest parts of the continent and facilitates social development unparalleled in the history of Africa. In full realization of this need, YahClick, the leading Ka-band satellite broadband service provided by Yahsat, the United Arab Emirates' satellite operator, has made Africa a high-priority market. We firmly believe that the collaboration between governments, technology partners and businesses is the key to unleashing the dynamics of connectivity and ushering Africa into the age of knowledge revolution. This is the reason why we are constantly working with in-country partners across the continent to deliver tailored solutions to even the most rural of households. As part of our work, we have collaborated with numerous organizations across Africa in countries like Nigeria, South Africa, Angola, Kenya, Uganda, Tanzania and South Sudan, where various projects have been executed in partnership with service partners and government agencies. Khan is the Chief Commercial Officer, Yahsat. Such projects include the provision of connectivity to remote libraries in South Africa, connecting over 200 schools in 15 counties across Kenya and more than 90 schools in Nigeria as well as connecting healthcare facilities in Kenya's Kiambu County, to provide cost-effective care to over 10,000 patients daily. Through satellite communications we are changing for the better the way children receive education; how healthcare is delivered to patients, and how government services are provided to citizens. We are proud to witness first-hand how connectivity is improving the quality of lives in these communities. With the impending launch of our third satellite – Al Yah 3, we will increase our existing presence in Africa and serve more home and business users, as well as government entities and non-governmental organizations. The existing gap in the provision of satellite powered broadband technology that is unencumbered by the limitations of older systems will soon become history. Satellite broadband technology's impact is far-reaching and can actually put businesses and governments in emerging markets on an equal footing to their contemporaries in other parts of the world.

World View Launches First Stratollite Balloon

World View, which plans to offer services such as Earth Observation (EO) from the stratosphere using high altitude balloons, has successfully completed its first Stratollite launch from its Tuscon, Arizona headquarters. According to the Arizona Daily Star, The Federal Aviation Administration (FAA) recently granted the company a certificate of authorization to launch from Spaceport Tuscon, which

World View Chief Executive Officer (CEO) Jane Poynter described as the "first-ever, purpose-built stratospheric launch facility in the world." This launch marks the beginning of operations at the spaceport, where World View will launch and manufacture most of its balloons. World View aims to use Stratollite balloons to fly commercial payloads at a lower cost than Low Earth Orbit (LEO)

satellites. According to the company, the Stratollites can support applications such as weather forecasting, communications systems for emergency first response, remote sensing and scientific research. The company made headlines earlier this year when it lofted a fried chicken sandwich on a test flight as part of an ad campaign for KFC.

WHOLESALE NEWS

Nkom Submits MTR Plans to ESA

Norway's National Communications Authority (Nkom) has announced that it has sent a draft decision regarding proposed mobile termination rates (MTRs) to the EFTA Surveillance Authority (ESA). The authority consulted with local mobile network operators (MNOs) between August 22 and September 19, and has now confirmed that it plans to reduce termination fees over the course of the next three years. The current maximum MTR is set at NOK0.065, and under Nkom's plans the charge will be reduced to NOK0.054 from March 1, 2018, before further reductions to NOK0.043 from January 1, 2019 and NOK0.032 from January 1, 2020. According to Nkom, the draft decision will apply to eight operators, namely: Com4, Get, ICE, Lycamobile, Phonero, TDC, Telenor and Telia. The regulator noted that it had based its proposed charges on an updated market analysis of the sector, having also developed an updated version of the Long Run Incremental Cost (LRIC) model used for calculating the costs of termination.

EC Asks Germany to Lower FTRs Charged by Smaller Operators

The EC has issued a second recommendation to Germany's Federal Network Agency (FNA, known locally as the Bundesnetzagentur) to lower the fixed termination rates (FTRs) charged by smaller operators to competitive levels. While no longer using the previously criticized LRAIC+ methodology, the rates proposed by the FNA have been calculated based on an international benchmarking approach, despite the regulator having developed the recommended pure BU-LRIC cost model in line with the EU regulatory framework. According to the EC, the proposed rates would result in FTRs being over six times higher than the level calculated by the FNA using the pure BU-LRIC model (based on operators' efficient costs), resulting in significantly higher prices for consumers. The EC has requested the FNA withdraw or amend its proposal to bring the FTRs for smaller operators for the period of January 2017 to December 2018 in line with EU telecom rules. The German watchdog has been asked to communicate its decision to the EC by 11 December 2017.

BT Secures Wholesale Contract with Sky Ireland

Sky Ireland has contracted BT Ireland to support its rollout of ultrafast broadband across the country, according to Business World. With BT having won a 'highly competitive tender', it has signed a multi-year contract under which it will provide Sky Ireland with a comprehensive managed service, including backhaul network, to help expand the latter's ultrafast broadband offering across the country, including in areas to be covered by the National Broadband Plan. As part of the deal, BT will also supply VoIP services 'to alleviate reliance on phone lines for voice calls'. Meanwhile, it is understood that BT has also retained an existing agreement with Sky Ireland for a further four years, covering managed services, broadband and fixed line offerings. Commenting on the matter, BT Ireland's managing director Shay Walsh said: 'We are delighted that Sky Ireland chose BT to support the next phase of its rollout of next generation broadband technology. It's great news for the market in general, because competition brings choice and now consumers and businesses will have more providers to choose from for phone and broadband services.' JD Buckley, managing director at Sky Ireland, added: 'This deal with BT reflects our continued commitment to investment in infrastructure in Ireland and will mean our customers can avail of the highest fiber speeds in the country across the widest possible footprint. It will also allow us to bring fiber to currently underserved rural customers as part of the government's National Broadband Plan.'

From left: Managing director of BT Ireland, Shay Walsh, with JD Buckley, managing director of Sky Ireland. Image: Teneo PSG

STC Concludes its Participation in International Roaming Conference

STC participated in the International Roaming Conference Wholesale (WAS#6 Agreements and Solutions) as part of the activities of the international GSMA organization during the period of the September 25 through 28. This event is considered one of the most important international gatherings of international mobile operators with participation of more than 150 operators. Several lectures and discussion panels are conducted to highlight the latest international roaming technologies. Commercial, financial and technical subjects are also discussed during the conference. Moreover, Operators met to discuss bilateral agreements.

RCS&RDS Threatens to Sue ANCOM over Termination Rates

Romanian quad-play telco RCS&RDS (Digi) has threatened legal action against the country's telecoms regulator the National Authority for Management & Regulations (ANCOM) if the latter does not reconsider its decision to freeze mobile and fixed termination rates from the level set at 2014. According to Romania Insider, RCS&RDS believes that ANCOM's decision not to reduce the termination rates for mobile networks was not based on proper market research and does not take into account the interests of end-users, and the telco also argues that fair termination rates would be around half the level currently set by the regulator. The decision to freeze the termination rates at the level since 2014 is supported by other dominant Romanian telecoms players Orange, Vodafone and Telekom. RCS&RDS will address the parliamentary committee as well as the European Commission (EC) on the matter, while adding weight to the operator's argument, Romania's Competition Council has also said that ANCOM should revise the tariffs in question.

Vodacom-Rain Roaming Deal under Investigation

A roaming deal between South African mobile operator Vodacom and 4G LTE operator Rain (previously Multisource/WBS Group) is reportedly under investigation, MyBroadband writes. The move follows complaints from rival operators Cell C and MTN to the Independent Communications Authority South Africa (ICASA) and the Competition Commission (CompCom) that the deal gives Vodacom 'unlawful' access to Rain's 1,800MHz and 2,600MHz spectrum, even in areas where Vodacom has good coverage. Under the current set up, Vodacom users are not notified that they are roaming over Rain's infrastructure. Vodacom explained that the reason why Rain's network appears as Vodafone's to users is because the same public land mobile network code (PLMN ID) is broadcast for Vodacom and Rain's spectrum. Further, Vodacom also added that there was no requirement to see the roaming icon while on the Rain network, as there was no roaming tariff applied for using Rain's infrastructure. Rain CEO Duncan Simpson-Craib also dismissed the concerns, saying the two sides went through a thorough legal process to ensure they were 100% compliant with regulations. The executive added that Rain would welcome other operators to roam over its network, with hopes to reach similar agreements in the near future.
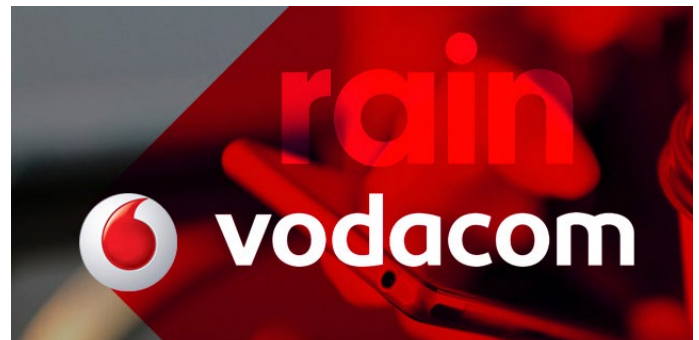
ICASA Extends Validity of Current MTRs for Twelve Months

The Independent Communications Authority of South Africa (ICASA) has extended the validity of the country's mobile call termination rates (MTRs) for twelve months (until 30 September 2018) while it performs a cost study to determine the updated tariffs. ICASA said that competition in the relevant markets remains ineffective, with all licensees offering wholesale voice call termination services still holding significant market power (SMP). Thus, the regulator stated that the pro-competitive conditions imposed on the licensees in 2014 remain relevant for the extended period. ICASA will now publish a briefing note by September 30 outlining the consultative approach and timeline to determine the new MTRs. TeleGeography notes that under the current regime, market leaders Vodacom and MTN charge ZAR0.13 (USD0.0097) for calls from other networks, while the asymmetric rate (in effect for Telkom and Cell C) is set at ZAR0.19.

EC Hails Benefits of Abolishing Roaming Fees

The European Commission (EC) trumpeted its move to abolish roaming in the region after a survey showed the share of travelers accessing mobile data as often as they would while at home doubled. Andrus Ansip, VP for the Digital Single Market, said "people are keen to use their phones like at home when travelling in the EU without the fear of a bill-shock." He said operators are investing in networks to meet increased demand, adding: "Our new EU telecoms rules will encourage such investments; they should be adopted by the European Parliament and Member States as soon as possible." The EC quoted a Flash Eurobarometer survey (a small-scale, European cross-national survey) which showed 71 per cent of Europeans are aware roaming charges have ended and 72 per cent think they, or someone they know, will benefit from this. According to the survey, the share of travelers who used mobile data in the same way as at home increased to 31 per cent after June 15, when the new rules came into force. In the previous six months, the figure stood at 15 per cent. The share of travelers who never used mobile data abroad halved and, in general, the EC noted restricted mobile use abroad is diminishing with fewer travelers switching off their phones. However, compared to mobile phone use in their home country, 60 per cent of travelers still limit their mobile phone use when travelling in another EU country. Meanwhile the EC said several operators reported a rise in data traffic due to travelers, which this summer was three- to six-times higher compared with the same period of 2016. While some of this increase reflects general year-on-year growth in data consumption in domestic markets, a substantial part can be attributed to the new roaming rules the EC claimed. The rise of roaming calls, although less marked, is also significant. In response, operators in tourist destinations are making important investments in their networks to seize the opportunity presented by the increased demand from travelers. A recent Juniper Research report forecast revenue from data roaming will rise to USD31 billion globally in 2022, after an initial decline in wider roaming earnings caused by EU regulation. The EC added it is working closely with regulators to monitor developments in mobile markets in member states to make sure operators continue to follow the new rules. Mariya Gabriel, Commissioner for Digital Economy and Society, said: "Roam like at home is working: customers are appreciating it, consumption is up and the demand for mobile services while travelling in the EU is very high". The European Parliament is also eyeing the abolition of charges for roaming services between EU countries and Ukraine, Moldova and Georgia.
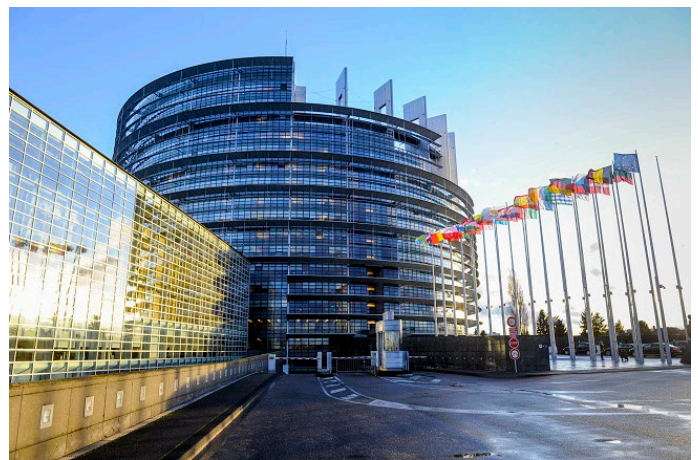
EU Residents Aware of Roaming Changes, but Majority Still Restrict Usage

A large majority of EU residents are aware of the end to roaming charges since June 15 and many are using their phones more abroad as a result, according to the first survey by Eurostat since 'roam like at home' started. The survey conducted at the end of August across all 28 EU states found that 71 percent of people are aware of the end to roaming charges, rising to 86 percent of those who have traveled to another EU country since June 15. However, a majority who traveled in the EU since June 15 are still restricting their usage in some way. Many are using their phones more abroad as a result, especially for data services. Over three in ten (31%) said they used mobile internet as much abroad as at home when traveling since June 15. That compares to only 15 percent of those who traveled in the EU in before the changes took effect. The share who don't use mobile data abroad fell to 21 percent from 42 percent. More than twice as many also made calls abroad, at 24 percent versus 11 percent. Nevertheless, a majority are still restricting their mobile usage when traveling. Sixty percent of those who traveled after June 15 said they made an effort to either turn off the phone or data roaming or buy an alternative Sim card or roaming package. That compares to 66 percent of those who traveled before June 15.

Australian Regulator not to Declare Domestic Mobile Roaming

The Australian Competition and Consumer Commission (ACCC) has decided not to make domestic mobile roaming mandatory for operators. However, the ACCC has announced that it has identified a range of regulatory and policy measures that could improve inadequate mobile phone coverage and poor quality of service in regional Australia.

PTA to Reduce Wholesale Termination Tariffs from January 1, 2018

Iceland's Post and Telecom Administration (PTA) has sent a draft decision on wholesale tariffs for mobile and fixed call termination for approval to the EFTA Surveillance Authority (ESA). Under the decision, mobile termination rates (MTRs) in the country will drop to ISK0.97 (USD0.009) per minute excluding VAT, while fixed termination rates (FTRs) will be capped at ISK0.11 per minute. The draft decision is set to come in effect from January 1, 2018. TeleGeography notes that mobile operators currently charge ISK1.23 for mobile voice termination over their networks, while fixed providers can charge ISK0.14 (in effect until December 31, 2017). Call origination in Siminn's fixed network, meanwhile, is capped at ISK0.50.

TECHNOLOGY NEWS

Tele2 Latvia Rolls Out First '5G-Ready' Base Stations

Swedish-owned mobile operator Tele2 Latvia has deployed its first '5G-ready' base stations, in Ziepniekkalns and Talsi, whilst a third site is set to be installed in Valmiera by the end of the year. The base stations use Nokia's AirScale Radio Access technology and will help the cellco achieve its goal of offering theoretical peak download speeds of 1Gbps over current 4G technologies, and potential throughput of up to 10Gbps with the launch of 5G, the cellco said in a press release. Commenting on the development, Tele2 Chairman Valdis Vancovich was quoted as saying: 'While major players in the telecom market are still presenting the first technologies, software and devices for providing 5G and perception, we are already beginning to adopt them … Already, by preparing the infrastructure for the 5G network, our customers will be among the first in the world to enjoy the cloud-based mobile network and the internet.'

Vodafone Unveils 1Gbps Mobile Speeds in Main German Cities

Vodafone Germany has begun offering mobile data speeds of 1Gbps to customers with compatible smartphones in two major cities. The UK-based company has unveiled its first gigabit-capable handset, the Huawei Mate 10 Pro, and has activated its first gigabit base stations in Dusseldorf and Berlin, with Hamburg and Hanover to follow shortly. Since May, Vodafone Germany has offered mobile data speeds of up to 500Mbps over its LTE-A network by using tri-carrier aggregation (3C) technology in the 800MHz, 1800MHz and 2600MHz frequency bands, and today 20 cities are able to access the speeds. In addition, Vodafone has also started deploying fiber-optic networks in commercial areas of Dusseldorf, enabling local businesses to access speeds of up to 1Gbps. The rollout, carried out in partnership with Deutsche Glasfaser Business and the city of Dusseldorf, follows the announcement last month of Vodafone Germany's three-pillared 'Gigabit Offensive' campaign, part of which will see up to 100,000 companies in around 2,000 business parks provided with gigabit fiber broadband speeds.

LG U+ Completes 5G Urban Field Test with Huawei

South Korean operator LG U+ and Huawei have completed the first phase of their 5G intensive urban field test. This 5G field test was designed as commercial-oriented and realized by a 5G network with 5G gNodeB, Ng Core and a 5G mobile bearer network. The test content covered coverage and capacity tests under the 5G target frequency band millimeter wave 28GHz.

Dell Unveils New USD 1 Billion IoT Division

Dell Technologies has announced a new Internet of Things (IoT) division designed to integrate existing products and tools across the company and develop new Internet-connected devices and software. To that end, the company revealed plans to spend USD 1 billion on IoT-focused research and development over the next three years. The new division will be led by VMware CTO Ray O'Farrell, and is tasked with orchestrating the development of IoT products and services across the Dell Technologies family, including units such as units such as Dell EMC, VMware, RSA and Pivotal.

Telia Finland Snags 5G Test Concession

Telia Finland has been granted a license to test 5G services in the cities of Helsinki, Espoo and Vantaa, the Finnish Communications Regulatory Authority (FICORA) has revealed. In a press release, the regulator confirmed that the concession issued to Telia covers three spectrum bands, namely 3.5GHz, 26GHz and 28GHz. As previously reported by CommsUpdate, in March 2017 the FICORA revealed it would support experimentation and testing by flexibly issuing radio licenses for 5G trials. As per the regulator's strategy it is issuing short term concessions for tests, research and trials of systems based on 5G radio technologies, with license periods ranging from just a few days to years. With the European Commission (EC) having identified the 3.4GHz-3.8GHz and the 24GHz-27GHz bands, among others, as 5G pioneer bands in Europe, for regional 5G testing the FICORA is making available blocks of up to 100MHz in the former band (until the end of 2018), and up to 1,000MHz in the latter band, allowing high connection speeds and short latencies. Alongside these specific allocations, the regulator is also offering licenses for 5G testing in other frequency bands, with frequency needs 'considered separately for each case and test environment'.

Qualcomm Achieves 5G Data Connection with First Modem Chipset

Qualcomm has claimed an industry first, with a successful 5G data connection on a 5G modem chipset for mobile devices. The Qualcomm Snapdragon X50 5G modem chipset delivered gigabit speeds and a data connection in the 28GHz mmWave radio frequency band. Additionally, Qualcomm previewed its first 5G smartphone reference design for the testing and optimization of power and form-factor constraints for the next generation of smartphone.

Telia Claims European First with Live 5G Trials

Telia said it aims "to be the first in the world to bring 5G to partners and clients", after claiming a European first with two trials showcasing the technology on a live, pre-commercial, public 5G network in Tallinn, Estonia. In a press briefing Telia, alongside partners Ericsson and Intel, revealed it had provided a "high-speed 5G connection" via Wi-Fi to passengers on a commercial cruise ship, as well as displaying an industrial use case on a construction excavator (pictured) which it was able to remotely control via augmented reality (AR). The trials follow another European first claimed by the Telia and Ericsson partnership, when the companies completed an outdoor test on a live pre-standard 5G network in Kista, Sweden in October 2016. Both companies have spoken of their ambitions to bring 5G to customers in Stockholm and Tallinn in 2018. During the briefing, Telia Estonia's CTO Kirke Saar said the company remained confident of meeting its goals, while stating the Nordics and Baltics were best positioned to benefit from 5G because "they are the most digitalized regions in the world". "Showing capabilities for those markets is absolutely vital," she said. Saar also explained why Estonia, in particular, was chosen to complete the live network trial, and the value of showcasing a "real life 5G environment". "Estonia is a small site, but on the other hand, it has a very innovative mindset and that makes it the perfect place to test and launch new technologies." "Deploying these early 5G solutions is equally vital because it enables us to show how the various technologies integrate into different types of areas and in which type of environments it performs best," she said. Revealing more details on the two use cases, Telia said the ship trial was conducted in partnership with Tallink, an Estonian shipping company. Completed in September 2017 the trial, through a 5G-like connection, enabled Wi-Fi usage for 2,000 passengers on a ship while it was still docked in the harbor. Meanwhile, the second trial showcased the potential value for the industrial sector, which is a widely touted benefit of 5G. Conducted during an EU Digital Summit in Tallinn on September 28, participants were able to experience remote control of machinery. In this case, an industrial excavator was operated using an AR remote control over a connection with low latency. "This highlights the capabilities and opportunities 5G will bring to harsh or dangerous industrial settings," Telia stated. Sweden-based vendor Ericsson provided a pre-commercial 5G base station for the trial, while Intel used its 5G Mobile Trial Platform to provide millimeter wave connectivity. Per Narvinger, head of customer unit, northern and central Europe at Ericsson, added the vendor was working with 36 operators globally on 5G, and trials such as these provided "valuable input" on its work in developing the technology.

Ericsson Finds Increased Urgency in Operator 5G Moves

Operators have accelerated their 5G preparations over the past year and are now much further along in addressing the technical challenges of the technology, according to a new Ericsson study. The Sweden-based vendor's latest 5G Readiness survey, which is based on responses by 50 executives from 37 operators around the world, indicated 78 per cent were now involved with trialing the technology. This is more than double the figure for the same question in the 2016 edition of the survey (32 per cent) and was one of many statistics indicating operators have moved forward on 5G with "increased urgency" in 2017. Ericsson found only 2 per cent of respondents are now involved in the early preparation of 5G compared with 34 per cent in 2016, while 14 per cent are still engaging with initial planning (22 per cent in 2016). Both figures are unsurprising given the number of companies already involved in trials. Roughly 33 per cent of respondents did, however, confess to waiting on other operators' implementation before engaging in their own rollouts. But, highlighting the increasing readiness of the industry, 28 per cent said they expect to deploy 5G solutions in 2018, an increase of 10 per cent over 2016 when only 18 per cent said they would deploy in 2018. In addition to providing an insight into a company's 5G activities and

development, the study also looked into evolving business strategies, potential use cases and ways operators expect to monetize the technology. With regards to business strategy, respondents indicated they are now looking beyond the consumer market, which is becoming increasing saturated, and planning for 5G is becoming more targeted at specialized industries. As a result, the latest results for this segment of the survey presented a more even split compared with 2016: 58 per cent said 5G planning was focused on industry segments, 56 per cent cited

business users as the target, while consumers made up 52 per cent. In 2016, 90 per cent said they were focused on consumers and just 34 per cent put specialized industry segments in their planning. When it comes to monetising 5G, 64 per cent of respondents agreed raising rates for consumers would not cut it, as they "are simply tapped out". Instead, the industry will need to find new revenue sharing models for 5G, while IoT was also tipped to play a major role in finding revenue by 86 per cent of respondents.
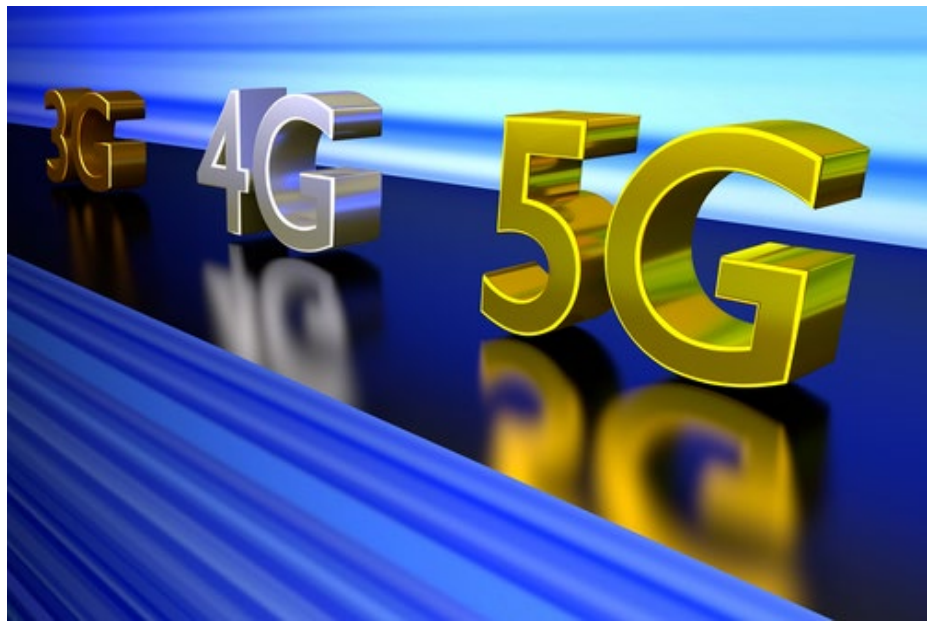
OCO InfoComm Unveils MU-MIMO 802.11ac Wave 2 Wi-Fi as a Service

PR Newswire writes that Singapore-based managed IT service provider and system integrator OCO InfoComm, which was founded in 2015 to help customers in the SME and distributed enterprises segments, is launching a new service targeting the growing demand of cloud-

managed Wi-Fi: Wi-Fi as a Service (WaaS). The new service uses downlink multi-user MIMO (MU-MIMO) 802.11ac wireless LAN technology that represents a significant performance increase over its highly successful predecessor, 802.11n, with maximum throughput of

1.52Gbps-2.26Gbps. It is understood that OCO InfoComm's new WaaS is supported by global network security provider WatchGuard's cloud-managed Wi-Fi Access Points product.

MTN Irancell Carries Out 5G Network Test

Iran's second largest mobile operator by subscribers, MTN Irancell, has conducted its first full network tests of 5G technology in conjunction with Ericsson. Trials of a complete end-to-end network consisting of 5G radio and core network equipment

were carried out last week in Tehran, the telco has announced. It added that it will be cooperating with the Ministry of Information and Communication Technology (MICT) as the regulatory authorities define the standards for the

introduction of 5G in Iran. Irancell claims to be the country's largest mobile data provider, with 30 million active data subscribers, including some 8.7 million 4G LTE and LTE-Advanced (LTE-A) users.

South Africa's First 5G Network to Go Live in November

South Africa's telecommunications company Comsol, backed by Nedbank, the Industrial Development Corporation and Andile Ngcaba's Convergence Partners, will launch the first 5G network in South Africa in November, reports Techcentral. The company will launch a trial 5G network, with live customers, in partnership with internet service providers with a view to launching a commercial 5G network thereafter.

Vodafone Claims 20Gbps Speeds in Portugal's First '5G' Test

Vodafone Portugal has successfully achieved downlink transmission speeds of up to 20Gbps in a '5G' trial carried out in association with Swedish vendor Ericsson. The demonstration took place at Vodafone's headquarters in Lisbon, and utilized multi-user MIMO technology alongside beamforming, a signal processing technique that directs signals from multiple antennas towards where mobile customers are situated. In addition, the cellco staged a parallel '4.5G' trial, which yielded download speeds of 1Gbps. According to TeleGeography's GlobalComms Database, Vodafone is Portugal's second largest mobile operator by subscribers, claiming a 30% market share as of June 30, 2017, behind PT Portugal (41%), but ahead of Nos (29%).

The future is exciting. Ready?

European Telcos 'Ready' for 5G, but Financial Questions Remain

European telecoms operators are pushing ahead with preparations for fifth-generation mobile services, with some even claiming to be ready to go, but there are some thorny issues regarding the monetization of 5G, and the generations that went before it, to be tackled first. "We are ready for 5G," Alexandre Fonseca, chief technology officer at Portugal Telecom, declared at the opening session of Total Telecom's Connected Europe event in Lisbon on Wednesday. Fonseca was referring in no small part to the telco's extensive fiber rollout, which began in earnest two years ago. "Over 95% of our mobile base stations are fiber-connected," he said. However, there is more to rolling out 5G than building infrastructure and as businesses, telecoms operators have a number of non-technical issues to overcome before the move to 5G will be possible. "We have some doubts," when it comes to the European Commission's targets on 5G, Fonseca admitted. Amongst other things, the Commission has decreed that each member state should have 5G commercially available in at least one major city by 2020, with a view to reaching uninterrupted 5G coverage in urban areas and on major roads and railways. "We still need to amortize 4G investments," Fonseca said. "And we have some doubts regarding what the monetization of the spectrum will be, and how the spectrum will be allocated, distributed, and eventually commercialized, between states and operators," he said. "It's not a technology issue." Fonseca's peers in the industry for the most part agreed with him. "The targets are ambitious, [but] they are possible," said Alison Kirkby, CEO of Tele2. However, Kirkby noted that she speaks from experience of markets like Sweden and the Baltics, where fiber penetration is high and Tele2, a mobile-only player, has access to fiber to connect base stations. Markets like the U.K., France and Germany are "going to have a tougher time," she said. "We're preparing for 5G," Kirkby said. However, "the monetization use cases that will justify these significant investments ahead are as yet unclear," she admitted. Meanwhile, for Spain's Telefonica, the important thing is for industry stakeholders to adjust their thinking when it comes to 5G. "It is impossible to think in 4G parameters," said Enrique Blanco Nadales, global CTO at Telefonica. "5G is not only antennas. It is not only massive MIMO and it is not only 256-QAM. It is not only 3.5 GHz TDD or FDD," he said. "We can reach this with the 4G capabilities," he said. "5G is much more than this." Blanco talked up Telefonica's moves towards the cloudification of the network, the deployment of massive edge computing capabilities, and hosting services close to the customers. "The main problem we need to solve is about the density of the IoT devices," he said. In the 4G world it is possible to support 55,000 IoT sensors per square kilometer, but with 5G the market is looking at 1 million IoT devices in the same area. As it stands, Telefonica has around 150,000 mobile base stations, but with 5G this could be multiplied by 10, to give 1.5 million active antennas, he said. "This is going to happen, but it's not going to happen tomorrow." This densification of the network will have a marked impact on the European telecoms landscape. Having four independent mobile networks per market in Europe "won't make sense," Tele2's Kirkby said. Cloud technologies, network-sharing, "and most probably further consolidation," will be prerequisites of 5G, she predicted.

3GPP Delays 5G Study Items to Hit December Deadline

Mobile standards body 3GPP placed a number of 5G New Radio (NR) study items on hold as it works to hit a December deadline to release non-standalone specifications. In a webcast earlier this week, 3GPP RAN chairman Balazs Bertenyi explained study items on non-orthogonal multiple access, unlicensed spectrum for NR, non-terrestrial network channel modelling, enhanced vehicle to everything (eV2X) evaluation methodology, and integrated access and backhaul will remain on hold until December so 3GPP can finish its work on the non-standalone enhanced mobile broadband standards. Unlike standalone 5G NR, which calls for full 5G user and control plane capabilities, the non-standalone setup will allow operators to add a new 5G carrier on top of their existing LTE radio and core networks.

The non-standalone specifications are set to be released in December and finalized by March 2018 per an accelerated 5G NR standards timeline outlined earlier this year. "We have already committed ourselves to doing some NR-related study items for the next wave of NR specifications in Release 16, but given the challenges we have to finish Release 15 on time, we are going to put the study items on hold," Bertenyi said. Bertenyi said 3GPP plans to make up for lost time on the paused items in the first half of 2018. The accelerated release schedule will allow for widespread non-standalone 5G deployments from operators as soon as early 2019. AT&T set the bar even higher, aiming to begin deployments in late 2018. Verizon is also targeting commercial 5G launches in 2018.

Qualcomm Confident on Early 2019 5G Launch

Qualcomm Technologies EVP Cristiano Amon said he believes "without a doubt" 5G can be a commercial reality as soon as early 2019. Though the industry was early on looking at a timeframe of 2020 to 2021 for commercial 5G launches, Amon said a confluence of factors brought the timeline forward substantially. He pointed to the acceleration of 3GPP's 5G standards program and moves by regulators around the world to free up sub-6GHz and millimeter wave spectrum as key elements in this shift. Qualcomm also sped up its own work to develop the 5G-capable X50 chipset. Though some have expressed skepticism about the ability to fit 5G technology in a smartphone form factor, Amon said a prototype device Qualcomm debuted at MWC Americas earlier this month (operating in millimeter wave spectrum bands above 24GHz) proves it's possible. Amon also noted operators around the world are engaging in field trials throughout this year and into 2018 to test 5G network equipment. "This is all leading to having the industry maturity to start launching commercial services in the beginning of '19 — that's a full year acceleration," Amon said. "Maybe that's going to be a key event at MWC 2019, you know, commercial flagship smartphones with 5G technology."

T-Mobile Netherlands Switches on Massive MIMO Antenna

T-Mobile Netherlands has activated a Massive MIMO base station installed at the Leidseplein square in Amsterdam, a development which it called a 'major step towards a 5G network', providing '600% network capacity improvement

across a large number of users' via a single frequency band and single antenna during its trial operation through September in partnership with Huawei. With its existing LTE-Advanced (LTE-A) network T-Mobile covers the same area 'with at least three to four' frequency bands and associated antennas. The compact Massive MIMO antenna has 64 small reception and 64 transmitter sensors to send and receive different data streams using a single 20MHz frequency block in the 2600MHz range using TD-LTE technology. A single antenna thus provides a network capacity of 600Mbps (without 256QAM modulation technology), where a regular TD-LTE antenna delivers around 100Mbps capacity. During the Leidseplein tests simultaneous downlink rates of more than 35Mbps per device (smartphones from Apple, Huawei and Samsung) among 16 test subjects were recorded via the single antenna. All users in and around the square can make use of both the existing network and the Massive MIMO antenna from this week onwards. The cellco's release adds that Massive MIMO technology will form part of a 4.5G LTE-A Pro commercial network, with a series of different technology tests and launches scheduled for this autumn with Huawei.

Samsung, SK Telecom Establish Communications between 4G, 5G Networks

Samsung Electronics and SK Telecom have demonstrated communication between 4G and 5G networks. Samsung and SK Telecom successfully established communications between the LTE network that uses 2.6 GHz frequency band, with the 5G network that uses the 28 GHz and 3.5 GHz frequency band. Samsung said the communication was made without any disruptions, enabling clear streaming between the two networks. The company said the technology will allow 4G and 5G users to communicate even without nationwide 5G network infrastructure. "Along with the 5G network's 3.5 GHz frequency band that provides a wider coverage, and the 28 GHz frequency band that enables ultrahigh-speed transmission, the connection with the 4G network will help users enjoy the best communications services anywhere without disruptions", SK Telecom said.

Ericsson, Intel Trial 5G Interoperability in Beijing

Sweden-based equipment vendor Ericsson and US-headquartered chipmaker Intel completed an end-to-end interoperability test on the 3.5GHz band as part of China's pre-standard 5G trials. The multi-vendor field trials in Beijing used Ericsson's 5G radio test bed and Intel's 5G client test platform. The radio prototype used 5G candidate technology, including massive MIMO, multi-user MIMO and beamforming. China's three major mobile operators already announced plans to roll out 5G in the 3.5GHz band. The 5G technology R&D test on the 3.5GHz band is being led by China's Ministry of Industry and Information Technology (MIIT). With the completion of the first over the air interface of interoperability verification, MIIT is now one step closer to making 5G on the 3.5GHz band a reality in China, Ericsson said in a statement. Mobile operators in China are in the second of a multi-phase testing period for 5G networks which runs until 2019. All three operators plan to launch 5G commercially in 2020.

India Targets Leading Role in 5G Development

The Indian government set up a "high-level forum" to devise a roadmap to deploy 5G technology by 2020 and established an INR5 billion (USD76 million) pot to fund research and development. Media reports quoted communications minister Manoj Sinha as saying: "We can't be behind in 5G", and the forum will help ensure "India, too, will be successful in launching 5G by 2020." Such efforts are to be lauded, but come at a time when (according to GSMA Intelligence) 2G networks still dominate the market. The analyst house claims that second generation networks make up 71 per cent of India's total connections base, while 3G accounts for 16 per cent and 4G just 13 per cent. The main goals of the new forum include achieving early deployment of 5G, which in turn will help digitize the economy, increase GDP and create employment. Sinha said India is open to collaborating with other countries and doesn't want to miss out on the opportunity of setting standards like it did with 3G and 4G. Meanwhile a senior official said the government plans to leverage 5G to deploy next-generation broadband infrastructure: "through which we will aim to have 100 per cent coverage of 10 GB/s broadband across urban India and 1 GB/s across rural India". The investment pot will be available to the telecom, electronics and IT, and science and technology ministries. The forum itself will comprise secretaries of these ministries, the Telecom Standard Development Society India, stakeholders from industry associations and academics from various universities. Operators in India have been working towards 5G. Earlier this month, India's largest mobile operator Bharti Airtel entered into a strategic partnership with SK Telecom to develop standards for the technology.

IPX Is Not Dead, but It Needs a Makeover

Carriers need to stop treating IPX as a service in its own right and instead focus on the needs of their customers and customers' customers. Low adoption among retail telcos does not mean that there is no future for IPX, but the technology must reinvent itself, according to key industry stakeholders. "Most carriers are IPX-ready," said Philippe Millet, chair of the i3forum and head of technical strategy at Orange Labs Network, speaking at Carriers World in London on Wednesday. However, mobile network operators have largely not embraced IPX, which raises questions over the technology's future. When it comes to IPX, "supply exceeds the demand," agreed Christian Michaud, SVP of usage based services, voice and mobility at Tata Communications. "It's a challenge for the industry," he said. But, "is it dead? No," he assured attendees at the event. According to Michaud, the industry needs to reframe the discussion around IPX and potentially rebrand and reposition the technology. IPX is "definitely not a service on its own… [or] a pure technology play…For me, it's an enabler," Michaud said. "Operators are still going towards a multi-service environment" and IPX needs to evolve to

support that environment, he said. But, "I don't know if it's going to be called IPX." Key to the future of IPX – the wholesale industry in general – is looking beyond the operator customer. "We cannot think that what we are serving is the service provider, the operator," Michaud said. Carriers need to consider the needs of the end user, either in the consumer space or enterprise. Isabelle Paradis, CEO of consultancy Hot Telecom, heartily agrees. "These are your customers," she told the carriers, showing an image of multiple consumer faces. "You have to enable the operator to serve the end user," she said. "Wholesale is the new retail." For the operator customers to adopt IPX they have to see the business benefit, but currently there are few real drivers. Voice over LTE (VoLTE) has long been touted as the silver bullet for IPX, but as it stands, operators are not prioritizing the international VoLTE interconnections that would require IPX. "There's no increase in revenues and there's not a huge cost saving," said Kees Hol, business strategist at iBasis. As such, "building IP interconnection for voice is a low priority." Legacy TDM works well, said Hol. In fact, "it's more or less perfect." Conversely, there are still issues with IPX that need

to be ironed out. There is no ringback tone, for example, he said. Ultimately, "VoLTE is a driver," Hol believes, as telcos gradually migrate to IP. But "how long it will take, no one can say," he said. "I hope it doesn't go in the same direction as RCS" he said, referring to the GSMA-backed initiative to enable operators to launch messaging services and apps that was effectively rendered obsolete by over-the-top (OTT) players such as WhatsApp and Facebook Messenger. Indeed, WhatsApp could easily overtake VoLTE roaming, warned Hol, since it allows users to make international calls. "The quality is perfect," he said, provided the user has a strong cellular or WiFi connection. "There's no monetization of IPX," Tata Communications' Michaud agreed. What matters is the business model of the service the operator wants to put on it. As carriers, "maybe we've been wrong…to put the IPX agenda so high in our discussions" with operators said Michaud. "For them it doesn't mean anything." Carriers need to refocus their discussions around what the customer actually needs, he added. "The market is asking for something much larger," he said. "IPX is a piece of the solution."

Orange, Ericsson Trial '5G' in Madrid Using 28GHz Band

Orange Espana has announced that it has achieved downlink transmission speeds of up to 15Gbps in a Madrid-based trial of 5G technology, conducted in association

with Swedish vendor Ericsson. According to El Economista, the tests utilized a block of 28GHz spectrum issued by the government, and included MIMO

functionality, alongside beamforming, a signal processing technique that directs signals from multiple antennas towards where mobile customers are situated.

REGULATORY NEWS

GSMA Maintains Pressure over EU Regulation Reform

Industry group GSMA argued recent pressure to maintain the original terms of a key piece of EU legislation is about more than boosting mobile operators' balance sheets. Mats Granryd, Director General of the association, said proposed changes to the European Electronic Communication Code risk jeopardizing the broader long-term societal and economic benefits it was designed to deliver. In an open letter to European Council leaders, Granryd said maintaining the original targets of the code would enable the region to regain a position as a technology leader in terms of 5G deployments: something Granryd previously said Europe had lost in the 4G era. The telecoms industry is not seeing "action focused on delivering tangible results," despite EU calls to establish a Gigabit Society and ambitions of heads of state to "recapture the region's

digital leadership," Granryd wrote. He urged "all European institutions to maintain pressure to reform the telecom framework"; a reference to European Parliament calls to amend some of the key proposals of the code. Left unchanged, the code "represents a unique opportunity to move away from long antiquated views of the digital market, and finally set out a forward-looking policy that will enable the European Union to again be seen as a center of technological innovation," Granryd said. The Director General said European leaders must stay the course on key elements including increasing the term of spectrum licenses to a minimum of 25 years, "a proven way to attract more ongoing investment in next generation infrastructure", and reforming spectrum management: an apparent reference to proposals to harmonize spectrum

allocations throughout the region. Granryd issued his call to ministers ahead of a meeting of the European Council's Transport, Telecommunications and Energy Ministers on 24 October. The letter comes three days after the heads of 30 operators and equipment vendors argued the industry would be better off sticking with current regulations than accepting the European Parliaments' amendments. Those changes include increasing the power of national regulators, amid concerns over the power wielded by large companies (so-called oligopolies) in Europe. The European Commission first outlined its proposals to overhaul existing telecoms rules in 2016 as it sought to ensure adequate funding for development of 5G technology. Negotiations regarding the code are expected to continue into early 2018.

Spectrum Battles: Utilities Oppose Expanded Use of 6 GHz Band

Expanded use of mid-band spectrum by new wireless broadband services could interfere with critical utility networks used to operate the nation's electricity grid, according to the Utilities Technology Council. In a response to a Federal Communications Commission (FCC) Notice of Inquiry (NOI), the UTC said allowing these services into the 6 GHz spectrum bands might also inhibit the use of smart electricity technologies that could revolutionize how consumers use and consume power. UTC represents electricity, water, and gas utilities that own and operate their own telecommunications systems. Utilities rely on their networks so they can update, modernize, repair, and restore their services that provide essential energy and water resources. The Edison Electric Institute joined in the comments as well. The FCC is inquiring whether it should expand use of the 5.925-6.425 and 6.425-7.125 bands — collectively referred to as the 6 GHz bands — to new entrants and devices. The inquiry comes after several of the agency's bureaus in January granted a waiver permitting the operation of 50,000 satellite Earth stations by a company called Higher Ground. In its comments on the 6 GHz inquiry, UTC noted that electric and water utilities, along with pipelines and other critical infrastructure providers, use the 6 GHz microwave systems to support voice and data communications in their service territories. These industries use this band when safety personnel are updating, modernizing, repairing, and restoring their infrastructure. "The critical nature of the traffic carried over these networks must be underscored,"

the comments said. "These microwave systems serve as the primary telecommunications backbone for utility networks, and carry numerous applications as services." Energy and water

providers have few alternatives to operating in the 6 GHz band, the groups said. This is particularly critical as utilities deploy new technologies that will offer more interaction with their customers. "In order to support increasing demand from smart grid and other applications, utilities need to be able to expand capacity in the 6 GHz band by using wider channels, and utilities are concerned that congestion and interference from new entrants would make it more difficult for utilities to increase capacity of their existing system," UTC commented.

China Blocking Bogus Overseas Phone Numbers

China's industry and technology regulator said that it would intercept any overseas phone calls using a number that is the same as one used by the public security and procuratorial offices, by the end of the year, to increase its efforts to combat telecommunication fraud. The Ministry of Industry and Information Technology (MIIT) told the news website thepaper.cn that some wrongdoers had been copying the numbers of government organizations to carry out fraud over the phone, and to get tough on these illegal activities, it will come up with measures to block those phone numbers "to ensure people's privacy and security." The Ministry has broadened its surveillance and interception system and has intercepted 116 million fraudulent

overseas calls since it started in March, which protected 22,000 potential victims and saved up to 98 million yuan (USD 14.79 million) in possible losses. In addition to its surveillance and intercept activities, the ministry said that it used texts and other means to warn people about the scams and it has cooperated with other government bodies, including the Ministry of Public Security (MPS), in cracking down on telecommunications fraud and raising public awareness. "Intercepting overseas numbers does not present any real technical difficulties for the government since it only requires the establishment of a pool of applicable numbers," Xiang Ligang, CEO of cctime. com, a Chinese telecom portal, told the Global Times. The government has said

it is giving priority to the telecom fraud crackdown and has done a great deal in that area, ever since the Xu Yuyu case, which shocked society in 2016, according to Xiang. Xu, who had been accepted by the Nanjing University of Posts and Telecommunications, was told by an anonymous person that she could get a (non-existent) scholarship if she would send 9,900 yuan, money she had set aside for tuition, to a third party. When she discovered the truth of the scam she suffered a cardiac and respiratory arrest and died in August 2016. In response, the MPS instituted a special action to fight against telecom fraud that same year, with more than 88,000 suspects being identified by last August, the Xinhua News Agency reported on September 3.

India Set for Infrastructure Shake-Up

A consortium led by US private equity company KKR is looking at several big deals which would change the shape of India's telecoms infrastructure market, The Economic Times (ET) reported. US-based KKR is heading a consortium comprising Canada Pension Plan Investment Board (CPPIB), Abu Dhabi Investment Authority and GIC Singapore. According to the paper, in the first stage

Bharti Infratel will acquire either all, or most, of the 58 per cent stake in Indus Towers it does not currently own. This is currently held by Vodafone India, Idea Cellular and Providence Equity Partners, and Vodafone may retain a stake of up to 10 per cent. Indus has a portfolio of 123,000 towers. Bharti Infratel's move would cost in the region of USD5.5 billion to USD6.5 billion and be conducted as

"a leveraged buyout that will largely be funded out of the reserves and cash flow of Indus Towers", a source told ET. Once this happens, the KKR-led consortium will increase its interest in Bharti Infratel from 10 per cent currently to around 45 per cent, becoming the single largest shareholder. Bharti Airtel owns 61.65 per cent of Bharti Infratel, while KKR and CPPIB have a 10.33 per cent stake after a USD954 million investment made earlier this year. The talks reportedly started 15 months ago, and have become serious in the past few weeks. A deal could be signed by end of October or in early November. Vodafone is apparently acting for all of the potential Indus sellers. Bharti Group chairman Sunil Mittal has been leading the discussions with Vodafone Group CEO Vittorio Colao and KKR executives, the report said. The consortium is in talks with global banks regarding financing and plans to approach the necessary regulators. It faces competition from Canada's Brookfield, which is also pursuing Indus Towers after a tower deal with Reliance Communications is now on uncertain ground.

Bangladesh Government Plans Rebate on Fees for 4G Spectrum Conversion

It may also ease the condition that binds operators to keep call records for 12 years in the 4G telecom policy, State Minister for Post and Telecommunication Tarana Halim has indicated. The issues after discussing those at a meeting at the Posts and Telecommunications Division. Prime Minister's ICT Affairs Adviser Sajeeb Wazed Joy, among others, attended the meeting. Tarana said the operators have raised 24 concerns over 4G. "These include some small issues that can be resolved through explanation. BTRC has provided the explanations to the telecoms division and we will forward those for the prime minister's approval," she said. "They have asked that some issues be revisited. Two big issues are spectrum's tech neutrality conversion fee and 12-year period to keep CDR (call detail record). We will consider the CDR period issue after discussing it with the law enforcers," Tarana said. She said the BTRC will provide a solution to the conversion fee issue after discussing

it with the operators. "This will be acceptable to the operators and the government will also benefit from it." The Prime Minister's Office approved the guidelines for spectrum allocation and 4G licensing last month with a fee of USD7.5 million for conversion of 1MHz spectrum. A top BTRC official, requesting anonymity, said the meeting discussed whether the fee can be kept between USD3 million and USD5 million. The state minister also said the operators' 'small issues' on the 4G guideline were settled. "These will be added after discussions with the BTRC and the law-enforcing agencies." "For example," she said, "The operators raised the issue of taking permission to use their CSR funds. We've told them they will need to only inform the BTRC about using the CSR funds; no permission is needed prior to using the funds." She added that there will be no concession on 4G rollout obligation and speed. "The BTRC has been asked to fix specific standards. The prime minister's adviser also asked

not to compromise on these two issues," she said. "The operators won't be able to compromise on the internet speed and quality. We are thinking about cutting fees for conversion of spectrum to technology neutral system if necessary; so that the operators can't say they don't have the spectrum to provide quality service. "They will be able to convert to any technology if they get tech neutrality. That's why we want all the operators to convert the spectrum to tech neutrality." Tarana said the government targets to launch 4G within December this year. "We've fulfilled all our promises. There might have been one or two months of delay." She added the launch of mobile number portability or MNP is only a 'matter of time' now. The state minister also said the government would not take any decision that may raise prices of mobile phone services. "The prime minister's adviser agreed. We want this sector to grow without any hindrance," she said.

DT, Orange Slam "Punishing" European Regulation

The CEOs of Deutsche Telekom and Orange said Europe must cut regulation to give the industry any chance of meeting the digitalization and 5G goals being pushed forward by the European Commission (EC). Speaking at an event hosted by ETNO and Financial Times on the state of the industry, Deutsche Telekom CEO Tim Hottges warned without a "new deal" the continent's operators would be unable to stop a decline experienced over the last 20 years and will "not have the muscles to make the investments [the EC] is talking about." In support, Orange CEO Stephane Richard said European regulation is limiting the outlook for operators in the region compared with those in the US. "There is a very basic difference between the US and Europe. In Europe, the regulatory framework is meant to promote investment, in the US the framework is to promote profitable investment – that's it." "It is a political difference very heavy in consequences," he said. Hottges and Richard's comments followed a presentation by Mariya Gabriel, EC commissioner for the Digital Economy and Society, praising the work

already completed towards the digital single market and highlighting the need for further investment to keep pace with international rivals. "The rest of the world is moving faster. Some countries are willing to take the lead and will not wait for us, as illustrated in 5G trials taking place in US and also in Australia and Asia. We risk lagging behind," she said. Gabriel added the EC's priority was: "to invert the investment trend that has characterized Europe for too many years and catch-up with today's leading countries". The commissioner estimated €500 billion investment in high capacity networks would be needed. In response, Hottges quoted recent ETNO figures stating the European telecoms industry loses €100 million per day to digital "disruptors" in the US and Asia. "The regulatory environment has been a disadvantage for European companies and investors are voting with their feet," he said, pointing to differences in attitudes to the operator's T-Mobile business in the US and its European brands. "In the US, our customers love our streaming service Binge On, and customers in Germany love

our streaming StreamOn. So why then, is this [German] service under investigation from the regulators? Same game, same rules." The CEO also questioned why data collected by mobile apps is "less regulated than our data collected by mobile base stations?" Hottges added proposed new rules currently going through the European authorities, including privacy and spectrum reform, risk "punishing, not rewarding" investment. Richard highlighted issues with rules around universal coverage, questioning whether operators should be able to focus efforts on economically viable projects. "Is it a good use of public or private money to have antennas in areas where you only have cows, sheep and a few tourists, but not a real economic demand," he said, adding: "Is it a good use of money to have satellites cover the oceans so we could have the internet of fishes?" "At one point of time, we need to see what is the economic reality [based on] what is the real need of humans and not mountains or forest, and see where we should concentrate our investments."

FCC Declares US Mobile Market "Competitive"

The Federal Communications Commission (FCC) determined the US mobile market is competitive, marking a stark change of tune from years past. Its conclusion was drawn in the 20th Mobile Wireless Competition Report, approved by the FCC's Republican majority despite objections from both of the body's Democratic commissioners. As noted by Garnet Hanley, Chief of the Competition and Infrastructure Policy Division of the FCC's Wireless Telecommunications Bureau, the latest report shifted its focus to examine only competition in the provision of wireless services rather than in the broader mobile ecosystem. In coming to its conclusion, Hanley said the new analysis took into account such factors as rising consumer demand and increased industry output, falling prices, network investments, improved network quality as measured by download speeds, increased spectrum availability, and industry-wide innovation. For instance, the report indicates the mean LTE download speed increased from 14.4Mb/s in the first half of 2014 to 23.5Mb/s in the first half of 2017. The document also cites the return of unlimited data plans as an indicator of "pricing pressure" on US operators. As of the end of 2016, the study found Verizon subscribers accounted for 35 per cent of mobile market share. AT&T was in second place with 32.4 per cent market share, T-Mobile in third with 17.1 per cent and Sprint in

fourth with 14.3 per cent. Together, the top four operators offer service to more than 98 per cent of US subscribers. "The 20th report concludes that competition continues to play an essential role in the mobile wireless marketplace, leading to lower prices, more innovation, and higher quality service for American consumers," Hanley said. The commission's three Republican members praised the report. Chairman Ajit Pai said the document presented "strong, incontrovertible"

evidence of competition in the US market. Commissioner Michael O'Rielly similarly lauded what he deemed the report's "rightful" conclusion, but noted there's still "room for improvement". However, Commissioners Mignon Clyburn and Jessica Rosenworcel objected to the finding on the basis that the report's analysis of the market was incomplete. Clyburn noted that while 5G buzz is rampant on Capitol Hill, millions of citizens remain without access to "reliable

and affordable" 3G service. "This (report) is like a doctor looking at one organ and pronouncing the patient to be as fit as a fiddle," Clyburn said, adding: "I can neither understand nor condone why the majority used a truncated analysis to reach this conclusion." Similarly, Rosenworcel said the report suffered a "fatal flaw" because it never actually defined what "effective competition" entails. "If you add this up, this Commission is making a determination about the state of competition in one of the most vital sectors of the new economy, using a standard that calls to mind Potter Stewart's famous 'I know it when I see it'," she said. "That's not good enough." The decision is also likely to upset groups like the Competitive Carriers Association (CCA), which represents smaller and rural operator interests in the country. CCA long called on the FCC to recognize what it calls a lack of competition in the mobile market. As the competition report was being drafted in May, CCA CEO Steven Berry issued a statement urging the Commission to recognize the "unfortunate reality that many parts of the country do not receive, much less have competitive choice for, mobile wireless service." "The fact-of-the-matter is that competition is not present nationwide and varies significantly by geographic location, and it is high-time the Commission makes a conclusion to that effect," he said at the time.

MTS Turkmenistan Suspends Operations

Russia's MTS Group has announced that it has been 'compelled' to suspend the operations of its subsidiary in Turkmenistan. Confirming the development via a press release, MTS allegedly pointed the finger of blame at local state-owned operator Turkmentelecom, saying the service

suspension was the result of actions by the latter service provider which 'resulted in the disconnection of international and long-distance zonal communication services and internet access'. MTS has said it is continuing to negotiate with the regulatory authorities and state-owned companies in Turkmenistan 'in order to extend permission to use frequencies, as well as other certain resources, necessary to provide telecommunication services'. Notably, it did also use its announcement regarding the development to claim that its license to provide services in the country is valid until 26 July 2018. This is not the first time MTS has run into

trouble in the Central Asian nation; as noted in TeleGeography's GlobalComms Database, MTS Turkmenistan was forced to close its doors back in 2010 after its license was first suspended and then not renewed. It eventually made a return to the market in September 2012, though only after reaching a deal with the Turkmen authorities for a new concession – which gave it both GSM and 3G licenses – under which it would be required to pay Turkmentelecom 30% of its net profits on a monthly basis. It is understood that it is the expiration of this profit-sharing deal that is behind the latest enforced suspension of service.

South African Government Planning to Merge DTPS, ICASA, .zaDNA and USAASA

South Africa's government has revealed a plan to merge the various regulators currently overseeing the telecoms and ICT sectors in the country. Telecoms Minister Siyabonga Cwele said that sector regulation is currently spread across different entities, including the Department of Telecommunications and Postal Services (DTPS), the Independent Communications Authority of South Africa (ICASA), the Domain Name Authority (.zaDNA), and the Universal Service Access Agency (USAASA), which has resulted in 'overlaps, duplication of roles and lack of coordination.' Under the government plans, the new consolidated regulator will be responsible for: regulating the electronic communications sector; internet governance; licensing and regulation of electronic communications networks and services; licensing and regulation of spectrum and other scarce resources; licensing and regulation of postal services; ex-ante competition regulation; protection of consumers; allocation and management of domain names; and establishment and operation of a tribunal to deal with appeals. Further, the DTPS is planning to amend the Electronic Communications Act to provide new policy approaches on infrastructure rollouts and the allocation of scarce resources. The amendment also aims to lower the cost of communications via the establishment of a wireless open access network (WOAN).

Europe Could Learn From India on Spectrum Allocation – Vodafone

Telco highlights fragmented nature of European telecoms market; calls for longer license durations to enable operators to have the confidence to invest in 5G. Given Vodafone's recent tax-related issues in India, it was perhaps surprising when on Wednesday a company executive spoke out in favor of the regulatory regime there, intimating that Europe would do well to follow in the country's footsteps when it comes to spectrum allocation. Speaking at Connected Europe 2017 in Lisbon, Vodafone Group public policy head of spectrum Stephen Pentland gave a resounding "yes" to the question of whether it would be possible to have a single market for spectrum across Europe, although he admitted that most people in the industry do not agree with him. It already happens in markets like the U.S. and India, he noted. "There may be things about those markets we don't like," he said, but they have proven that "you can run multi-state, multi-region, multi-circle auctions covering multiple [spectrum] bands," and populations of half a billion to one and a third billion people, Pentland said. However, there are major obstacles to such a move in Europe. "There are national interests that prevent a single-market approach," he said. Fragmentation is a major threat to European operators as the market moves towards 5G, and even beyond, Pentland said. "5G needs economies of scale," he said. "There are some barriers to economies of scale in Europe at the moment." The continent has a highly fragmented approach to the licensing of spectrum and how to set the terms and conditions on spectrum licenses. Some states see spectrum licensing as a way to "plug a gap in the fiscal budget," while others are more forward-thinking and view it as a way to enable digital companies to create a digital society, Pentland said. The European Commission's new Electronic Communications Code, currently in draft form, contains many articles that could decrease fragmentation and improve investor confidence when it comes to 5G, but Pentland is not hopeful for its chances of success. "We have too many national governments who wish to retain national control of licensing policies," he said. "The Council will kill, I suspect, many of the proposals in the code which could encourage investment." Pentland highlighted a number of articles in the code that cover competition, license fees, coverage obligations and so on, before tackling the issue of license duration, something that is close to the hearts of many European telcos at present. Most licenses in Europe run from 15 to 17 years, he said. "Those billions that we paid for 3G licenses in the early 2000s are thankfully now beginning to expire and come off our balance sheet." However, longer licenses would be advantageous for telcos article 49 of the code suggests 25-year licenses. "That would be great from our point of view. I'd have to take part in these auctions less frequently," Pentland said. In addition, engineers would have longer to invest in and upgrade networks. However, national administrations and the Council believe licenses in excess of 15 years would constrain development, even with safeguards such as annual spectrum fees and spectrum trading in place. "Could we envisage going one step further and thinking about indefinite licenses? That's what the U.K. has,"Pentland said, explaining that once an operator's license term expires in the U.K., it has the chance to convert it to a perpetual annual license, in return for license fees and with the regulator retaining the power to revoke the license in certain circumstances. "It gives operators confidence to invest in the longer term," he said. Although there is still no certainty within in the industry on what 5G will look like, operators will need to look beyond it when planning hefty investments. "There will be something beyond 5G. I don't know whether it's 5G Plus, or Advanced, or 6G," Pentland said. But today's investments will be evolved and replaced in five, 10 or 15 years, he said. "Therefore we need to think again about license renewal," he insisted. At the moment the situation is quite haphazard, with operators refarming 1800-MHz spectrum to 4G from 2G, for example, even though they only have a few years left on their license "Why would you even make that investment?" without some certainty on the renewal process and, of course, the cost, Pentland said.

SUTEL Sets Minimum Speed of 256kbps, Repeals Fair Usage Policy

Costa Rican telecoms watchdog the Superintendency of Telecommunications (SUTEL) has set a minimum connection speed of 256kbps for post-paid mobile customers. The decision follows an order by the Constitutional Court in early September, which stated that allowing cellcos to unilaterally determine data transfer rates under fair use policies – which allow operators to limit a customer's download speed once a set data cap has been exceeded – violated consumers' fundamental rights. As part of the ruling, the court required SUTEL to impose a temporary speed floor within 30 days, with a more permanent base line to

be adopted within four months, once any necessary technical studies had been carried out. In a response to the court this week, however, SUTEL explained that the fair use policy had been repealed on 28 September as the conditions that had prompted the establishment of the policy – a combination of market conditions and the technical limitations of the country's mobile networks – had changed. As such, SUTEL instructed operators to immediately eliminate the fair use policy from their contracts. Explaining its decision to set the floor at 256kbps, SUTEL claimed that its studies showed that the transfer rate was sufficient to guarantee

the operation of mobile applications most used by Costa Ricans. SUTEL will review the rate every two years, or earlier if a technological change requires a revision of the established functional speed.

Russian Entrepreneur Sole Bidder for MegaCom

The Fund for State Property Management under the Government of the Kyrgyz Republic (FGI) has disclosed that a Russian entrepreneur, Elena Nagornaya, submitted the sole bid in an ownership tender for state-owned mobile operator MegaCom, applications for which closed on 25 September. As reported by Kyrgyz news agency Tazabek, FGI deputy head Bakytbek Murataliev told a parliamentary session on 27 September that Ms Nagornaya had agreed to the minimum price of KGS14.45 billion (USD211 million) including a KGS945 million commission fee directly transferable to the state budget. Earlier, the FGI said that Nagornaya proposed to pay the full amount in instalments over five

years, and also apparently agreed to take responsibility for potential future payments arising from pending lawsuits. Former MegaCom stake holding company Penwell (associated with businessman Gleb Ognyannikov) has made an international arbitration claim for USD200 million damages for 'state expropriation' in a case dating back to 2009. The feasibility of the Russian citizen's offer for MegaCom is under scrutiny, however, as Russian news sites claim that Nagornaya – with interests in the food, import/export, construction and energy sectors – has no notable track record in telecoms. Three previous attempts to sell MegaCom (registered as Alfa Telecom) have failed. Bakytbek Murataliev told MPs yesterday

that the state was determined to privatize MegaCom because of difficulties finding adequate funding in the government budget to invest in its networks – which had resulted in the cellco falling behind its private sector rivals in terms of technology/service development. The official stated: 'MegaCom can no longer compete under the law on public procurement. It does not invest in itself and, in addition, the revenue from voice communication is falling all over the world. The new investor should transform it into an internet company, that is, they need large investments in order to work well in the future.'

India Telco Mergers on Track, Executives Say

Consolidation in the Indian mobile market is progressing according to plan, executives from two of the country's operators said this week. Bharti Airtel will close its takeover of Telenor's Indian business by February, the Economic Times quoted an unnamed Telenor executive as saying on Wednesday. When the telcos announced plans to merge in February this year they said the deal would close within a year and are on track to meet

that deadline, the executive explained. Meanwhile, the tie-up between Vodafone India and Idea Cellular will be completed in calendar 2018, Vodafone's CEO Sunil Sood told The Hindu. The merger has various regulatory approvals to win, including needing the green light from the CCI, SEBI, the NCLT and Department of Telecommunications (DoT), Sood said. He added that the company believes all those regulatory processes are on track.

Vodafone and Idea Cellular announced plans to create a USD23.2 billion joint venture of their Indian operations in March this year. Once complete, the merged entity will be India's largest mobile operator by subscribers. According to the latest data from the Telecom Regulatory Authority of India (TRAI), the operators together served 224 million customers at the end of July, a figure that would give them a 34% share of the market.

Tanzania Government to Regulate Social Media

Social media users in Tanzania who break the new law set by the government will be blocked by the Tanzania Communications Regulatory Authority (TCRA). The government drafted regulations for online content producers and users on social media. The TCRA published the draft Electronic and Postal Communications (Online Content) Regulations, 2017, and the bill will come into force once signed by the information minister. The new bill contains strict regulations for online content producers including social media users and bloggers. Offenders will be charged a fine of 5 million Tanzanian Shillings (USD2,300), a minimum of 12 months in jail or both. The users will be held liable for posting content deemed "indecent, obscene, hate speech, extreme violence or material that will offend or incite others, cause annoyance, threaten, or encourage or incite crime, or lead to public disorder, according to the law. Those who publish information that broadly portrays "hate propaganda, threatens national security or sparks a health crisis, racial tension or violence, touching on possible terror attacks" will face punishment… as stated by the regulation. Individual social media users will also be held responsible for the content they share while online service providers "will be required to install user manuals and record proceedings of their business around the clock by installing CCTV cameras in and out of the premises," as revealed by the regulation. For online radio, TV and other digital platforms including bloggers and website managers, "they will

need to apply for registration from TCRA once the regulations officially come into force," according to the regulation. They are also required to ban anonymous users from their platforms and "fully cooperate with law enforcement agencies as required," the regulations said. According to The Citizen, TCRA Director General James Kilaba said the regulations will check immoral use of online and social media content as well as content that can endanger national security.

APC to Recommend License Expansion, Creation of Independent Regulator

The Polynesian Competition Authority (APC) will recommend approving requests to expand the licenses of two of the nation's telecom service providers, but will also suggest alterations to the existing regulatory structure, TNTV writes, citing an unnamed source. Broadband provider Viti and wireless operator Vodafone French Polynesia both submitted applications to the General Directorate for the Digital Economy (DGEN) to expand the remit of their licenses in June this year; Viti is seeking authorization to enter

the mobile market whilst Vodafone is looking to offer fixed broadband services. DGEN referred the matter to the anti-trust watchdog for analysis, the results of which will be presented to the President for consideration shortly. Whilst the APC is expected to recommend issuing the concessions to Viti and Vodafone, the unnamed source claims that the regulator will state that conditions for effective competition in Polynesia's telecoms markets are not in place. Specifically, the APC will highlight: the Office of Post and

Telecommunications' (OPT) monopoly on fixed infrastructure; potential conflicts of interest caused by OPT's role as both operator and regulator; and the disparity in terms of coverage, services and pricing between Tahiti and the more remote archipelagos, where only the state-owned OPT and its mobile division Vini are present. To remedy some of the market's ills, the APC will recommend OPT's regulatory functions be handed over to a new, independent body.

Cote d'Ivoire Cellcos Face QoS Fines

Cote d'Ivoire mobile operators Orange, MTN and Moov have been fined a total of around XOF5 billion (USD9 million) for providing poor quality of service (QoS). The Regulatory Authority for Telecommunications in Cote d'Ivoire (Autorite de Regulation des Telecommunications de Cote d'Ivoire,

ARTCI) completed its audit of QoS for 2016 and found a number of infringements when measuring voice quality, call setup times, failed calls and other criteria. According to a report from Agence Ecofin, Orange has been hit with a penalty of XOF2.09 billion, MTN received a penalty of XOF1.74 billion and Moov faces a

fine of XOF1.15 billion. TeleGeography's GlobalComms Database notes that the country was home to more than 31 million mobile subscribers at the end of June 2017, with Orange accounting for 42% of the total, MTN 35% and Moov 23%.

T-Mobile, Ericsson suggest licensed mobile uses

While wireless operators and their vendors directed much of their commentary in the mid-band proceeding to the 3.7-4.2 GHz band, they also weighed in on the 5.925-6.425 and the 6.425-7.125 GHz bands. T-Mobile says the commission should consider not only the 3.6-4.2 GHz band for wireless broadband, but also the 6.425-7.125 GHz band as well. "T-Mobile urges the Commission to consider making some or all of this band available for licensed mobile broadband use," the operator said in its filing. Ericsson also suggested the commission take a close

look at the 6.425-7.125 GHz band for mobile services, saying the band could serve as a great complement to the millimeter wave band for use cases in urban core and densely populated areas and beyond. By example, the company said the band could be particularly useful for applications such as automotive/connected car. Taking a different tact, Verizon said that with regards to the 5.925-6.425 GHz band, which it noted serves as the corollary Earth-to-space uplink band associated with the 3.7-4.2 GHz band, Verizon itself has several

thousand microwave licenses in the band and believes it's critical that, whatever path the commission chooses, it must protect incumbent users. However, Verizon said the proximity of the 5.925-6.425 GHz band to the 5.15-5.35 GHz and 5.47-5.727 GHz bands makes it particularly attractive for unlicensed use, and therefore it conditionally supports unlicensed use in the 5.925-6.425 GHz band as long as the commission adopts rules that provide adequate protections to incumbent and future microwave deployments in the band.

Pakistan Rapidly Adopting 3G/4G Technology

Pakistan's 3G/4G user base continues getting greater and bigger! We're a society moved profoundly by the media technology. As per new figures detailed by the Pakistan Telecommunication Authority (PTA), 3G/4G users in the nation are currently near the 45 million check mark. Before the end of August, a month ago,

the aggregate 3G/4G clients were 44.49 million, up from 42.99 million before the end of the month of July. This is a more than 10 million increment as 3G/4G clients were at the 32 million check in July 2016. Besides, the aggregate number of cell phone clients did not see that enormous of an expansion. The number hit

139.97 million by August end, somewhat up from July's 139.781 million mobile users. Regarding telcos, the Jazz and Warid team saw the most number of 3G supporters, which were over a million up from July's 12.533 million to 13.191 million in August. Their 4G clients expanded by 22% from the prior month to 1.2 million by August end. Zong saw a 0.9% expansion in its 3G clients which remained at 8.77 million, while the 4G endorsers expanded by 3.4% to 4.5 million by August end. Telenor did not see a colossal increment either as its 3G endorsers expanded somewhat from 10.53 million at July end to 10.56 million toward the finish of August. While their 4G clients expanded more than 14% to 849,139 by August end. Ufone, the main system who doesn't offer 4G yet, revealed an expansion of 148,075 clients to its 3G supporter base and achieved 5.298 million clients before the finish of August.

Mobile Trio to Swap 900MHz, 1800MHz Frequencies

Lithuania's Communications Regulatory Authority (RRT) has confirmed that local cellular operators Tele2, Telia and Bite are preparing to exchange certain frequencies in the 900MHz and 1800MHz bands at midnight on September 27 (900MHz) and October 28 (1800MHz), prior to taking receipt of the new spectrum they

won at auction in early 2016. According to TeleGeography's GlobalComms Database, in February 2016 the trio secured the rights to spectrum in the aforementioned band, paying combined fees of EUR38.1 million (USD42.5 million). The new licenses are valid from November 1, 2017 to October 31, 2032.

All three players are required to ensure territorial coverage of at least 98% within three years from the date of authorization, as well as ensuring high speed (at least 30Mbps) wireless broadband population coverage of at least 85% of the country from January 1, 2020.

AT&T Seeks Supreme Court Review on Net Neutrality Rule

AT&T Inc. and other broadband providers asked the U.S. Supreme Court to overturn the Obama-era "net neutrality" rule barring internet service providers from slowing or blocking rivals' content. The filed appeals will put new pressure on a rule enacted in 2015 when the Federal Communications Commission was under Democratic control. Filing a separate appeal from AT&T were the United States Telecom Association, a trade group, and broadband service provider CenturyLink Inc. Now under Republican leadership, the FCC is already considering a plan to replace and weaken the rules. FCC Chairman Ajit Pai wants to remove strong legal authority that critics say over-regulates telephone and cable providers and that defenders say is needed to enforce fair treatment of web traffic. The embattled net neutrality rules bar internet service providers such as AT&T, Verizon Communications Inc. and Comcast Corp. from blocking or slowing some web traffic in favor of other content -- their own or a paying customer's. "The practical stakes are immense," AT&T said in its appeal of a ruling that backed the FCC. The company pointed to a dissenting opinion that said the regulation "fundamentally transforms the internet" and will have a "staggering" impact on infrastructure investment. The rules are backed by tech companies such as Alphabet Inc.'s Google and Facebook Inc. Pai, elevated to Chairman by President Donald Trump, hasn't said when the agency may take final action on the replacement rule. The prospect has produced a public outpouring, with the FCC's website receiving more than 22 million comments. Republicans say the Obama-era rules discourages investment and hamstrings broadband companies. The rules were passed at the urging of President Barack Obama. Democrats say they're needed to prevent unfair treatment of web traffic by companies that control access to homes and smartphones. A federal appeals court upheld the rules last year.

RCOM/Aircel Merger Collapses amidst Regulatory Uncertainty

Reliance Communications (RCOM) and Aircel have called off their long-planned merger agreement, citing 'inordinate delays caused by legal and regulatory uncertainties, various interventions by vested interests, policy directives impacting bank financing for telecom and changed industry dynamics,' the Economic Times writes, quoting a statement from the former. The merger formed part of a recovery plan for RCOM – which is currently undergoing strategic debt restructuring (SDR) – that would help reduce the cellco's debt to INR200 billion (USD3.1 billion) from its current rate of around INR450 billion. Several of RCOM's lenders initially opposed the tie-up, but eventually acquiesced to the deal, whilst creditors including Indus Towers, Ericsson, Bharti Infratel and the Department of Telecommunications (DoT) objected to the merger, saying that their dues needed to be cleared before the deal could go ahead. In its statement, RCOM explained that it would now consider alternative plans for its mobile business, such as optimization of its spectrum portfolio and a more 4G-focused strategy. The spectrum monetization, along with the monetization of its fiber, tower and real estate assets, is expected to generate proceeds of around INR250 billion in debt reduction. The other half of RCOM's debt reduction plan, the sale of its tower infrastructure to Brookfield Infrastructure Partners, could still go ahead despite the disruption according to sources close to the latter company. The terms of the sale had been conditional on the merger of RCOM and Aircel, but Brookfield is reportedly still keen to complete the acquisition, albeit at a 'seriously revised' price, as the valuation had previously been based on the future growth of the combined firm. RCOM and Aircel attributed the collapse of the merger to a combination of factors, most notably the severe level of financial stress placed upon operators by excessive spectrum pricing and the intense increase in competitive pressures since the arrival of Reliance Jio Infocomm (Jio) in September last year, with the latter exacerbated by a series of regulatory decisions in favor of the newcomer. Illustrating the challenges facing India's wireless segment, the Telecom Regulatory Authority of India (TRAI) reported this week that adjusted gross revenue (AGR) for the three months to end-June 2017 was down by just over 25% year-on-year from INR534 billion to INR398 billion. RCOM's chairman also noted that, to make matters worse, the disruption has caused local and foreign banks to stop lending, further aggravating the CAPEX-hungry industry's woes. The Telecom Commission has, however, reportedly greenlit plans to provide some relief to the sector by extending the deferred payment period for spectrum to 16 years from the current ten, and lowering the interest rate on payment to 12% from 14%.

Apple, Facebook and more Lobby for Expanded Unlicensed Use of 6 GHz Band

While saying they'll play nice with incumbents, a diverse set of players—Apple, Cisco, Google, Facebook, Broadcom, Intel, Qualcomm, Hewlett-Packard Enterprise and more are among them—is pushing the FCC to set aside more spectrum for unlicensed users in the 6 GHz band. About 30 entities signed the filing (PDF), all agreeing that Part 15 access to the 5925-7125 MHz band (aka the 6 GHz band) is essential in meeting demand for the next generation of wireless broadband services. The companies span the consumer equipment, internet media, software, cloud, semiconductor, enterprise, service provider and rural connectivity industries. Their proposal is in response to the FCC's call for comments on expanding flexible use in mid-band spectrum between 3.7 and 24 GHz. Specifically, they're proposing that the FCC consider establishing multiple 6 GHz sub-bands, ensuring that technical rules and interference protections for each segment of the band are appropriate to incumbents operating in the frequencies. Taken together, the four sub-bands can be referred to as one 6 GHz band. The four sub-bands proposed are:

- U-NII-5: 5925-6425 MHz
- U-NII-6: 6425-6525 MHz
- U-NII-7: 6525-6875 MHz
- U-NII-8: 6875-7125 MHz Proximity, proximity

One of the big reasons for the 6 GHz fanfare is its proximity. The 5.925-7.125 GHz band is adjacent to current unlicensed U-NII bands, meaning existing technologies designed for the 5 GHz band can be rapidly deployed. The technology manufacturers signing onto the proposal say they are committed to delivering 6 GHz-capable products and services to the market in a timely manner.

Another reason: The IEEE recently voted to extend coverage to the 6 GHz band, so the latest 802.11ax technology will be extended to gigabit-enabled channels, which is key as everyone sets their sights on gigabit speeds. Broadcom believes this is the best band for the commission to focus on for the expansion of unlicensed, according to Christopher Szymanski, director, Product Marketing and Government Affairs at Broadcom. "We're under a spectrum crunch. Wi-Fi has been wildly successful," he said, citing various reports showing roughly 80% of mobile traffic from cell phones goes over Wi-Fi. Yet there hasn't been a corresponding increase in the airwaves devoted to Wi-Fi. "We think it's very important that the commission move quickly. We're not looking to displace, we're looking to protect." Chuck Lukaszewski, Vice President, Wireless Strategy at Hewlett Packard Enterprise (HPE), said the band is active with a lot of other users and the industry will need to show that it can safely coexist in that environment. But given Wi-Fi's track record that should not be a problem. "We have been working successfully for almost 20 years with incumbents, both federal and non-federal, and co-existing between unlicensed technologies, and the industry has shown in the 2.4 GHz band, which is not part of this proceeding, that Wi-Fi can coexist just fine with Bluetooth, ZigBee and all the other unlicensed technologies. "I think our track record is such and the Part 15 rules are such that we're going to conclusively demonstrate that we can very safely operate at low power levels that Wi-Fi employs and allow more intensive sharing of the band while fully protecting those incumbents," Lukaszewski told FierceWirelessTech. Here's a list of the entities backing the 6 GHz proposal: All Points Broadband, Amplex Electric dba Amplex Internet, Apple, Blaze Broadband, Broadcom, Cambium Networks, Cisco Systems, Computer Office Solutions dba Snappy Internet, Cypress Semiconductor Corporation, Dell, Electronic Corporate Pages dba Western Broadband, Extreme Networks, Facebook, Google, Hewlett-Packard Enterprise, HP, Intel, Interwest Management Services dba Fire2Wire, JAB Wireless dba Rise Broadband, 23 Joink, MediaTek, MetaLINK Technologies, Microsoft, New Wave Net, Pixius Communications, Qualcomm, Ruckus, Sony Electronics, the Wireless Internet Service Provider Association and Wisper ISP. While not listed among the signatories, the Wi-Fi Alliance made similar points, saying the 6 GHz band is ideal to help meet demands for Wi-Fi. The group noted that recent NTIA action foreclosing unlicensed operations in the 5.35-5.47 GHz (U-NII-2B) band significantly disrupted Wi-Fi industry plans to accommodate growing demand in the mid-band spectrum.

South African Government Mulling Sale of Telkom Stake

The South African government is reportedly looking to sell its shares in telecoms provider Telkom South Africa to fund the bailout of cash-strapped South African Airways (SAA), TechCentral writes. Treasury director-general Dondo Mogajane has reportedly revealed that the government had approached state-owned asset manager the Public Investment Corporation (PIC) – with roughly ZAR1.9 trillion (USD142 billion) in assets – to consider buying the state's share of Telkom's cap-ital in order to cover SAA's funding gap of about ZAR10 billion. However, PIC chief executive Dan Matjila said that his company would be keen to acquire a part of government's stake, but not the entire shareholding, in order to avoid overexposure to the telecoms provider. Tele-Geography notes that the South African government held a 39.3% stake in Telkom as of September 2016, making it the company's largest shareholder by some distance, while the PIC owned 11.6% of

the company's share capital; none of the other shareholders had more than 5% of the company at that date.

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

Afghanistan

The parliament has voted to cancel a 10% tax on telecommunications services over concerns regarding the lack of a collection system for the levy. The Chairman of the Assembly's Telecommunication and Transportation Commission, Qais Hassan said that the tax was expected to generate around AFN14.6 billion (USD212 million) for state coffers over the last two years, but only AFN7.9 billion had been collected during that period. The absence of a formal system for the collection sparked concerns that the funds were being collected from operators but were being pocketed by officials along the way, with MP Khalilullah Shaheedzada criticizing the lack of supervision in the current process. MPs stressed that they would continue to oppose the tax until a regular system for its collection was established. The Ministry of Communications and Information Technology (MCIT) announced earlier this month that it was close to implementing a system for the collection. All of the necessary equipment has been purchased, and the MCIT intended to pilot the system within the next four months, testing the collection process on state-owned Afghan Telecom (Aftel). (October 12, 2017) Ariana News

The Ministry of Communications and Information Technology (MCIT) is close to establishing a system to collect the 10% levy on telecom services imposed in September 2015, Minister of Communication and IT Shahzadgul Aryubi said. According to the official, the tax is currently being collected without a formal system in place, but the government has now purchased all of the necessary equipment and will launch a pilot system within the next four months. The new system will be tested on state-backed operator Afghan Telecom (Aftel), Mr. Aryubi added. The minister also provided an update on the progress of the nation's fiber-optic backbone network, stating that 25 provinces have been connected so far, with rollouts in the remaining nine to be completed by the end of 2018. Mohammad Najib Azizi, head of the Afghanistan Telecom Regulatory Authority (ATRA), meanwhile, reiterated the government's goal of increasing internet usage to 50% of the population by 2021, adding that around five million Afghans currently use the internet including three million 3G subscribers. (October 6, 2017) Tolo News

Bahrain

Telecommunications Regulatory Authority (TRA) is developing a new economic regulatory framework to support and promote the Fourth National Telecommunications Plan, by defining the rules and obligations for operators to support the Plan's goals and deliver the single network policy. The TRA chaired a key meeting with Batelco, Viva, and Zain recently to discuss the development of technical solutions between Batelco and the other mobile operators that will allow consumers to benefit from better quality mobile services. The telecom watchdog in Bahrain said it recognizes that there is a transitional period prior to the finalization of the economic regulatory framework, during which Batelco will continue to supply wholesale services to mobile operators, said a statement from TRA. The TRA aims to ensure that during this period Batelco's wholesale products and services meet mobile network operators' reasonable business requirements, it stated. "The National Telecom Plan, which is revised every three years at the highest levels of government, is always a future focused approach geared towards improving the sector for all stakeholders," remarked Sheikh Nasser bin Mohamed Al Khalifa, TRA's Acting Director General. "Delivering on government policies that fall under the plan is an essential priority for TRA, and the National Broadband Network is a huge

pillar that will contribute to the fourth iteration," he stated. TRA therefore invited mobile operators along with Batelco to its headquarters to discuss the way forward, to understand mobile operators short term technical goals related to network development, and to ensure that consumers are provided with better quality services during the period prior to the finalization of the economic regulatory framework, explained Sheikh Nasser. "This meeting was a productive step towards achieving that goal, and the next step for TRA is to finalize the upcoming economic regulatory framework which will support this key reform," he added. (October 22, 2017) tradearabia.com

Telecommunications Regulatory Authority (TRA) has published its latest Telecommunications Services Residential Market Survey report. The results confirm that competition in the telecommunications sector has significantly contributed to the provision of telecommunications services to citizens and residents in the Kingdom of Bahrain. The results indicate that all respondents have access to a mobile phone, and 98% of respondents have access to internet services compared to 89% in 2015, while a low percentage of respondents have access to a fixed lines service. Moreover, the percentage of individuals

using the Internet reached 98% in Bahrain. According to ITU data and the Global Competitiveness Report (2017-2018) that was published at the end of September 2017 by the World Economic Forum, the Kingdom of Bahrain is at the forefront of countries in terms of internet penetration and usage; Bahrain is ranked 1st globally for mobile broadband penetration and 2nd for internet users. According to TRA's survey, 31% of the respondents have multiple mobile SIM cards instead of only one, primarily in order to take advantage of various promotions that mobile operators offer, or to use separate SIMs for voice and mobile data, or to have separate SIMs for business or personal use. This percentage has decreased compared to the 2015 survey's results, where it was 41%, which indicates that mobile services have evolved to suit the requirements of users. With respect to internet usage, the survey shows that the use of social networking sites is the main internet activity for 93% of internet users, followed by the email by 71% and downloading multimedia content by 70%. "We place great importance to the views of telecoms users in the Kingdom when reviewing developments in the telecommunications sector and establishing future strategies and decisions that encourage competition and protect the interests of users. We are also keen to collect this data in a scientific manner according to international standards." Says Sh. Nasser Bin Mohamed Al Khalifa, Acting General Director of TRA. "We are pleased to see that the results of this survey and the latest reports published by international organizations confirm that we are moving forward to achieve the Government's vision for the sector that Bahrain will remain at the forefront of digital developments, within the region and globally, as stipulated in the Fourth National Telecommunications Plan." Added Sh. Nasser. The survey covers a representative sample of 1621 respondents aged 15 years and above, examines the usage of and access to different telecommunications services including fixed lines, mobile phones and internet services. The survey also measures the extent to which users are satisfied with their telecommunications services, OTT services and the Number Portability feature. For the first time in 2016, the survey covered information related to using e-commerce in the Kingdom. 29% of the survey sample reported engaging in e-commerce activities mainly for shopping. For those who did not engage in e-commerce activities, the main reason was that they consider online shopping to be unsafe. With regards to users' satisfaction, the Telecommunications Services Market Survey indicated that overall user satisfaction with telecommunications services in Bahrain is high. The survey shows that 82% of respondents are satisfied with their overall fixed line services, 90% are satisfied with their overall mobile services, and 84% are satisfied with their overall internet services. (October 14, 2017) tra.org.bh

The Telecommunications Regulatory Authority (TRA) has issued a decision stating that it has granted approval for Viva Bahrain to acquire 100% of Mena Telecom, despite earlier having 'serious doubts' about Viva's ability to meet the requirements set out for mergers and acquisitions. In a meeting between the TRA and Viva in September, the two parties discussed the contentious issues surrounding the deal, following which the TRA concluded that it no longer had serious doubts and that Viva's plans complied with the necessary regulations. Nevertheless, the TRA has attached certain conditions to the merger, including that Viva (and/or the combined entity) must comply with the terms of Mena Telecom's existing licenses and that it must consult

with the TRA on the early reassignment of the 3.5GHz spectrum band if the regulator decides that this band will be used for the deployment of 5G networks in Bahrain. For more information on the TRA's approval decision, see link below.
(October 10, 2017) telegeography.com

As part of The Telecommunications Regulatory Authority's (TRA) efforts to ensure public safety and address consumer concerns regarding the safety of radio frequency emissions; TRA acquired specialized equipment to measure the ambient level of emissions produced by radio-communications stations of telecoms operators within the kingdom. These measurements are then compared to guidelines set forth by the International Commission on Non-Ionizing Radiation Protection, or (ICNIRP). ICNIRP provides its recommendations, guidelines, and research results to the World Health Organization (WHO), which adopts these recommendations and guidelines as a basis for health regulations and notices concerning protection from electromagnetic field strength (EMF) Radiation. Over the past decade, there has been a rapid increase in the use and development of radio-communication technologies. As a result, several radio-communications stations have been deployed to close proximities of public and occupational areas. This has spiked concerns among the public regarding radio frequency emissions. "As per the condition stated in licenses granted by the TRA in Bahrain, telecoms operators are required to ensure that emissions from each radio installation are within ICNIRP limits. They are also required to comply with any future radiation emission standards set by ICNIRP, or have been or will be adopted by the Kingdom of Bahrain." Says Eng. Mohammed bin Abdulla Al Ramzan Alnoaimi, TRA's Director of Technical & Operations. In the past two years, TRA has measured 2,500 sites; none of which has exceeded the limits and radiation standards of ICNIRP. This year, the EMF of 500 sites has been measured until August and none of them is close to exceeding the ICNIRP standards. The results are available on TRA's website for public viewing. It is worth mentioning that the TRA initiated the establishment of a website to present the results of measurements to the public and it is divided by clusters. The TRA hopes that the public view this site to determine the levels of radiating emissions measured in the different areas. (October 8, 2017) tra.org.bh

The Telecommunications Regulatory Authority (TRA) held a workshop for operators. The purpose of the workshop was to highlight to mobile operators the methodologies that TRA will undertake in their upcoming Mobile Network Audit, the results of which will be included in the TRA's Annual Mobile Quality of Service Report which is expected to be published before the end of the year. Among the aspects that the audit will cover, include measurements of mobile operators' compliance with the coverage terms set out in their licenses. The audit will also cover measurements of voice and data accessibility across the kingdom's main roads, as well as population coverage according to population density. There will also be stationary tests of mobile broadband infrastructure for each mobile operator's respective networks and voice call tests indoors, outdoors and in moving vehicles. Also included in the audit are SMS, Web Browsing, Video Streaming, OTT services such as popular social media apps, billing and more. TRA's Annual Mobile Quality of Service Report will be published during December 2017 where the results of the audit will be available for public viewing. (September 26, 2017) TRA Bahrain

Bangladesh

The country ranks among the most densely populated countries on the globe, but its fixed-line penetration remains the lowest in South Asia. About 80% of fixed telephone services are found in Bangladesh's four main cities, while 80% of the population live in rural villages. Overall fixed line penetration dropped slightly from 2012 to 2017. The market is predicted to decline further over the next five years to 2022 as the mobile segment continues to grow for both voice and data/broadband usage. In 2017 Bangladesh's government undertook a project to extend fiber-optic connectivity. The project - named Establishment of ICT Network to Remote Areas (Connected Bangladesh) - is expected to benefit 25-30% of the population. The penetration of Internet users in Bangladesh remains very low by international standards, but has increased over the past five years driven by strong growth in mobile broadband. Leading up to 2020, mobile broadband penetration is expected to continue growing moderately. Fixed broadband penetration in Bangladesh remains very low mainly due to the dominance of the mobile platform. Also, the limited and declining number of fixed lines is restricting more widespread development of fixed broadband.

Bangladesh's mobile market remains relatively under-developed, but has experienced strong growth over the last five years. Slow to moderate growth is predicted over the next five years to 2022. The market will be constrained from higher growth due to very strong local competition. Bangladesh has seen a very rapid increase in mobile broadband penetration over the past five years driven by a rising level of mobile subscribers. However, the mobile broadband market is still at an early stage of development with penetration well below most other Asian countries. Strong growth is predicted over the next five years to 2022. (October 18, 2017) developingtelecoms.com

Bangladesh ended July with 75.02 million active internet subscribers, up from 73.34 million in June. The country's mobile internet base reached 70.17 million in July, up from 68.65 million in the previous month, according to the latest figures. The fixed-line internet user base climbed to 4.77 million in July this year from 4.62 million in June. The number of WiMAX subscribers slightly increased to 75,024 in July, from 75,000 in June. (October 3, 2017) telecompaper.com

Egypt

Egypt IoT Challenge 2017 Program will be launched mid-October, organized by IEEE Robotics and Automation Society (IEEE RAS), in collaboration with the National Telecom Regulatory Authority (NTRA), the Bibliotheca Alexandrina (BA) and the Academy of Scientific Research and Technology (ASRT). The Program aims at supporting university students in their graduation year, small and medium-sized entrepreneurs and young entrepreneurs by providing them with material resources, expertise and technical advice to implement their innovative and creative ideas. The Program unites resources and experiences of organizers and their respective partners to avail all required materials, mentors and expertise to the participating projects. NTRA was the first national entity that sought and called for linking this program to academia and student communities. It promotes this Challenge through providing all financial and moral support to organize it at the highest level, aiming to accelerate the scientific and practical development processes. In addition, a series of seminars and sessions will be held in the Challenge, aiming to expedite the establishment of small and emerging startups focusing on IoT applications, smart solutions, and support university students in their graduation projects that is based on IoT. The Program is implemented and managed by Hadath Global Innovation and Entrepreneurship (GIE) in cooperation with other partners. Egypt IoT Challenge main partners are NTRA, ASRT, and other academic partners including Suez University, Alexandria University, the Arab Academy for Science Technology and Maritime Transport (AASTMT), Egypt Japan University of Science and Technology (EJUST), Zagazig University and other partners and sponsors.

Egypt IoT Challenge— formerly known as Egypt IoT League — started in 2016 by Intel Corporation, in collaboration with the Technology Innovation and Entrepreneurship Center (TIEC), affiliated to the Ministry of Communications and Information Technology (MCIT). The program attracted more than 1,000 participants from all over Egypt. Over 300 participants of the 2016 Egypt IoT League received support from the mentor network and ecosystem of organizers, had access to resources related to innovation and technology, and were given the opportunity to network with the top investors in Egypt. The top six chosen projects were then selected for acceleration and financial awards to support the development of their products and services. Two of them are currently incubated in a highly-reputed incubator. (October 14, 2017) mcit.gov.eg

The four telcos that have been granted 4G licenses by Egypt's government have contributed more than a billion US dollars to the national fiscus through their individual approvals to rollout 4G services in the country, according to the Ministry of Communications and Information Technology. The Ministry says it was able to amass more than USD1.1bn, as well as additional 10 billion Egyptian pounds (USD530,000,000) from agreements concluded with Vodafone Egypt, Orange Egypt, Etisalat Egypt and Telecom Egypt. While unveiling 4G at the Giza Pyramids last week, officials expect that the technology will boost the country's rating on global ICT indicators. "Egypt joins the ranks of the countries that provide 4G services, offering high speed internet access, image and video transmission services

without temporary data buffering, advanced cloud computing services and other telecom services. This will be reflected positively on providing high quality services for subscribers, improving Egypt's ranking in the indicators of the reports issued by international institutions, especially that Egypt was one of the six countries in the world that hasn't provided 4G services yet." The country's internet speed is currently among the slowest in the world and ranks in 146th place out of 150 countries, according to the 2017 Speedtest market report issued in April 2017. The 4G launch celebration was attended by the ICT Minister Yasser El Kady along with National Telecom Regulatory Authority (NTRA) Acting Executive President Mostafa Abdel-Wahed, CEO of Orange Jean Marc Harion, Vodafone CEO Stefano Gastaut, CEO of Etisalat Egypt Hazem Metwally and Telecom Egypt (TE) Managing Director and CEO Ahmed El Beheiry. The 4G licensing process in Egypt has not been without its controversy. The sale of 4G licenses almost failed to materialize until an agreement was reached at the last hour between the NTRA and the country's three telcos in December 2016.

(October 6, 2017) balancingact-africa.com

The Ministry revealed late last year that Vodafone Egypt had signed its 4G license for USD335 million, as well as a license to offer virtual fixed-lines services worth USD11.262 million. Etisalat Misr's 4G license cost the telco USD535.5 million, while their fixed-line license totaled USD11.262 million. Orange Egypt was said to have agreed to fork out USD484 million and USD11.262 million for its 4G and fixed-line licenses respectively. Telecom Egypt had paid USD806m for its license in August 2016. All telcos, except Telecom Egypt, failed to meet the NTRA's deadline of 22 September 2016 for the submission of their 4G license applications. Disagreements between the telcos and the NRTA on price and other conditions led to the government cancelling its offer of 4G licenses. That cancellation then resulted in an emergency meeting by the NTRA Board of Directors for a debate of the option of offering the 4G licenses as part of an international tender, among other alternatives. The licensing process was salvaged with the announcement of the agreements in December.

(October 2, 2017) itwebafrica.com

Iran

Mobile services are widely available in Iran, with services on offer from three major mobile network operators - MCI, MTN Irancell and Rightel - which are able to offer services on a national basis. In March 2017 competition in the mobile sector was set to increase further with the country's largest ISP, Shatel Group, reportedly given permission to begin offering full MVNO services in Iran. It would operate under the brand name Shatel Mobile. HiWeb, which signed a partnership deal with Vodafone Group in October 2016, was also awarded a license from the CRA to offer SIM cards under a local brand name. Mobile data services are available but account for a small proportion of total revenue. This is expected to increase over time as mobile data services increasingly underpin future revenue growth, made possible by the launch of 3G/HSPA and 4G LTE services. Recently WiMAX services in Iran were replaced with TDD-LTE services by two operators, Irancell and ISP MobinNet. Iran is currently implementing its 6th Development Plan which runs between 2016 and 2021, and contains a number of measures to transform the telecoms sector. For example, the development plan aims to increase Internet bandwidth; encourage foreign and private investment in the telecoms sector as well as make structural changes to the telecoms incumbent, Telecommunication Company of Iran (TCI). Internet usage is growing due to improved accessibility brought about by competition and government initiatives designed to improve ICT accessibility. Iran has been developing its own National intranet that will host only approved Islamic content. Known as the National Information Network (NIN); it went live e in August 2016 and will offer speeds of up to 10 Tb/s as part of an upgrade underway in 2017. The NIN is designed to complement the Internet and operates on Iran's fiber network. The lifting of economic sanctions in early 2016 was expected

to facilitate a big boost to Iran's economy. However, in 2017 it became apparent that the economic transformation of Iran is occurring at a slower pace than expected, with industry analysts commenting that Iran needs to reduce its reliance on oil and strengthen other industry sectors.

(October 17, 2017) developingtelecoms.com

The Minister of Communication and Information Technology met with his Armenian counterpart Vahan Martirosyan and discussed cooperation opportunities in the fields of internet bandwidth transit, cybersecurity and postal exchange between the two countries. Referring to constructive relations of the two nations, Iranian ICT minster said they emphasized expansion of bilateral trade cooperation. He pointed to cooperation with Armenia in the area of international transit, adding "in the past two years, Iraq's transit to Europe via Armenia has increased by 10 times. In light of that, we decided to conduct trilateral negotiations in order to pave the way for international transit to Turkmenistan, in the same way." Azari Jahormi invited Armenia's ICT authorities to participate in Tehran's International Telecom Exhibition, saying that the opportunity could familiarize them with the potentials of Iran's private sector for cooperation purposes. The two ICT ministers also conferred on increasing postal exchange and developing data centers as part of boosting bilateral ties. Vahan Martirosyan, for his part, pointed to the deep-rooted relations of Iran and Armenia and stated that he will address the raised topics more seriously. He specified the two countries will further their cooperation in all the areas of internet transit, postal exchange, information technology and cybersecurity. He invited Iran's ICT minister to visit Armenia in order to address the topics discussed in the meeting.

(October 10, 2017) armradio.am/en

Iraq

The government has signaled its intention to take control of Kurdistan-based mobile operators and move their headquarters to Baghdad. The news agency quoted a statement from Baghdad as saying: 'The government committee for national security issued a decision that all mobile phone networks must be under federal control and should be moved to Baghdad.' The announcement followed a meeting between the cabinet and top security officials regarding the response to Kurdistan's recent independence referendum, which delivered a vote in favor of separating from Iraq and was considered unconstitutional by the Baghdad administration. The move reportedly forms

part of Iraq's strategy of isolating the Erbil-based Kurdistan Regional Government (KRG), which also included a ban on direct international flights to the region. Further details were not provided, but it is believed that the declaration was aimed at Korek and Asiacell, which operate across the country but are based in Erbil and Sulaymaniyah, respectively. A third provider – Zain Iraq – is headquartered in Baghdad. TeleGeography notes that the KRG has also licensed a further two wireless providers, Fastlink and Mobitel, to serve the Kurdistan region alone, but it was unclear whether the order extended to the duo.

(October 10, 2017) reuters.com

Kuwait

Held under the patronage and with the presence of HE Khaled Nasser Abdullah Al-Roudan, Minister of Commerce and Industry and Minister of State for Youth Affairs, the 2nd edition of ArabNet Kuwait returned after its major success in 2016. The conference gathered over 70 speakers and 800 attendees including government leaders, enterprise decision makers, regional/ international digital professionals, entrepreneurs, and investors to connect and discuss the latest trends and opportunities to leverage technology in Kuwait and the GCC. The conference was launched on October 17, with an opening speech by H.E. Khaled Nasser Abdullah Al-Roudan, stating that the ArabNet Kuwait conference focuses on the developing ICT sector and shares entrepreneurial success stories, providing the Kuwaiti youth with the opportunity to benefit from the global and regional experiences, and learn about the latest developments in the digital business industry, to spur the growth of the knowledge economy in alignment with the public and private sector efforts in Kuwait and with the Amiri vision to position Kuwait as a global financial and commercial center, in which the digital sector plays a vital role. He added that the Kuwaiti government is taking strides to encourage the youth and support their initiatives. It has begun developing the educational curriculum in schools and universities, creating incubators, securing funding, providing infrastructure to support the advancement of social and economic development, creating new job opportunities for the youth, as well as the issuance of regulations and legislations supporting youth projects, including the recent micro-enterprise resolution, substantially reducing commercial licensing procedures, and their electronic issuance in record time. ArabNet Founder and CEO, Omar Christidis highlighted in his welcoming speech that: "The Kuwaiti entrepreneurial ecosystem has witnessed tremendous developments in the last year, with Delivery Hero acquiring food delivery platform Carriage barely 14 months after its founding, and Faith Capital Holding acquiring cleaning services marketplace Masbagti, now renamed JustClean. A number of new funds, accelerator programs and support institutions have also launched and are already investing in promising Kuwaiti and regional startups.

Meanwhile, Kuwaiti businesses across the spectrum - from banks to retailers to agencies - are aggressively investing in upgrading digital capabilities, growing online transactions and developing innovative online content and campaigns." The Kuwaiti market has witnessed a surge in institutions supporting innovation in the past 3 years, including new VC funds, co-working spaces, training and acceleration programs. Kuwait has tremendous potential to develop a thriving innovation economy, with a robust national digital payment gateway, as well as internet, smartphone, and social media penetration rates all above 90%. However, there are still a number of challenges facing innovators in Kuwait - from funding to culture and skills. The opening panel, which consisted of the Undersecretary of the Ministry of State for Youth Affairs Sheikha Al Zain Al Sabah, Director of Finance and Investment at the Kuwait Foundation for the Advancement of Sciences (KFAS) Firas AlOda, and Chairman of Markab Capital Ahmad Alomani, discussed the challenges and opportunities, as well as the role that the public and private sector can play to build an innovation-driven economy in Kuwait. The first day of the conference consisted of the Investment & Innovation Forum that included additional regional and international stellar speakers Waleed Al Ballaa Partner at STVentures, Omar Almajdouie Founding Partner at Raed Ventures and Rashid Sultan Founder and Managing Partner at Savour Ventures. The speakers discussed the Kuwaiti startup ecosystem highlighting the progress and challenges faced, shared investment strategies, best practices for fundraising, and more. As ArabNet plays a key role in supporting the most promising regional innovators, and matching them with the right investors through two of ArabNet's signature competitions, Ideathon and Startup Battle. The Startup Battle, sponsored by KuwaitNet, is a competition in which local startups and aspiring entrepreneurs pitched their ideas to a jury of investors and the audience. The results will be announced on the 2nd day, and the winners of the Startup Battle will get to compete at the ArabNet Startup Championship to compete against the best startups in the region. In the ideathon competition aspiring entrepreneurs pitch their great ideas of to the enthusiastic

crowd of investors, incubators, media and digital professionals, and connect them with the latest developments in the digital world. ArabNet Kuwait continues for another day, featuring the Digital Commerce Forum and the Ad Tech Forum, roundtable, as well as the award ceremony of the Startup Battle and Ideathon competitions. ArabNet Kuwait is also sponsored by The Kuwait National Fund (KNF), Kuwait Foundation for the Advancement of Sciences (KFAS), Gulf Bank, Nabad, Bayt.com, JustClean, KNet, Social Entrepreneurship Enterprise Development (SEED), DBS Digital, Wataniya Airways, VIVA Telecom, Careem, MEC Global, DarisniME, and Boubyan Bank. ArabNet will be hosting its next event in Riyadh on December 11-13, 2017; in Beirut on February 20-22, 2018; and Dubai April 30 - May 1, 2018.

(October 19, 2017) menaherald.com

Zain has agreed to sell its telecoms towers portfolio in Kuwait to infrastructure specialists IHS Holding and Towershare Management for USD165 million (€140 million). The deal will create a new towers business in Kuwait. Zain will lease back access to its towers and will take a minority shareholding in the new entity, the telco explained, without disclosing the size of its stake. Kuwait's Communication and Information Technology Regulatory Authority (CITRA) has given the deal the green light, but it still requires other regulatory approvals. The parties expect it to close in the first quarter of next year. "This deal will unlock value that can be more efficiently deployed in new technologies and higher yielding investments for Zain, and at the same time pave the way for further network expansion and tower infrastructure sharing in Kuwait," said Zain's group

CEO, Bader Al-Kharafi. Al-Kharafi added that this is the first deal of its kind in the Middle East and North Africa region. "We are delighted to partner with Zain on this agreement which will expand our operating footprint into the Middle East," said IHS chief executive Issam Darwish. Zain has in excess of 1,600 towers across Kuwait. "We expect significant growth in wireless phone and data usage in a number of emerging markets over the next few years and we believe, given the significant experience we have gained in our African operations, we are well positioned to meet the growing needs of wireless network operators in these countries," Darwish added. (October 10, 2017) totaltele.com

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, has signed a non-binding letter of intent (LoI) to acquire 12% of Zain Group from Al Khair and its subsidiaries and affiliates, for an unknown sum. The move comes shortly after the Omani provider won a bid to acquire 425.7 million treasury shares representing 9.84% of Zain Group's fully paid in and issued share capital at an offer price of KWD0.600 (USD1.99) per share, for a total cash consideration of KWD255.4 million. The deal was completed in August this year, with all acquired treasury shares converted into common stock. The investment is part of Omantel's strategy to diversify its exposure, the firm said, adding that the company aims to 'position ourselves as a leading digital service provider'. Going forward, the duo will look to collaborate on the wholesale telecoms business, operations and networks, and commercial activities.

(October 10, 2017) telegeography.com

Lebanon

Significant improvements are planned for Lebanon's fixed network, according to Lebanon's new Telecoms Minister Jamal Jarrah. The plans should result in 500,000 new landlines becoming available in 2017, the installation of fiber-optic networks, and faster DSL services. Ogero Telecom is working in conjunction with the government to deploy the planned works. The improvements will be welcomed by consumers and enterprises alike. Lebanon has trailed behind other countries in the region in almost all aspects of broadband networks and services. ADSL services were not launched until 2007 and broadband has been available at only low speeds and at high prices. This has changed somewhat in the last couple of years with proactive measures being made to reduce prices, but speed is still an issue. 4G services have been available in Lebanon since 2013 but initially the coverage was limited. During 2016 both Touch and Alfa implemented substantial 4G upgrades and expansions, supported by Huawei, Nokia and Ericsson. The country's telecoms minister claimed that at the end of March 2017, 4G coverage reached around 85% of Lebanon's population. Alfa and Nokia launched Lebanon's first LTE-A network in 2016. It offers higher download speeds of up to 262.5 Mb/s. The improvements to Lebanon's broadband infrastructure will boost the already flourishing digital economy as well as the start-up culture that has attracted international interest and recognition. The tendering of Lebanon's mobile

network management contracts has stalled. In the interim, Kuwait's Zain Group continues to manage Touch Lebanon and Egypt's Orascom continues to manage Alfa. By the end of 2017 it is expected there will be 85% coverage of fiber-optic networks in Lebanon. The 2020 Telecom Vision project by the MoT will also see improvements in fiber-optic infrastructure with plans for the entire country to be covered by 2020.

(October 18, 2017) developingtelecoms.com

The government has approved an advance worth LBP150 billion (USD98 million) from the treasury to state-run telco and internet provider Ogero, to finance part of the imminent national fiber-optic network development project estimated to cost USD300 million overall. Telecoms Minister Jamal Jarrah said last month that his Ministry and Ogero plan to start the fiber-optic project within a few weeks, with the aim of boosting internet access speeds to at least 50Mbps 'across the country'. Previously, the Ministry of Telecommunications (MoT) and Ogero have said they will implement an extensive fiber-to-the-cabinet (FTTC) network over the next two years, involving replacing around 700 street cabinets, alongside fiber-to-the-premises (FTTP) rollouts. Meanwhile, in an existing project Ogero is in the process of gradually removing fixed broadband bandwidth capping for users served by all its approximately 300 central offices (exchanges). Last month the MoT disclosed that the

capacity of the existing CADMOS international submarine fiber-optic system connecting Lebanon to Cyprus had been increased to 500Gbps (to be available before the end of 2017), whilst

Lebanon has also increased its share of international bandwidth on the planned Alexandros submarine cable (Lebanon to France via Cyprus) from 310Gbps to 1.92Tbps. (October 10, 2017) BusinessNews

Morocco

Morocco's strategy for the development of digital technology was highlighted in Paris at the third annual Digital Africa Conference. The conference organized by the French news magazine Le Point Afrique, aimed to give a digital identity to the continent, taking as its theme "The Digital Revolution on the Move: How to Transform the Trial by Addressing the Technological, Regulatory and Societal Challenges?" Participants sought to determine if African states will be able to build an integrated digital ecosystem, allowing both common legal rules and the pooling of funding to be managed in order to accelerate the deployment of an efficient internet network. Speaking at the opening of the meeting, Morocco's ambassador to France, Chakib Benmoussa,

underlined the efforts made by the Kingdom to develop this sector, referring to Morocco's Numeric Plan and Morocco Digital Plan 2020. The diplomat recalled the recent adoption of a bill for the creation of a digital development agency, which he said has made Morocco a regional hub and African leader in the field. Benmoussa also highlighted the special role of digital technology in the cooperation policies between the Kingdom and several African countries. The participants also answered a number of questions regarding the training of African populations in the digital world, the development of secure infrastructures, and the ability of the tremendous digital advances in the continent to assist Africans and their exchanges with the world.
(October 9, 2017) moroccoworldnews.com

Nepal

The Nepal Telecommunications Authority (NTA) is preparing to develop a mechanism that monitors international calls (to and from Nepal) of domestic telecom companies in a bid to ensure that the government receives the right amount of revenue via international call traffic. Due to lack of a mechanism to monitor international telecommunication traffic, the government has been collecting revenue from domestic telecom firms for international calls on the basis of rates and volume of international calls as declared by the telecom companies. Meanwhile, NTA — the telecommunication sector regulator — has recently sought applications from interested foreign firms to provide consultancy service to NTA in this regard. Publishing a notice on October 6, NTA called for applications from interested organizations for the design, development, supply, installation of hardware and software, and to provide operation and management services to monitor/measure international telecommunications traffic. Interested firms for the aforementioned consultancy service to NTA will have to submit their proposals to NTA within November 6. "We are basically trying to develop a system that detects international calls (to and from Nepal) at the international gateway itself. As we have been receiving complaints of different illegal calls in Nepal, the system will also be able to track such illegal calls," said Min Prasad Aryal, spokesperson for NTA. Once NTA has its own mechanism to monitor international calls, Aryal said that it will help the government to earn more revenue from telecom companies. The government is currently earning revenue worth Rs 150 annually on average from two telecom giants — Nepal Telecom and Ncell — according to NTA. Once NTA has its own international call detecting system, it will ensure accountability in the revenue from international calls that domestic telecom

companies are currently paying to the government. Domestic telecom operators are obliged to pay taxes to the government under different headings like Telecom Service Charge (TSC), Value Added Tax (VAT) and Rural Telecommunications Development Fund (RTDF), among others. Aryal informed that the consultant that is selected for the aforementioned task will be responsible to provide real time data on local and international traffic volume, tracking and detecting bypass fraud and illegal operators, and determining the quality of service for both local and international telecommunications traffic.
(October 11, 2017) thehimalayantimes.com

Among the six companies providing telecommunication services in the country, progress of four companies has been disappointing. Except for the government-owned Nepal Telecom (NT) and privately-owned Ncell, who have a combined total of 93 percent of the market share, the performance of other four companies is dismal. According to Management Information System (MIS) report published by Nepal Telecommunication Authority (NTA), NT has a total 49 percent of the market share, while Ncell covers 44 percent of the market. The other four companies -- United Telecom Ltd (UTL), STM Telecom, Smart Telecom and Nepal Satellite -- have a combined market share of just seven percent. According to the report, UTL occupies one percent of the market, Smart Telecom five percent, STM 0.01 percent, and Nepal Satellite one percent. The progress of these four companies has been disappointing in the last five years. In 2013, these four companies had a total of eight percent market share. A previous report published in August 2013 showed that UTL had three percent, Smart Telecom three percent, STM zero percent, and Nepal Satellite one percent of the total market

share. During the five years' period, the market share of UTL has slipped down from three percent to one percent while that of Smart Telecom has gone up to five percent from four. STM has progressed to 0.01 percent whereas Nepal Satellite has remained in the same position. With one percent increase in the market share, Smart Telecom seems to be progressing to some extent. It got permission from NTA three months ago to operate 4G service. It is planning to start distributing 4G SIM cards in near future. The company has said that currently it has been providing telecom services to more than 1.4 million users in 34 districts. As mentioned in the NTA report, UTL, which was established in 2001, has established 198 BTS towers till date. It has been providing services in seven districts of the eastern region, 15 districts of the central region, four districts of the mid-western region and four districts of the far-western region. Recently there are around 600,000 UTL users. According to the NTA report, STM has only 3000 customers including all PCO, PSTN, and limited mobility users. STM, which was established in 2003, could not make progress for long, leading to cancellation of its permission by the NTA for limited mobility services in 34 districts. Likewise, Nepal Satellite that was established in 2005 has been providing services to more than 70,000 customers through its 204 BTS towers. On the other hand, Nepal Telecom that had 43 percent of the market share in 2013 has increased its market share to 49 percent this year. However, the market share of Ncell went down a little bit. In 2013, Ncell had 49 percent of the market share which has gone down to 44 percent this year. Though the market share of Ncell has declined, the number of its customers has increased, leading to an increase in income. Meanwhile, NT and Ncell cover 97 percent of total data market. NT covers 52.02 percent and Ncell covers 44.99 percent of the total market for data. Other four telecommunication and internet service provider (ISP) companies have only three percent of the data market share. (October 90, 2017) myrepublica.com

Nepal now has new Internet Service Providers (ISP) as the Nepal Telecommunications Authority (NTA) has provided ISPs licenses to five companies. The five companies are Himalayan Gorkha Net, City Net, KCN Net, Pathivara Network and Prime Net. Min Prasad Aryal, NTA Spokesperson, said that the decision to issue new ISP licenses intends to expand internet services across the country. Through this decision, NTA wants to increase people's access to internet services and increase its revenue to run different internet projects in the country. The increased numbers of ISPs will also help promote competition among the ISPs which will benefit the consumers. According to the NTA, 110 domestic companies have ISP licenses out of which 72 ISPs are in operation. The rest have either not renewed their ISP licenses or not paid their dues. The major ISPs in operation are Subisu, WorldLink, ClassicTech, and Vianet. Most internet users prefer internet service of telecom companies over domestic ISPs. As per NTA's estimation, there are almost 16 million active internet users in the country, of whom only 248,000 users are using internet services of ISPs. NTA data also showed that users prefer Nepal Telecom as their ISP with almost eight million users. (September 26, 2017) techlekh.com

Oman

The Ministry of Transport and Communications has instructed the Telecommunications Regulatory Authority (TRA) to cancel the tender process for the Sultanate's third mobile network operator (MNO) license, which was due to be awarded next month. The license will instead be assigned to a consortium of local investment funds and a strategic global partner, with the aim of strengthening the role of wealth funds in the country and enable them to contribute further to the national economy. A number of Middle Eastern companies, including Saudi Telecom Company (STC), Kuwait's Zain Group, UAE-based Emirates Telecommunications Corporation (Etisalat) and Sudan-based Sudatel Telecom Group, submitted technical and financial bids for permission to compete with incumbent MNOs Oman Telecommunications Company (Omantel) and Ooredoo Oman earlier this year. A shortlist of the qualified bidders was expected to be published on August 14, with the winner scheduled to be announced on September 4, but that month the license award process was postponed to November 30, following the completion of Omantel's purchase of a 9.84% stake in Zain Group last month. The delay was reportedly enforced to give the TRA additional time to examine the potential implications of Omantel's recent acquisition of a minority stake in Zain Group. (October 19, 2017) The Oman News Agency

Pakistan

Pakistan Telecommunication Authority (PTA) has developed guidelines for the issuance of "Non Objection Certificate (NoC)" for Local Mobile Phone Assembly Line in Pakistan. The guidelines are prepared under the Telecom Act 1996 (Section 29) which clearly stated that: "No terminal equipment can be directly or indirectly connected with public switched network unless it has been type approved by PTA." The draft has been issued with respect to the establishment of "Local Mobile Phone Assembly Line in Pakistan" mainly for assembly of PTA type approved models. The document stated that these guidelines will be applicable for the valid PTA mobile phones type approval holders. PTA has the authority to revise these guidelines with passage of time. (October 13, 2017) phoneworld.com.pk

Pakistan Telecommunication Authority (PTA) has invited Expression of Interest (EoI) to hire consultation services for

calculation of base price and design of auction process for Next Generation Mobile Services (NGMS) in Azad Jammu & Kashmir (AJK) and Gilgit-Baltistan (GB). The scope of work will include consultation with existing operators of Pakistan to assess telecoms market of AJK and GB and calculate base price of spectrum to be auctioned by carrying out a comprehensive assessment of telecom market. As per EoI document, this would be assessed in terms of uptake, profitability, competitiveness and consumer choice, international best practices, using appropriate tools such as econometric/analytical models and market analysis for spectrum as detailed in Policy Directive. The Authority has suggested the following frequency blocks for provision of NGMS spectrum auction in AJK and GB: Three blocks of 10 MHz each in 2100 MHz:

i.   1920-1930/2110-2120 MHz (Block A), ii. 1930-1940/2120-2130 MHz (Block B) iii. 1940-1950/2130-2140 MHz (Block C) One block of 10MHz in 1800 MHz band.

ii. 1775-1785/1870-1880 MHz Earmarked for SCO:

iii. One block of 10MHz in 2100 MHz band 1950-1960/2140-2150 MHz

iv. One block of l0MHz in 1800 MHz band 1759.1-1769.1/ 1854.1-1864.1 MHz (Only those operators who participate in auction of 2100 MHz band can bid for 10MHz in 1800 MHz band).

The other objectives of consultancy are to design an open, competitive, transparent auction process mitigating chances of collusion among bidders and fulfilling policy objective of optimal outcome, keeping in view international best practices as suited to AJK & GB markets and make presentations/ briefings to Client and Auction Supervisory Committee (ASC) for information as and when required. Some other objectives include: conduct technical, commercial and legal due diligence related to proposed assignment including review of documents and processes, and develop a comprehensive report with a concise executive summary covering all important aspects that act as an input for base price and design of auction process. The document further revealed that for completion of the above tasks, the consultant shall take into account due consultation with stakeholders including ASC, review and consideration of best practices, use of analytical tools/econometric models as suited to telecoms market of AJK & GB. It merits mentioned that PTA, being a regulatory Body regulates establishment, operation and maintenance of telecommunication systems and provision of telecom services in Pakistan and AJK &GB. It is empowered to undertake consultancy on such terms and conditions as it may determine for licensing radio frequency spectrum for any telecommunication system and service, as it may from time to time specify. (October 10, 2017) fp.brecorder.com

Pakistan reaches 46.85 million Broadband Subscribers in August 2017. The telecom sector of Pakistan has undergone through huge transformations after the arrival of 3G and 4G services in the country. From the increase in mobile phone penetration to the launch of various m-Services; Pakistan's telecom sector has become a success story for some regional countries who are left behind in technological race. This is also evident from the recent stats announced by the PTA. Now as per August, 2017 report of Pakistan Telecommunication Authority (PTA), the number of broadband subscriber reached a record figure of around 46,868,237. Last month Pakistan has 44.50 million broadband subscribers. It is evident from PTA stats that Pakistan has witnessed growth of 1.3 percent in one

month. Out of total 46.85 million subscribers, 44.49 million are mobile broadband subscribers. Around 565,709 internet users connected through EV-DO technology whereas DSL base reached 1.54 million subscribers at end-August Almost 160,519 broadband subscribers use WiMAX connections, and there are HFC connected 51,065 internet subscribers. The FTTH internet base reached 51,097 users by the end of August. We expect that these figures will further witness a boom in coming years. Pakistani telcos achieve another triumph as the government has finally allowed the Pakistan Telecommunication Authority (PTA) to let telcos conduct 5G trials in Pakistan. In a recent meeting held with Prime Minister at the Prime Minister's Office in Islamabad, the official decision to let telcos conduct 5G trials was taken. Under the Section 8 of the PTA Re-Organization Act, 1996, the Federal Cabinet has approved the issuance of Policy Directive to the Pakistan Telecommunication Authority (PTA) which will, in turn, allow telcos to conduct the trials while following pre-determined regulations. Now that the PTA has an official stamp of approval to go-ahead with the 5G trials, it will proceed to develop a framework which all telcos will have to follow if they want to test 5G. Before the 5G spectrum is auctioned off in a few years, this prior testing is an essential phase. It isn't clear yet how the PTA will allocate the bands of the 5G spectrum to various telcos but during this testing period telcos cannot charge their customers for 5G services. The buzz around 5G has been going around for quite a while now. Last summer, Zong expressed its interest in testing 5G technology in Pakistan around the same time when IT Minister Anusha Rahman stated that Pakistan is set to have 5G by 2020. The United States was the first country to have the 5G spectrum available for commercial use. Until it rolls out to the masses we can only speculate its implications. When 4G was introduced, it was said to be 10 times as fast as the 3G technology. Now tests show that 5G will be at least a 100 times faster than the speed of 4G technology. This essentially means that 5G connections will seldom drop below the gigabits per second speed.

(September 28, 2017) phoneworld.com.pk

The operators providing cellular services in Pakistan have paid Rs. 42,549.3 million tax during last five years. The most of tax paid by these mobile companies was Rs. 10,358.3 million during FY 2013-14. Telecom Operators Paid Rs. 42,549.3 million Tax in Five Years: Finance Division. Finance Division revealed that during year 2012-12 the amount of tax paid was Rs. 6,419.3 and 10,358.3 during year 2013-14. During year 2014-15 Rs. 8,286.9 million was recorded however during 2015-16 the tax paid was 8,149.5 million. In year 2016-17 the mobile companies paid tax of Rs. 9,335.3 million. The mobile operators providing cellular mobile services in Pakistan are Zong, Ufone, Jazz, and Telenor. The audit was conducted under three tax statues i.e; Income Tax Ordinance 2010, Sales Tax Act, 1990 and Federal Excise Act, 2005. Due to this high figure of taxes paid, telecom operators are not able to provide best services to their customers. If they raise cost people are not able to afford it. Even Telenor argued that telecom industry contributed Rs 100 billion. This high amount should be subsidized to enable operators provide advanced internet to their users. In Pakistan only 20-22 percent of population is using mobile internet if we exclude multiple SIM users. This figure will likely fall with the rising taxes paid by telecom operators. High internet speed and telecom services is not a luxury but necessity in today's era.

(September 21, 2017) phoneworld.com.pk

Saudi Arabia

The telecoms regulator the Communications and Information Technology Commission (CITC) has reclaimed additional spectrum that was awarded to Etihad Atheeb Telecommunication (GO Telecom) following an auction conducted in June. The company secured 2×10MHz in the 700MHz band, in addition to a paired 10MHz block in the 1800MHz band, for SAR2.065 billion (USD550 million), with 15-year validity (from January 1, 2018). The CITC's decision comes after Etihad Atheeb failed to pay the first installment of SAR619 million, equivalent to 30% of the total it owed for the frequencies. For its part, GO Telecom has said it will take all necessary steps to protect shareholders' interests, adding that the financial impact of the CITC's decision cannot be assessed at the current time.

(October 2, 2017) telegeography.com

The Saudi Communications and Information Technology Commission (CITC) has introduced regulatory amendments to the telecom law in the Saudi Kingdom, which took effect from September 25, with a view to protecting consumer rights, improving the process of resolving complaints and adding transparency to the telecoms sector. According to a press release, the new legislation has reduced the time required to resolve a complaint from ten days to a maximum of five days. The regulator has also doubled the timeframe within which a user is allowed to complain about a bill to 60 days (starting from the day the bill was issued). Another amendment states that telecoms providers are no longer authorized to suspend telecoms services (or any of the other services provided to a user), nor request the disputed amount is paid while a complaint is being examined. (September 26, 2017) zawya.com

United Arab Emirates

The Telecommunications Regulatory Authority (TRA) of the United Arab Emirates (UAE) will host "RIPE 75" meeting that will take place on October 22-26, in Dubai. RIPE 75 is the first international meeting to be held in the Middle East, discussing Internet protocols, information systems and network operation. RIPE 75 will feature RIPE Working Group Sessions that focus on discussing technical and regulatory challenges that hinder the Internet industry, information systems and network operation. The Meeting will be attended by representatives of key government agencies, regional and international companies and entities. The event will be an ideal opportunity to review the latest emerging trends and developments in the regional and international landscape, as well as consolidate effective communication between key actors in the Arab region and Europe to share best practices that will shape the network operation sector in line with the 21 century. A RIPE Meeting is a five-day event where Internet Service Providers (ISPs), network operators and other interested parties gather to discuss issues of interest to the Internet community. It aims to discuss the policies and procedures used by the Réseaux IP Européens Network Coordination Centre (RIPE NCC) to allocate Internet number resources and share experiences, latest developments and best common practices. Attendees participate in the RIPE Working Group sessions to discuss current technical and policy issues. RIPE Meetings are open to everyone, they bring together people from different backgrounds, cultures, beliefs and genders. (October 22, 2017) mcit.gov.eg

The Telecommunications Regulatory Authority (TRA) has signed a Memorandum of Understanding (MoU) with ICDL Arabia to develop the online safety skills of government officials, it announced on Sunday. Per the three year agreement, the two parties will work to broaden the IT skills and competencies of government employees. The two parties will also raise awareness on digital security and online safety among government employees and different segments of society. They will aim to enhance the optimal, safe and secure use of modern technological elements, social media channels and smart devices in the UAE. (October 16, 2017) zawya.com

The Telecommunications Regulatory Authority (TRA) held a workshop for mobile phone operators to highlight the methodologies that TRA will undertake in their upcoming mobile network audit, the results of which will be included in the TRA's annual mobile quality of service report which is expected to be published before the end of the year. Among the aspects that the audit will cover, include measurements of mobile operators' compliance with the coverage terms set out in their licenses. The audit will also cover measurements of voice and data accessibility across the kingdom's main roads, as well as population coverage according to population density. There will also be stationary tests of mobile broadband infrastructure for each mobile operator's respective networks and voice call tests indoors, outdoors and in moving vehicles. Also included in the audit are SMS, Web Browsing, Video Streaming, OTT services such as popular social media apps, billing and more.
(September 27, 2017) telecompaper.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

ITU

With a charge on countries including Nigeria, South Africa, Kenya, Egypt to champion next generation technologies in terms of use and adoption, the International Telecommunications Union (ITU) is hoping to complete all standardization around the Fifth-Generation (5G) networks by 2019. ITU Secretary-General, Houlin Zhao, who revealed this on Monday, while declaring open the 2017 edition of the Telecoms World Conference in Busan, South Korea, with the theme: Digital Transformation, Global Opportunity, countries, especially in the African region to brace up for disruptions. He revealed that the world is gradually shifting from 3G; 4G and focus now is on 5G, which he said would make technology stronger. According to him, the technology, "5G is not finalized yet. ITU is working to improve its parameters and fix spectrum for it. Though some countries, including Korea, are already test running the technology, the standardization will be fixed at the Plenary Assembly of Radio Communications Sector by 2019." 5G has higher capacity than current 4G, allowing a higher density of mobile broadband users, and supporting device-to-device, ultra-reliable, and massive machine communications. Its research and development also aims at lower latency than 4G equipment and lower battery consumption, for better implementation of the Internet of things. Zhao called on countries to brace up for the next phase of industrial revolution, which is the Fourth, stressing that countries that are not investing will be left behind. Furthermore, Zhao said the global mobile connectivity has hit 95 per cent. Houlin particularly commended Nigeria for aiding the growth of mobile connectivity, stressing that the footprint is seen across Africa and the world at large. Indeed, checks by The Guardian showed within the space of 16 years, Nigeria's mobile connection grew from a meagre 400,000 telephone lines offered by the Nigeria Telecommunications Limited (NITEL) to 240 million connected lines, with 138 million functioning as active telephone line as at July 2017. The liberalization of the telecommunications sector brought in the GSM operators including MTN, Globacom, Airtel and Etisalat. The ITU Secretary-General called for concerted from both public and private sectors, "so as to be able to move the about 3.9 billion people of the world that are still offline to the online space." In his keynote address, the Minister of Communications and Postal Service, South Africa, Dr. Siyabonga Cyprian Cwele, appealed to ITU to give Africa a chance to host the global edition come next year. Cwele specifically said South Africa was more than ready to host the 2018 edition of ITU Telecom world. He stressed that Africa is on the move, "the Continent remains number one investment destination now and is ready for business." He disclosed that South Africa, like other advanced countries has what it takes to host the global event. Responding, Houlin, who queried while Nigeria is not showing interest in hosting the conference, said hosting next edition in Africa will not be a bad thing, stressing that the prospect is there, "as the region has remain dynamic in the last one year and has witnessed more development in technology related areas than other regions. "The possibility is high for Africa to host. But it is not a decision I can make alone. The secretariat would consider the offer and communicate back to South Africa," he stated. (September 27, 2017) guardian.ng

Australia

A final decision on nbn's proposed variation to its special access undertaking (SAU) will not be forthcoming until the company has further progressed a consultation with its customers regarding its pricing model, the Australian Competition and Consumer Commission (ACCC) has announced. nbn, which is overseeing the construction of the National Broadband Network (NBN), submitted its most recent revised SAU variation proposal in June 2017, with a view to incorporating fiber-to-the-node (FTTN), fiber-to-the-basement (FTTB) and HFC technologies into the undertaking, so as to reflect the current NBN model and extend the existing pricing structure to these technologies. In announcing it will hold off on issuing a ruling regarding the proposal, the ACCC noted that it was aware that nbn was consulting with the retail service providers that use its infrastructure on potential alternatives to the current pricing model.

As such, the regulator's chairman Rod Sims noted: 'There has been a lot of discussion about [nbn's] pricing, particularly around capacity issues and whether it is impacting consumers' experiences on the NBN. We think an industry outcome on NBN pricing is the best solution and preferable to a regulatory outcome. We welcome [nbn's] initiative here and will let the process run its course.' It is understood the discussions could result in a change to nbn's pricing model, although the ACCC does not consider it appropriate to make a decision on the SAU variation at this time. The regulator has confirmed, however, that it will continue to examine other aspects of the SAU variation, including certain non-price matters, so that it will be in a position to make a ruling once a final position has been reached in relation to nbn's pricing consultation. (October 11, 2017) telegeography.com

The Australian Communications and Media Authority (ACMA) announced it will hold three sequential auctions in late November to sell spectrum across the 1.8GHz, 2GHz, 2.3GHz and 3.4GHz bands. According to a 78-page guide for the multiband residual lots auction, ACMA will sell 39 lots of spectrum in total. All lots in the 1.8GHz band and three 2x10MHz lots in the 2GHz band will be sold in the first stage, while six 2x5MHz lots in the 2GHz band will be offered in the second. The third stage will sell all the lots in the 2.3GHz and 3.4GHz bands. There is a 25MHz spectrum limit for the 1.8GHz band. Spectrum unallocated after previous allotments will be put up for sale, while a batch of spectrum in the 2GHz band in the Canberra region, which was recently designated for spectrum licensing for the first time, will also be sold. Interested parties must submit applications by October 27. Mock auctions will be held in early November, after which the regulator will notify the bidders of the start date and time of the first and second rounds of the online auction. The ACMA set a tentative auction start date of November 28. Spectrum allocations are available in the Australian Capital Territory, New South Wales, Queensland, Tasmania and Western Australia. No spectrum is being sold for South Australia or the Northern Territory. Four Australian operators spent AUD543.5 million (USD385 million based on exchange rates at the time) in an auction for 1.8GHz spectrum in 12 regions in February 2016. Singtel-owned Optus spent AUD196 million while market leader Telstra invested AUD191 million in airwaves in all regions. TPG Internet paid AUD88 million for its spectrum, and Vodafone Hutchison spent AUD68 million.
(October 9, 2017) mobileworldlive.com

Benin

The Republic of Benin's government has signed a framework cooperation agreement with the International Telecommunication Union (ITU), defining the terms and conditions for implementation of ICT sector development partnerships. Benin's Ministry of Foreign Affairs & Cooperation said that by signing the agreement, 'Benin is in line with its ambitions in the fields of telecommunications and ICT for the realization of President Patrice Talon's initiatives through the Program d'Actions du Gouvernement (PAG [Government Action Program])'. The PAG (2016-2021) aims to utilize ICT 'as a catalyst for economic dynamics and modernization in Benin for accelerating economic growth and social inclusion … to transform Benin into a digital services platform for the whole of West Africa … based, in particular, on the massive development of infrastructures and the generalization of access with a view to reaching a coverage rate of 80%, as well as on the consolidation and dynamization of the sector.' The Action Plan envisages doubling the size of the ICT market and creating 90,000 net direct jobs. (October 6, 2017) Agence Ecofin

Bosnia and Herzegovina

The Communications Regulatory Agency (RAK) has launched public consultations on draft rules for introducing 4G LTE mobile network services in a range of spectrum bands – a long-awaited process in the Balkan country. One set of draft rules defines technical requirements for LTE implementation in the 900MHz, 1800MHz and 2100MHz spectrum bands – currently licensed to the country's mobile operators for 2G GSM and 3G UMTS services. Another draft defines methods for utilizing 3400MHz-3600MHz and 3600MHz-3800MHz frequencies on a technology/service-neutral basis for mobile or fixed communications (updating the current valid regulation No. 74/2014). The RAK is accepting comments on its draft regulations up to October 26, 2017. December 2017 is the scheduled date for the Bosnian watchdog to finalize its 4G mobile licensing plans, including decisions on the prices and method of payment for LTE/technology-neutral concessions, ahead of expected commercial launches in 2018 by BH Telecom, HT Mostar (HT Eronet) and Telekom Srpske (m:tel). (October 10, 2017) telegeography.com

Brazil

The Ministry of Science, Technology, Innovations and Communications has put on public consultation the proposal for a telecommunications policy decree. The document reviews the sector's regulatory framework, updating legislation to align it with the technological, economic and social changes that have taken place since the enactment of the General Telecommunications Law in 1997. The proposal places broadband at the center of public policy of Brazilian telecommunications. The decree submitted to the public consultation replaces three other decrees currently in force, bringing together in a single instrument the regulatory guidelines for the expansion of broadband services and digital inclusion in the country. According to Telecommunications Secretary Andre Borges, the decree establishes priorities for public and private investments to expand telecommunications infrastructure through fibre optics, wireless and satellite. Some of the actions foreseen in the new policy are the implementation of 4G in all cities and towns with significant population density, as well as the expansion of the Smart Cities program. The consultation is open until November 17.
(October 19, 2017) telegeography.com

The total number of mobile customers in Brazil declined by close to million in the year to August due to the impact of new interconnection rate regulation, Anatel's latest figures show. The country was home to 242.17 million mobile connections at the end of August, a slight increase of 0.06% on the previous month but down by 3.93% – or 9.91 million lines – on the same date a year earlier, the regulator announced this week. The fall comes as a result of gradual reductions in mobile network interconnection tariffs, which in turn meant fewer on-network pricing incentives and a reduction in multiple SIM card ownership, Anatel explained. Three of the country's big four mobile operators registered multi-million-customer losses, with more than half of the total market decline coming from one telco: Oi. Oi, the fourth-largest mobile operator in Brazil, lost 5.04 million mobile lines in the year to the end of August, its total customer base dropping to 42.03 million and its market share slipping to 17.4% from 18.7%. America Movil overtook TIM to become Brazil's second-largest player in August, growing its subscriber base by over 150,000 during the month to 60.46 million while TIM registered close to 120,000 losses to reduce its subs base to 60.35 million. The pair lost 3.23 million and 3.16 million connections respectively over the full year. Market leader Vivo, owned by Telefonica, consolidated its position with the addition of 1.1 million customers over 12 months to take its base to 74.57 million and increasing its market share to 30.8%. Brazil added 4.39 million new 4G connections in August alone, Anatel said, and 42.16 million over 12 months, almost doubling its 4G base to 88.5 million. M2M connections grew by 2.25 million to 14.22 million.
(October 6, 2017) totaltele.com

The telecom regulator is still considering the possibility of cancelling the operating licenses of fixed and mobile operator Oi, but it has pushed back the discussion on that issue in light of the telco's ongoing attempts to agree a recovery plan with creditors. Anatel announced it removed the issue from its meeting agenda following Oi's announcement that it had won court approval to delay a creditor meeting scheduled for next month. "Due to the information recently brought to my attention and the necessary prudence that the case requires…I requested the removal of the matter from the agenda of this meeting of the board of directors," Anatel advisor Leonardo Euler de Morais said, in a statement. "In view of the ongoing judicial process, which may even culminate in the bankruptcy decree, the continuity services provided and the integrity of the Brazilian telecommunications market is reason for maximum attention and zeal by this regulatory entity," the executive said. The regulator did not suggest a timeframe for picking up the discussion around Oi's licenses, other than to say that it will happen "soon" either in an ordinary or extraordinary meeting. The announcement came after Oi revealed that the Judicial Reorganization Court had approved its request to delay a meeting of its creditors. The telco said the court gave the go-ahead for it to push back its first meeting by 15 days to October 23 and a second session to November 27. Oi is seeking to set out a reorganization plan that will appease creditors and enable it to exit bankruptcy protection, under which it has been operating since mid-2016. A key issue still to be resolved is the presence of Anatel among the telco's creditors. Oi owes the regulatory a sizeable amount – in excess of 11 billion reais (€2.9 billion), according to a report by Empresa Brasil de Comunicação (EBC) – in unpaid fines. Anatel does not want to be included as a creditor in Oi's plan and has threatened to vote against the plan should he courts not back its position, the state-owned TV company explained. On a related note, Anatel shared details of new fines it has imposed on certain telcos, Oi being amongst them. The regulatory penalized Oi to the tune of BRL2.1 million for failing to meet fixed-line universal service targets in the Itapoã region in the Federal District in 2004 and 2005. It also imposed a BRL1.5 million fine for failing to comply with various obligations in the state of Acre, also in the fixed telephony business.
(September 29, 2017) totaltele.com

Chile

The parliament has approved a bill to ensure that service providers clearly advertised minimum download speeds accessible through each plan. The bill was approved unanimously by both the upper and lower houses. The bill will modify the General Telecommunications Law to establish an obligation for providers of fixed and mobile internet services to provide guaranteed minimum access speeds. The minimum speed will be a percentage of the average speed available on each tariff plan – allowing variance for peak and off-peak times – and providers will be required to make available an application or other system for users to test speeds. In addition, a new independent agency will be created to carry monitor compliance and measure quality of service (QoS). The new body's function will have no impact on the Department of Telecommunications' (Subsecretaria de Telecomunicaciones, Subtel's) powers to conduct its own tests and measurements.
(October 20, 2017) telegeography.com

Congo Republic

Leon Juste Ibombo, the Minister of Posts, Telecommunications and the Digital Economy, has called on the nation's cellcos to improve their services. It is understood that the move comes after a meeting was held last week to discuss and evaluate the actions taken by local mobile network operators (MNOs) to improve the quality of their respective offerings. The authorities are reportedly unhappy with the current state of affairs, and on behalf of the government, Mr. Ibombo was cited as saying: 'A number of complaints have been raised at the level of the government from consumers concerning the services [the cellcos] offer to the population … Quality of service is not an option but an obligation … The government cannot compromise on satisfaction of the subscriber, which is one of its main concerns, beyond the improvement of the technical performance indicators contained in [the terms of operator's licenses].' According to the minister, the most common complaints relate to: high prices, including increases in the cost of flat-rate calls, SMS and internet access; the non-payment of credit to customers in the event of a prolonged loss of service due to technical issues; and the inaccessibility of customer services. Congo's three major MNOs – Airtel Congo, MTN Congo and Azur Congo – have now been given until December 2017 to remedy the aforementioned complaints, at which date a new evaluation of their services is expected to be conducted. There has, however, been no indication of what action the government might take should it remain unhappy with the quality of services on offer.
(October 20, 2017) Agence Ecofin

The Democratic Republic of Congo (DRC) announced the launch of a fund for access and universal service to improve connectivity. Leon Juste Ibombo, Minister of Telecommunications and the Digital Economy, said the fund would support communications infrastructure and services in rural and landlocked areas of the DRC. Operators have been informed that they will be contributing 2 percent of their turnover to the new fund. According to the Minister, the fund is an active step taken by the government in conjunction with the industry's stakeholders to address poor network coverage and poor quality of service in the country. He said the government has been sanctioning operators, especially Airtel and MTN, since 2014, yet there has been no significant improvement in the quality of service. In addition to the new fund, he also issued an ultimatum to operators to improve the quality of their service within two months.
(September 29, 2017) telecompaper.com

Costa Rica

The telecom regulator SUTEL has ratified its decision to declare the nation's wireless market competitive, rejecting an appeal from the Ombudsman's Office of Costa Rica (La Defensoria de los Habitantesde la Republica, DHR). The declaration of effective competition in the wireless market eliminated certain tariff-setting regulations on operators, freeing cellcos to offer a wider variety of plans and offers. The DHR had challenged Sutel's decision, claiming that price reductions in recent years were due to factors other than competition and accusing the regulator of omitting relevant information from its reports. Sutel has defended its findings, noting that its methodology was supported by anti-trust regulator the Commission for the Promotion of Competition (La Comision para Promover la Competencia, COPROCOM). Sutel added that its decision was based on a comprehensive analysis of the mobile market, and that the DHR's chosen approach of focusing on a specific parameter was flawed. Amongst the DHR's other criticisms was the limited number of operators and the distribution of radio spectrum to just three mobile network operators; a situation which it claimed represented an unassailable barrier to would be newcomers to the market. In its response, Sutel pointed out that the number of operators present in Costa Rica's wireless market is 'comparable with that of similar countries'.
(October 20, 2017) telegeography.com

The telecoms watchdog the Superintendency of Telecommunications (Sutel) has completed its analysis of the wireless market and deemed the sector to be competitive, removing certain restrictions on the nation's cellcos. The resolution will allow mobile operators greater flexibility to introduce new tariffs, services and promotions. In a statement, the regulator noted that its oversight would continue to prevent anticompetitive practices and ensure that customers always receive the best possible quality of service. To that end, Sutel has made available to consumers several websites with helpful information on the nation's wireless providers, including data on coverage and service quality. As a result of its decision, Sutel added that it expects to see a more dynamic mobile market 'in which users will be able to find greater availability of commercials offers adjusted according to their needs, the possibility of better prices for the services offered, greater diversity of promotions and a vast improvement in the quality and experience of the service.'
(September 25, 2017) telegeography.com

Cote d'Ivoire

Mobile operators are facing legal action from the country's Telecommunication Consumer Association (Association des Consommateurs de Telecommunication, ACOTEL). The body's legal counsel Adou Assemien said that operators should be compensating their customers for poor quality of service (QoS), and he is recommending that consumers contact ACOTEL when suffering service outages or call problems. Last month the three cellcos were fined a total of XOF5 billion (USD9 million) for providing unacceptable levels of service. The Regulatory Authority for Telecommunications in Cote d'Ivoire (Autorite de Regulation des Telecommunications de Cote d'Ivoire, ARTCI) completed its audit of QoS for 2016 and found a number of infringements when measuring voice quality, call set-up times, failed calls and other criteria. Market leader Orange was hit with a penalty of XOF2.09 billion, MTN was ordered to pay XOF1.74 billion and Moov was fined XOF1.15 billion. The country was home to more than 31 million mobile subscribers at the end of June 2017, with Orange accounting for 42% of the total, MTN 35% and Moov 23%. (October 18, 2017) Agence Ecofin

Country's fourth mobile licensee, the Libyan Post Telecommunications and Information Technology Company (LPTIC), has had its concession revoked. The firm, which is controlled by the Libyan government, had previously operated in the Cote d'Ivoire mobile sector via its subsidiary LAP Green Network, which offered services under the name GreenN. GreenN Cote d'Ivoire lost its operating license in March 2016, along with two other firms – Comium and Aircom – leaving the market with three players, Orange, MTN and Moov. In September 2016 LPTIC emerged as the winner of a new fourth mobile concession, with plans to deploy a 4G LTE network. The Libyan firm failed to make any headway with its network rollout, however, and has attempted to have the terms of its new license altered, but it now appears that the government has lost patience with LPTIC and revoked its permit. Bruno Nabagne Kone, Minister of Digital Economy said: 'The State has given its consent to an undertaking which unfortunately has not been able to start its activities on the basis of the conditions offered to it … This company has requested a number of additional conditions the government did not want to give.' LPTIC had agreed to a number of terms to acquire the fourth license, including the payment of a XOF100 billion (USD179 million) fee and the re-hiring of staff made redundant following the closure of GreenN. (October 6, 2017) Agence Ecofin

France

Telecoms regulator ARCEP has proposed a drop in the regulated prices for full local loop unbundling (LLU) for the three years to end-2020, with all interested parties invited to submit their comments on the topic by 6 November. Under the suggested glidepath, the monthly tariff for full LLU will drop from the current charge of EUR9.45 (USD11) to EUR9.31 in 2018, before rising to EUR9.41 (2019) and EUR9.51 (2020). The monthly price for standard bitstream access, meanwhile, will reach EUR13.19 in 2018, before increasing to EUR13.30 (2019) and EUR13.41 (2020). In a bid to encourage migration to fiber-optic networks, the regulator also proposes a significant drop in the full LLU cancellation fee (from EUR15 to EUR5). (October 9, 2017) telegeography.com

Consolidation in the French market is reportedly off the table as the country's Operators focus on expansion through new services and geographical expansion. Sources quoted by the news website said since Orange's failed bid to merge with Bouygues Telecom in early 2016, the dynamics of the market had changed and companies were now looking to explore other avenues to improve their position rather than engage in M&A activity. The intensely competitive environment sparked by the entry of discount brand Free in 2012 appears to have subsided in recent quarters, with the country's major operators recording signs of growth. In July Orange reported its first quarterly rise in revenue for the French market since 2009: the following month Bouygues and Free parent Iliad talked up strong subscriber gains in the first half of 2017. SFR said it generated solid results in its B2C mobile division during Q2, driven by new offers and the continued improvement of its 4G coverage. While domestic results improve, the companies are also making moves in new sectors. Orange and Altice-owned SFR are eyeing growth through financial services, while Iliad is focused on a move into the Italian market. There also seems little appetite from authorities for consolation. In March, regulator ARCEP announced it would remain "very vigilant" if any M&A between the country's operators was attempted. (October 2, 2017) bloomberg.com

The telecoms regulator ARCEP has adopted a decision authorizing mobile operator Orange to use the 2100MHz band for LTE services, following the cellco's July 2017 request to allow technological neutrality in the band. TeleGeography notes that ARCEP launched a tender for four UMTS concessions in the 2100MHz band in December 2000. The authority revealed in February 2001 that it had received two formal applications by the January 31 deadline, with Orange France and SFR subsequently granted 3G concessions in August 2001. In December ARCEP re-launched the contest for the remaining two licenses, and the sole bidder, Bouygues Telecom, was awarded a 2100MHz concession in September 2002. (September 25, 2017) telegeography.com

Gambia

The Minister of Information and Communication Infrastructure, Demba Jawo, has confirmed that his ministry alongside the Finance Ministry and the Gambian vice-president have intervened in a dispute between the country's largest mobile operator by users Africell and the telecoms watchdog, the Public Utilities Regulatory Authority (PURA). The regulator had issued Africell a fine of GMD3 million (USD63,000) for alleged non-compliance with rules governing the registration of users purchasing mobile SIM cards, but Africell took the issue to court, denying that it had allowed agents to continue uncontrolled SIM card sales in breach of the PURA Act. PURA wrote to Minister Jawo recommending the suspension of Africell's license, but this course of action has been avoided, the minister said, following a meeting between himself, PURA, the vice-president and the Finance Minister. The two-month old court case has not yet been resolved, however. (September 29, 2017) The Point Newspaper

Ghana

Ghana's National Communications Authority (NCA) approved the merger between Bharti Ghana Limited (Airtel) and Millicom Ghana Limited (Tigo) to proceed further which is however subject to conditions. "This merger will result in an entity which will be the second largest mobile network operations in the country," Sunil Mittal-driven Bharti Airtel in a statement said. The merger between the two companies announced in March this year, required the regulator to conduct a comprehensive analysis of the application and the regulatory ecosystem. The merged entities will have to submit a network integration plan to the regulator to ensure efficient and equitable distribution and access to the spectrum, which would also indicate how they intend to relinquish portions of their total spectrum allocation. This, however, will be done in phases on geographical area basis and over a period not exceeding to 18 months to avoid disruptions on the network. The merger approval is also conditioned with an option for government participation, the telco added. Based on agreements which have been accepted by the merging entities and the payment of relevant fees, a supplementary agreement to the licenses of the merging entities will be signed between the NCA and the merging entities. The merged entity will have a 3G license valid until January 25, 2024 while their 2G license will be valid until October 30, 2021. (October 3, 2017) telecom.economictimes.indiatimes.com

Expresso Ghana, which was recently sold by Sudatel Group to its original owner Kludjeson International Limited, faces an uncertain future, following reports that the National Communications Authority (NCA) does not plan to renew its operating license when it expires in 2019. Citing a 'highly-placed source within the industry', the NCA has already informed the cellco of its decision, although a viable turnaround plan could prompt the watchdog to reconsider its options. Recent reports suggesting that the sale of Expresso Ghana was not registered with the NCA, will do little to improve the cellco's bargaining position, however. Last month the regulator noted: 'We would like to state that the NCA has no records on its files relating to any change of ownership of Expresso/Kasapa as it remains same as per the license.' Based on Sudatel documents discovered by Adom Online, the sale – which has only just been made public – may have taken place as early as 3Q16. Expresso claimed just 40,111 subscribers as of March 31, 2017 (most recent data), equivalent to a 0.1% market share. (September 29, 2017) Adom Online

Greece

The Hellenic Telecommunications & Post Commission (EETT) has announced that Greece's three incumbent cellcos – Cosmote, Vodafone and Wind Hellas – have all submitted applications to participate in the forthcoming tender for rights to use wireless spectrum in the 1800MHz band. The sale includes six packets of 2×5MHz spectrum in the ranges 1830MHz-1845MHz/1735MHz-1750MHz and 1805MHz-1820MHz/1710MHz-1725MHz, as well as five packets of 2×5MHz in the range 1855MHz-1880MHz/1760MHz-1785MHz. The spectrum is already being used by the three operators, but their existing licenses are due to expire between 2018 and 2020. The new concessions will run until December 2035. Separately, the EETT has extended its public consultation on the possible allocation of wireless broadband spectrum in the 3400MHz-3800MHz band. Submissions are now being accepted until October 30. The regulator has also announced that it plans to run a consultation exercise to discuss issues related to open internet access. The process is expected to start by December 4. (October 5, 2017) telegeography.com

Iceland

The Icelandic Competition Authority (ICA) has granted its conditional approval to Vodafone Iceland's (Fjarskipti's) acquisition of 'a large portion of the telecoms and media businesses' of 365 Media, which operates in the fields of television and radio broadcasting and printed publications. Vodafone said that the deal excludes some of 365's printed publications (Frettabladid and Glamour). In a bid to preserve competition in the telecoms/media markets, the ICA imposed a number of conditions on

Vodafone, including a requirement to offer wholesale TV services and access to its IPTV platform. To that end, Vodafone has entered into a wholesale TV/IPTV agreement with Hringdu. The ISK8 billion (USD75.8 million) deal – which was agreed in March 2017 – is now expected to close on December 1. TeleGeography notes that 365 currently uses Vodafone's network to resell fixed and mobile services and Siminn's 3G/4G network to provide mobile broadband access. (October 11, 2017) telegeography.com

India

Telecom regulator Telecom Regulatory Authority of India (TRAI) will come out with its views on net neutrality by October-end and also start consultation on "residual" issues around over-the-top (OTT) applications soon, its Chairman R.S. Sharma has said. The TRAI has already concluded open house discussions around the controversial issue of net neutrality and is in the process of drafting the recommendations. Sharma told PTI in an interview that the regulator will frame its views on net neutrality "by October-end". Net neutrality calls for access to internet content without any discrimination in data speed and cost, and telecom operators and internet firms have been at loggerheads over various aspects of the contentious issue. The TRAI Chief further said the regulator is preparing a consultation paper on "residual issues" with regard to OTT players like WhatsApp, Skype, Hike, among others. "On OTT, we had floated a consultation paper in early 2015. Much water has flown since then and many of the issues have been taken care of, by our efforts around differential pricing, net neutrality etc. For the residual issues of OTT, we will float a consultation paper soon," he said. In March 2015, TRAI had initiated a discussion to analyses the implications of OTT proliferation and recommend suitable changes in the regulatory framework, if required. That paper had touched upon aspects like whether OTT players offering communication services (voice, messaging and video call services) through applications should be brought under the licensing regime, and also had thrown up issues around net-neutrality, differential pricing and traffic management practices. It had also sought stakeholders' views on whether the growth of OTT impacted the traditional revenue stream of telecom operators, and if increase in data revenues of service providers was sufficient to neutralize that impact. Sharma said that over the last two years, the telecom sector had undergone a "lot of significant changes", and data had assumed Centre stage. "A lot of regulations have also come in between... the world has gone from voice to data. So now we will cull out the residual issues which are still relevant from that (earlier) paper and take it forward... We will take up issues like regulatory imbalance," he added. The new OTT paper is under preparation and will be out "hopefully" in October, he added but did not comment on the specifics. An official familiar with the development said that the "residual issues" could deal with larger question around level-playing field between OTT offerings (like voice and messaging) and the services offered by licensed telecom service providers. It may also look at issues around security practices such as data records and logs that need to be put in place for OTT players, the official added. The term OTT refers to applications and services which are accessible over the internet and ride on operator networks offering internet access services, that is, social networks, search engines, video aggregation sites. Skype, Viber, WhatsApp, Instagram and Hike are some examples of OTT services. (October 2, 2017) livemint.com

The government has announced plans to establish a dedicated 5G committee to develop a roadmap for the rollout of the technology by 2020, the Economic Times writes. The group, dubbed the 'High Level Forum on 5G India 2020' will comprise senior officials from the Department of Telecommunications (DoT), the Ministry of Electronics and IT (MeitY) and the Department of Science and Technology (DST), as well as industry stakeholders and academics. The committee will initially have access to funds totaling INR5 billion (USD76 million) to bankroll research and development related to 5G. The government is hoping to use the technology to facilitate the provision of 10Gbps speeds in urban areas and 1Gbps connections in rural locations. Commenting on the move, Telecom Minister Manoj Sinha explained: 'we missed the opportunity to participate when the standards were being set for 3G and 4G, but don't want to miss the 5G opportunity. Now when the standards are being set for 5G across the world, India will also participate in the process.' The primary goals of the forum, according to the official, are to achieve early deployment of 5G in India and a globally competitive product development and manufacturing ecosystem targeting 50% of the Indian market and 10% of the global market over [the] next five to seven years. In related developments, Bharti Airtel announced that it has deployed Massive MIMO technology on its networks in Kolkata and Bengaluru. The upgrade will act as a stepping stone to 5G, and will be expanded to other areas of the country soon. Similarly, rival wireless provider Idea Cellular confirmed that it has conducted trials of the same upgrade. Idea added that it has so far rolled out 64,000 LTE sites, and plans to increase that number to 100,000 shortly. Finally, Chinese vendor ZTE is working on advanced pre-5G technologies in partnership with three of India's largest wireless providers, Bharti Airtel, Vodafone India and Reliance Jio Infocomm (Jio). (September 27, 2017) telegeography.com

Indonesia

Telkomsel (Telekomunikasi Selular), the mobile arm of PT Telekomunikasi Indonesia (Telkom), has reportedly secured 30MHz of 2300MHz spectrum in the tender process being held by Ministry of Communications and Information Technology (MCIT, KemKominfo). The Telkom subsidiary offered IDR1.007 trillion (USD75.17 million) for the frequencies on offer, beating off rival bids from Hutchison 3 Indonesia (Tri), Indosat Ooredoo, XL Axiata and PT Smart Telecom. The reserve price had been set at IDR366.72 billion with a bid bond of IDR146.69 billion. IndoTelko quotes Secretary General of the Center for Industrial Policy Studies and Telecommunications Regulation of Indonesia-ITB (PIKERTI-ITB), M Ridwan Effendi, as saying that the new frequencies mean that the operator now 'has the flexibility of infrastructure to serve customers optimally,' thanks to the increased capacity afforded by the spectrum which will also allow it to be more efficient in how it uses it. The PIKERTI-ITB says that Telkomsel already holds 7.5MHz in both the 850MHz and 900MHz bands, as well as 22.5MHz at 1800MHz and 10MHz at 2100MHz, to serve a customer base of about 178 million Telkomsel users. In the wake of its failure to secure the precious 2300MHz frequencies, XL Axiata says it will instead turn its attention to winning spectrum on offer at 2100MHz – noting that under the terms of the license tender, the winner of the 2300MHz spectrum (Telkomsel) will not be allowed to participate. The application process for 2.1GHz frequencies is slated to take place five working days after the result of the 2.3GHz band has been announced. KemKominfo will sell off two blocks of radio frequency bands, each with 2×5MHz (FDD) bandwidth in the range 1970MHz-1975MHz paired with 2160MHz-2165MHz (Block 11), and 1975MHz-1980MHz paired with 2165MHz-2170MHz (Block 12). The reserve price has been set at IDR296.74 billion with a bid bond of IDR118.70 billion. As it stands, domestic operators holding 2100MHz frequencies are Tri (10MHz), Telkomsel (15MHz), Indosat Ooredoo (10MHz) and XL Axiata (15MHz).
(October 18, 2017) telegeography.com

The Ministry of Communications and Information Technology (MCIT, KemKominfo) says that five telecoms operators will contest the rights to use 30MHz of spectrum in the 2.3GHz band being auctioned off by the government. In total, six firms registered their interest to participate in the tender by the October 2, 2017 deadline for submissions, namely: Telkomsel (Telekomunikasi Selular), Indosat Ooredoo, XL Axiata, Hutchison 3 Indonesia (Tri), Smart Telecom (Smartfren affiliate), and Sampoerna Telekomunikasi Indonesia (Net1). However, on October 10 the MCIT said that only five telcos – Net1 having failed to pre-qualify, although no reason for its omission has been given at this time – were placed on the shortlist when KemKominfo's Selection Team verified the administration document for the selection of 2.3GHz radio frequency band licensees on October 11-12, 2017. The auction stage will commence on October 16, 2017. (October 13, 2017) telegeography.com

Ireland

The Commission for Communications Regulation (ComReg) has published a consultation regarding the distribution of spectrum in the 26GHz band, which is expected to come into play as telecoms operators work towards the deployment of 5G technology. However, the watchdog has cautioned that the new 26GHz National Block Licenses will be restricted to point-to-point (P2P) links, and licensees will not be permitted to offer mobile services using the spectrum, citing the current absence of a 5G technical standard, and the lack of availability of 5G-enabled equipment in the 26GHz band. While acknowledging that 'the 26 GHz band is one of a number of candidate bands for the early deployment of what is now known as '5G' technology in Europe,' ComReg says that it 'does not have any certainty on which bands will eventually be designated for 5G,' and will continue to restrict the band's use. The existing 26GHz licenses – allocated in 2008 – are due to expire on 5 June 2018. Going forward, ComReg intends to distribute 19 2×28MHz blocks within the 24.745GHz–25.277GHz/25.753GHz–26.285GHz range. (October 23, 2017) telegeography.com

Irish open-access broadband provider SIRO, a joint venture between Vodafone Ireland and the Electricity Supply Board (ESB), has withdrawn from the National Broadband Plan tender process. Announcing the development in a press release, the company said that following a comprehensive review it had been unable to develop a competitive business case to justify continued participation in the bid process. SIRO's original plan to build a 1Gbps broadband network in 50 regional Irish towns is unaffected by this decision, it noted. Commenting on the announcement, SIRO's chief executive Sean Atkinson said: 'Our decision to withdraw from the National Broadband Plan tender has not been taken lightly. We will continue with our original plans focusing on transforming Ireland's regional towns, putting them on a par for high speed connectivity with cities like Tokyo and Hong Kong. SIRO's Gigabit towns will attract investment and job-creation, support SMEs and allow access to new services in education, healthcare and entertainment.' SIRO's decision leaves just two companies in the running, namely fixed line incumbent eir (formerly Eircom) and Limerick-based enet.
(September 29, 2017) telegeography.com

Italy

The government is expecting to raise at least EUR2.5 billion (USD2.9 billion) over the next five years from the sale of wireless spectrum for future 5G services. The authorities are hoping to surpass this and reach EUR3.2 billion, while an optimistic forecast sees income of EUR4 billion. Spectrum in bands such as 700MHz, 3.6GHz and 27GHz is likely to be offered to support future wireless broadband networks. The government has already unveiled plans to have 5G networks trailed in five Italian cities over the next few years, working with operators including TIM, Wind Tre, Vodafone, Open Fiber and Fastweb.(October 20, 2017) CorCom

Italy opened its third rural broadband consultation earlier this week, giving interested parties until the end of the month to submit comments. The consultation, launched by Infratel Italia, covers the provision of high-speed broadband in three regions: Calabria, Puglia and Sardinia. The government is working on a project to roll out high-speed connectivity to what it calls white areas, or underserved and uneconomic parts of the country. Infratel Italia is running the tender process. The first two tenders were secured by Open Fiber, the wholesale broadband project backed by utility company Enel and state bank Cassa Depositi e Prestiti (CDP). Under the terms of those deals, valued at around €2.6 billion, Open Fiber will provide network coverage to thousands of underserved towns across

Italy. The first tender covered 3,043 municipalities in six regions and the second 3,710 municipalities in 10 regions. Speaking to Milano Finanza a month ago, Open Fiber's top executive Tommaso Pompei said the first cities in these so-called C and D areas of Italy will be activated in late 2017 and Q1 2018.
(October 5, 2017) totaltele.com

The Italian government has opened a consultation ahead of its third and final tender for contracts to deploy broadband internet networks in so-called 'white areas'. The contracts, which are being offered by the government agency Infratel, cover unserved and underserved regions in the provinces of Calabria, Puglia and Sardinia. The consultation process calls for telcos to provide details of existing network coverage and any planned works to expand broadband services over the next three years, to ensure there is no overlap between publicly-funded rollouts and the private telco deployments. Infratel's first two batches of tenders were both won by Open Fiber, a wholesale network operator set up by Italian utility group Enel. The first stage of state-subsidized contracts covered Abruzzo and Molise, Emilia-Romagna, Lombardy, Tuscany and Veneto, while the second stage included Piedmont, Valle d'Aosta, Liguria, Friuli Venezia Giulia, Umbria, Marche, Lazio, Campania, Basilicata and Sicily, as well as the autonomous province of Trento.
(October 4, 2017) telegeography.com

Kenya

Three telecoms operators are seeking approval from the Communications Authority of Kenya (CA) for the extension of their 4G trial licenses, reports Daily Nation. Mobile network operators (MNOs) Airtel Kenya and Telkom Kenya, and broadband service provider Jamii Telecommunications have asked the regulator for more time to test high-speed data services. Jamii's one-year trial license expired on September 15 and Telkom's ran out at the end of that month, while Airtel's permit, which was first awarded

in March 2016, expired in August but was extended to the end of this year. 'The trial extension that we have requested from the regulator is to ensure better deployment, increase of our capacity and coverage, before full commercialization and rollout of new products and solutions on 4G,' Telkom Kenya said. Trial licenses are free of charge, with the price of a commercial licenses set at KES2.5 billion (USD23.8 million). The CA has allowed the trio to continue their trials whilst their extension applications are reviewed.
(October 3, 2017) telegeography.com

Malaysia

The Malaysian Communications and Multimedia Commission (MCMC) has called for comments on its plans to offer spectrum in the 700MHz band, ahead of formally inviting applications for such frequencies. The MCMC's 'Marketing Plan No. 1 of 2017' lays out a number of details regarding its plan to allocate spectrum in the aforementioned band. A total of eight 2×5MHz blocks will be made available, with the regulator implementing a spectrum limit of 2×20MHz per applicant. Further, it notes that the effective date of the spectrum assignment is January 1, 2018; as 700MHz frequency bands are currently used for analogue broadcasting services in Malaysia, it said this timeline was dependent on the switch-off of such services. In terms of pricing, the MCMC

has set a fixed price of MYR215.5 million (USD51.1 million) for each 2×5MHz block, for companies that opt to pay via a single lump-sum payment. Other payment schedules are on offer, however, offering the option of spreading the payments over either five, ten or 15 years, albeit for a higher total fixed license fee (e.g. MYR328.4 million if spread across 15 equal annual payments). In addition, all companies will be required to pay an annual fee of MYR18.5 million for the 15-year concessions. According to the MCMC's timetable, it will accept comments on its plans until 25 October, following which it aims to publish the official invitation to apply for spectrum on October 31, with interested parties given until January 2, 2018 to do so. (October 12, 2017) telegeography.com

Mali

Modibo Arouna Toure, Mali's Minister of Digital Economy and Communication, has presented the government with a 'note conceptuelle' (concept note) regarding the issuance of the country's fourth mobile license. Mr. Toure pitched the new concession to the Council of Ministers, chaired by President Ibrahim Boubacar Keita on 5 October, setting out an operational timetable and a projected budget for the new concession. Plans for a new mobile license emerged in March this year, spurred on by the slow progress of third licensee Alpha Telecom Mali (Atel), which was awarded its concession back in September 2012, but has yet to launch on a commercial basis. The unsuccessful bidders on that occasion were India's Bharti Airtel and Vietnam's Viettel Group. Pending Atel's launch, the market remains a duopoly between Orange Mali and Maroc Telecom-backed SOTELMA.

(October 10, 2017) telegeography.com

Mexico

Mexico's Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) has announced that it will initiate its long-planned auction of spectrum in the 2500MHz-2690MHz ('2.5GHz') band 'in the coming weeks'. As per the watchdog's previously stated plans, up to 130MHz of radio spectrum will be made available in six national 20MHz blocks: four TDD blocks and two FDD blocks. The remaining 10MHz will be reserved as 'guard band' spectrum. All concessions will be made available for a 20-year period. The band has been earmarked for distribution since the IFT unveiled its 'Plan Nacional de Espectro Radioelectrico' back in 2015, but the plans have been derailed on several occasions. This summer the watchdog made its final preparations for the auction, by seizing unused 2.5GHz frequencies from a number of regional pay-TV operators.

(October 10, 2017) telegeography.com

The telecom regulator has told America Movil to try again with its plan for functional separation. The Instituto Federal de Telecomunicaciones (IFT) has rejected a proposal presented by the market's biggest operator and given it a month to come up with a modified version, it announced this week. Having assessed the documentation and information supplied by America Movil, which it refers to simply as the 'dominant player', the IFT said "this proposal should be modified in order to ensure the effectiveness of the functional separation and the fulfilment of the objectives laid out in the constitutional reform of the telecommunications market." Earlier this year the IFT ordered America Movil to separate its wholesale operations as part of a wider review of the asymmetric regulations imposed on the telco three years earlier, when it was ruled to have a dominant position in the market. America Movil "must set up a new company – which will exclusively provide wholesale services around, as a minimum, the access network, and the passive infrastructure and dedicated local links associated with that network – as well as a wholesale division within Telmex and Telnor, which will provide the remaining wholesale services," the IFT reminded the market. It has given America Movil 30 working days to present a modified proposal to achieve that wholesale separation. The effective provision of wholesale services will guarantee access to all operators under non-discriminatory conditions, driving healthy and open competition, the regulator said.

(October 6, 2017) totaltele.com

Myanmar

The Post and Telecommunications Department (PTD) of Myanmar's Ministry of Transport and Communications (MOTC) has published a consultation paper on the allocation and use of spectrum in the E-GSM band. In its spectrum roadmap, the regulator had noted that two 2×5MHz blocks of spectrum was left unallocated at 880MHz-890MHz/925MHz-935MHz. Due to 'a history of reported interference' in the band, the watchdog said it would consider granting short-term authorizations to interested parties to conduct technical trials in the band. To-date the PTD has issued two such permissions – first to Telenor Myanmar and then to Ooredoo Myanmar – both for six months, at a cost of USD2 million and granting use of a 2×2.5MHz block. The consultation document requests input from stakeholders on a number of topics, most notably the amount of spectrum that should be made available. Whilst 2×10MHz is currently allocated, the PTD set out several different options for guard bands and believes the best option would leave 2×7.5MHz available to operators. The PTD also sought feedback on the preferred method for allocating the frequencies – the regulator having made use of direct allocation and auction methods within the last twelve months – as well as pricing and proposed band plans for the 900MHz range including the E-GSM band.

(September 29, 2017) telegeography.com

Niger

The telecoms regulator, the Authority for the Regulation of Telecommunications and Post (Autorite de Regulation des Telecommunications et de la Poste, ARTP), has fined the West African country's four mobile network operators (MNOs) a combined XOF3.5 billion (USD6.3 million) for failing to improve their network coverage and quality of service (QoS) indicators. Airtel Niger, the local unit of Indian telecoms group Bharti Airtel, was handed the largest penalty of XOF1.58 billion, followed by Orange Niger (XOF925.5 million) and state-owned Niger Telecoms (XOF620.5 million). Maroc Telecom-owned Moov Niger was sanctioned XOF423.5 million. (October 10, 2017) Africanews

Nigeria

Nigerian Communications Commission (NCC) has held a consultative forum with stakeholders under plans for the introduction of an automated numbering system in Nigeria. Ubale Maska, Executive Commissioner Technical Services at NCC, said numbers are a scarce resource and one of the core functions of the NCC is to ensure that this resource is effectively and efficiently managed. He also informed the audience that the automated system will be launched very soon by the NCC.
(October 18, 2017) CommunicationsWeek

Norway

The National Communications Authority (Nkom) has announced plans to auction spectrum commonly used for point-to-point and point-to-multipoint services in 2018. Preparations for the allocation of frequencies in the 6GHz, 8GHz, 10GHz, 13GHz, 18GHz, 23GHz, 28GHz and 38GHz bands began last year, before the Nkom called for applications from interested parties in March 2017, setting a deadline of May 5, 2017 for submissions. It notes, however, that having received a number of competing applications, the demand for the spectrum in question exceeds the available resources in all bands, bar the 10GHz band. As a result, the regulator has decided that it will conduct a competitive allocation process for all the resources bar those in the 10GHz band, with this to take place in the fourth quarter of 2018. Detailed information regarding the spectrum to be auctioned will be published later, the Nkom noted, though it has already released a preliminary overview of the resources. A public consultation regarding the framework for the auction will get underway in spring 2018, meanwhile, and once the framework is established the regulator will prepare detailed auction rules, which it expects to consult on after the summer of 2018.
(September 26, 2017) telegeography.com

The National Communications Authority (Nkom) has announced that 80% of the country's households had access to broadband at speeds of at least 100Mbps at mid-2017. Citing the impact of increased fiber coverage, the regulator highlighted the fact that 52% of households were within reach of a fiber-based network at the end of June 2017, up from 46% a year earlier. Moreover, the Nkom noted that the number of households connectable via fiber has now surpassed the number connectable via cable TV; with the percentage of homes within cable TV network footprints declining from 53% to 51%, the regulator noted that this was mainly due to some of this infrastructure being replaced with direct fiber to premises. However, while around 140,000 more households had gained access to fiber broadband services between mid-2016 and mid-2017, the Nkom said that only 44,000 of those had access to speeds of 100Mbps. Meanwhile, the Nkom did note that there were significant geographical variations in broadband coverage. Although 86% of all households are able to access a broadband service via a fiber, cable TV or VDSL network, it said that in densely populated areas 97% of premises had access to such connectivity, versus 40% in rural and remote areas. In terms of customer choice, the regulator said that an increasing proportion of households can now choose between different technical solutions and multiple providers. At June 30, 2017 42% of households could choose between at least two different technical solutions which offered downlink speeds of at least 30Mbps, up from 39% a year earlier. At the same date, 47% of households were able to choose between at least two broadband providers for a 30Mbps service, up from 44% at mid-2016. (September 25, 2017) telegeography.com

Norway's National Communications Authority (Nkom) has opened a tender for spectrum in the 800MHz and 900MHz bands covering Svalbard, an archipelago in the Arctic Ocean, which is situated roughly midway between mainland Norway and the North Pole. The process has been initiated after the watchdog received an application for spectrum from an as-yet unidentified operator. In the 800MHz band, the regulator is offering 2×10MHz spectrum blocks (832MHz-842MHz/791MHz-801MHz), while available 900MHz spectrum includes frequency resources in the 880MHz-885MHz/925MHz-930MHz; 889.6MHz-890.1MHz/934.6MHz-935.1MHz; and 899.9MHz-904.9MHz/944.9MHz-949.9MHz bands. Further, Nkom notes that there will be additional 900MHz spectrum available when existing licenses granted to Telenor and Telia Norge expire on December 31, 2017. (Note: Russian operator MegaFon also holds 900MHz spectrum in Svalbard, which will expire in December 2019.) Interested parties are welcome to submit an application for the vacant spectrum by November 22, 2017. (October 10, 2017) telegeography.com

Poland

Polish cellco Polkomtel has lost an appeal against the award of 1800MHz spectrum to rivals T-Mobile and P4 (Play). Polkomtel had its bid for an 1800MHz license rejected in a February 2013 auction, with the regulator, the Office of Electronic Communications (UKE), saying that it would have a negative effect on competition. Polkomtel appealed that decision, but in May 2013 the watchdog rejected the firm's proposal to re-run the tender. The cellco launched a further legal challenge, but the Voivodeship Administrative Court (Wojewodzki Sad Administracyjny, WSA) in Warsaw has now dismissed its appeal.
(September 28, 2017) telecompaper.com

Slovakia

The Office for Regulation of Electronic Communications & Postal Services (RU) has announced the winners of its recent auction of regional wireless broadband spectrum licenses in the 3600MHz-3800MHz band. Licenses were acquired by Amtel Slovensko (61 districts), Slovanet (47), Towercom (eight), DSI DATA (six), O2 Slovakia (six), HMZ Radiokomunikacie (three) and ORANET (two), while Alternet, E-MAX INTERNET & IT, Fibris, OravaNet, PEGO Slovakia, Prva internetova, RUPKKI, Slovak Telekom and Wircom all took up concessions in one district. Together, the winning bidders paid a total of EUR1.95 million for their spectrum, which is valid until end-2024. National licenses in the same band are already held by BENESTRA, SWAN and O2 Slovakia.
(October 5, 2017) telegeography.com

Somalia

The National Communications Act has finally passed into law, after it was signed at the start of the month by President Mohamed Abdullahi Farmaajo. The law aims to establish the legal, regulatory and institutional frameworks for the country's thriving telecoms sector. The legislation had been submitted by the Ministry of Posts, Telecommunications and Technology in July, following consultations with various stakeholders, including regional states, telecoms operators and ISPs, and was approved by both houses of parliament in August. The new law, which calls for the creation of a telecoms regulatory authority, aims to protect the rights of operators and consumers, tackle cybercrime and encourage more participation by private sectors in developing the telecoms market.
(October 4, 2017) Horn Observer

Tanzania

The Capital Markets and Securities Authority (CMSA) has rejected applications from six telecoms companies seeking to list a portion of their shares on the Dar es Salaam Stock Exchange (DSE). The East African reports that Millicom Tanzania (Tigo), Airtel Tanzania, Viettel Tanzania (Halotel), Maxcom Africa, Tanzania Telecommunication Company Limited (TTCL) and Smart Telecom have all had their applications rejected twice for failing to fulfil certain listing requirements. Reasons for the lack of approval include shareholder disputes, lack of transparency, failure to provide full information and regulatory technicalities. 'The companies submitted their applications for the first time, but we told them to go back and improve them. They came for the second time; we reviewed them and still found out that they were not in compliance with the law,' said CMSA public relations manager, Charles Shirima. In June 2016 an amendment to the Electronic and Postal Communications Act of 2010 made it a legal requirement for the country's telecoms operators to float at least 25% of their shares on the DSE. Mobile market leader by subscribers Vodacom Tanzania launched its initial public offering (IPO) in March this year, although it was initially only open to local investors. Following further changes to legislation made in June, the government has now allowed foreign investors to purchase shares in those telecoms operators that are required to sell a portion of their stock, while also exempting small telecoms companies with Application Services Licenses from listing. (October 5, 2017) telegeography.com

Thailand

The broadcasting and telecom regulatory body, National Broadcasting and Telecommunications Commission (NBTC), appointed a working panel to draw up regulations and methods of awarding licenses to use the spectrum band on the range of 885MHz-895MHz/903-940MHz and the band on the range of 1740MHz-1785MHz/1835MHz-1880MHz. The regulator's Secretary General Takorn Tantasith, who also heads this panel, said the panel was instructed to finish the task this month. The final draft will be proposed to NBTC work screening subcommittee in November and put in the public hearing in late December. He added that the license-awarding should be finished in June 2018, as the concessions on both spectrum bands will expire in September 2018. (October 10, 2017) nationmultimedia.com

Ukraine

The National Commission for State Regulation of Communications and Informatization (NCCIR) has finalised a decision to convert and release frequencies in the 2600MHz band previously owned by MMDS Ukraine for the upcoming auction of 4G LTE mobile licenses expected by the end of this year. MMDS Ukraine (part of the SCM Group which owns Ukrtelecom) will return to the state 80MHz in the 2600MHz range nationwide and receive UAH570 million (USD21.4 million) compensation, whilst additional 2600MHz frequency blocks in Kiev, Kharkiv and Zaporozhye regions to be included in the auction are already owned by the state. A 4G tender in the 1800MHz range will follow the 2600MHz license sale. (October 19, 2017) telegeography.com

United Kingdom

The U.K. government announced that it would make available £25 million (€28 million) in funding for 5G trials with a view to exploring potential 5G business models, services and applications. Minister for Digital Matt Hancock announced that the funding would be allocated via £5-million match-funded grants, and invited interested parties to submit proposals for 5G projects. The so-called 5G testbeds and trials competition is open to U.K.-registered organizations carrying projects in the U.K. The funding forms part of the £740 million National Productivity Investment Fund (NPIF) the government announced in November last year. The fund is designed to support full fiber rollout and 5G. "To stay competitive we must be at the cutting edge of new technology and we're determined to be one of the first countries in the world to use 5G," said Hancock, in a statement. "In these very early stages we want all ideas, from all parts of the country, that will help us get the technology and the rollout right to have a nationwide network of 5G innovators," he said. The government explained that the competition constitutes phase one of initial testbeds and trials projects that will help to develop the U.K.'s 5G ecosystem. The projects will cover areas such as exploring the potential for 5G to bring benefits to businesses; the development of 5G applications and services; exploring new business models; and reducing the commercial risks associated with investing in 5G. Future phases will bring new funding opportunities, likely covering large multi-year projects that align with government priorities, or seek to solve deployment or technical challenges. (October 16, 2017) totaltele.com

United States

Federal Communications Commission Chairman Ajit Pai will serve another five years at the U.S. telecoms regulator. The U.S. Senate voted to confirm Pai for a second term, the FCC announced. Pai has served as a commissioner with the FCC since 2012 and was appointed chairman by U.S. President Donald Trump in January. Trump nominated him to serve a second five-year term earlier this year. "Since January, the Commission has focused on bridging the digital divide, promoting innovation, protecting consumers and public safety, and making the FCC more open and transparent," Pai said, in a statement. "With today's vote, I look forward to continuing to work with my colleagues to advance these critical priorities in the time to come," he said. Since taking office, Pai has set about revoking a number of regulations put in place by his predecessor Tom Wheeler, who served as FCC chair under the Barack Obama administration. These include the net neutrality rules that were the subject of heated debate in the industry for a number of years. Pai's lighter-touch approach to regulation could also be a bonus for operators considering M&A moves. There have been numerous reports of new deal talks between Sprint and T-Mobile US in recent weeks, a proposed tie-up that was derailed by regulators in 2014. It would not be unreasonable to suggest that Pai could be more open to the idea of a merger between the third and fourth-largest mobile operators in the country than Wheeler was. (October 3, 2017) totaltele.com

Vietnam

Three largest mobile network operators (MNOs) by subscribers, Viettel, MobiFone and VNPT-Vinaphone, have begun testing mobile number portability (MNP) on their networks, bringing a launch of the long-delayed service one step closer. The MNP is expected to become officially available in Vietnam on 31 December, enabling consumers to retain their number if they switch service provider. According to draft regulations, subscribers are required to have used their number for at least 90 days with their current provider before they can apply for a transfer. The Ministry of Information and Communications (MIC) signed a decision in September 2013 approving the introduction of MNP from the start of 2017, with the aim of improving competition and promoting the development of the mobile market. However, following concerns from operators that they would require more time to prepare their networks, MNP is now scheduled to be introduced at the end of this year. (September 25, 2017) Tuoi Tre News

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