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SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES



Digital Transformation
Accelerates Business
Success

22



New Industries
Undergoing a Digital
Transformation...

25



Smart Societies Need
Smart, Safe and
Sustainable Cities

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Featured

H.E. Hamad Al Mansoori

Director General

TRA-UAE

**ALIGNING VISIONS TO MEET THE DEMANDS OF THE
DIGITAL WORLD**



Open ROADS
to a Better
Connected
World

Shape The Cloud Win The Future

SAMENA 2017, 30 Apr Dubai

SAMENA TRENDS

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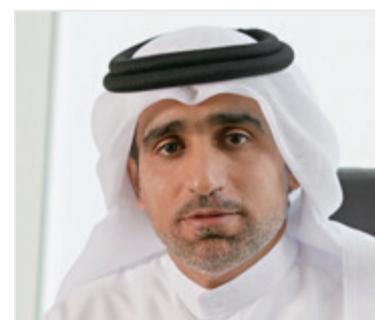
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Aligning Visions to Meet the Demands of the Digital World

In the context of measuring national ICT progress and socio-economic development, alignment of visions and priorities of national stakeholders and the manner and ways in which they coordinate with other stakeholders within the region, have become important components of the strategy of stakeholder cooperation-building.

Both *investment* and *regulation* have a special place in the equation where development, sustainability, international commitment to agreed goals, and efforts to connect the unconnected are under particular consideration. It is so because the impact of the evolving realities of telecoms technologies on the dynamics of the marketplace and on the socio-economics of developing economies is real.

The digital communications industry, while having overcome some issues by virtue of having evolved at its own pace, continues to struggle in addressing some basic regulatory reform requirements and in creating enabling environments. With region-wide collaboration and understanding of digital transformation trends and needs, and with measurable ICT policy planning in mind, which can help accelerate digitization within the region, the reform requirements can be better defined and visions aligned.

As we progress toward more vision alignment on matters relating to regulation, innovation, openness, transparency, empowerment, stakeholder inclusion, and collaboration, there is a need to understand that success of each one of us depends iteratively on the success and the sustainability of the digital ecosystem (needless it is to say also that the same applies to the physical environment we live in.) Associated with this understanding is the realization that awareness of the challenges and needs of all the different stakeholders involved in building smart societies, evolutionary requirements for

policy, regulatory, and economic as well as financial frameworks across the economy, will provide policy makers and regulators with the means needed to move forward in developing future-driven legal and policy mechanisms for a connected world; and will provide the private-sector the confidence and a sense of stability to move forward with their investments plans.

This year's Telecom Leaders' Summit is specifically about *aligning visions*, and SAMENA Council, based on the number of confirmations of attendance given, believes that the Summit will be fruitful in all its planned forms. Our successful dialogue in Oman during Beyond Connectivity 2017 in March and a very fruitful and power-packed discussion-centric Regulatory Summit in Saudi Arabia are pointing to a trend that governments are developing the desire and the vision to make IT central to their nation-building endeavors, and that the private sector has used the SAMENA Council platform to offer its assurance that telecom operators are indeed ready to augment the governments' efforts in the cause of making digital development a national priority for fulfilling international digital commitments.

It appears that just as operators can no longer afford just to be mere connectivity providers, regulators too can no longer be just regulators; both need to become partners in success and write new rules of mutual cooperation and engagement. SAMENA Council is there to facilitate this in all ways desired and possible, and the SAMENA Council' Leaders' Summit is an important, widely accepted means for the regional industry to make such cooperation a reality. 🌱



Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications
Council

POST EVENT REPORT



REGULATORY SUMMIT 2017

Driving the Digital Transformation in the Region



Event Coverage & Discussions

SAMENA Telecommunications Council's Regulatory Summit 2017, the region-wide Summit for the ICT sector, held in Riyadh, Saudi Arabia, on 12 April, 2017, was organized in collaboration with Saudi Arabia's Communication & Information Technology Commission (CITC) and hosted by Saudi Telecom Company (STC). With more than 170 attendees in the audience, the Summit's agenda focused on regional digital transformation and on fostering the understanding of evolving dynamics of the ICT environment, which needs to be effectively harnessed through stakeholder co-operation and government-private sector coordination toward fulfilling the Saudi national vision for 2030, in particular, and regional ICT agenda, in general. The key emphasis of the Regulatory Summit was on the need for stakeholder coordination and political will to digitally transform economies of the region.

The Summit brought together a power-packed and impactful group of professionals and visionaries, representing the Saudi Government, the world's leading ICT agencies and cooperation-building organizations, globally renowned business advisors and counselors, and experts in the areas of regulation, business, engineering, and large network operations.

The Regulatory Summit's agenda focused on regional digital transformation and on fostering the understanding of evolving dynamics of the ICT environment, which needs to be effectively harnessed through stakeholder co-operation and government-private sector coordination toward fulfilling the Saudi national vision for 2030, in particular, and regional ICT agenda, in general.



Inaugurated under the theme Driving Digital Transformation in the Region by the Governor of Communications and Information Technology Commission (CITC), HE Dr. Abdulaziz Salem Al-Ruwais, the Summit reiterated the importance of close coordination between telecom operators and governmental agencies, as well as the political will of the government. This was especially important, given the scale of the Saudi telecom and IT market, with total spending in this sector alone reaching US\$35 billion during 2016.

In United Nations' leading ICT agency's views, as presented by Mr. Brahima Sanou, Director, ITU-D, digital transformation is a reality and gaining

understanding of multiple facets of digital transformation is essential for equipping decision-makers to react promptly and to take effective decisions.

SAMENA Council's own views, presented by its chairman of the board, Dr. Khaled Biyari, offered a reassurance that telecom operators, whose voice SAMENA Council represents, are keen to supporting national ICT visions and extending full assistance to regional policy-makers and regulators, to be able to put in place measureable ICT action plans, and to help achieve ICT development goals that are aligned with international expectations and calls for action on sustainable development. SAMENA

Council's CEO, Mr. Bocar BA, had earlier expressed the Council's commitment to collaborating further with the CITC and that SAMENA Telecommunications Council will continue to secure the support of pioneers and professionals from the public and private sectors in order to continue contributing toward the fulfillment of national ICT visions across the region. SAMENA Council's views on digital transformation as being a strategic enabler for supporting new digital services for the public and private sectors, helping attain unprecedented positive socio-economic impact, were also emphasized.



Participation & Exchange of Views

Chairman of the Board of Directors of Saudi Telecom Company, Dr. Abdullah Al-Abdulqader, Chairman of the Board of Directors and CEO of CITRA of Kuwait, HE Engr. Salem Al-Azaynah, Adviser to MCIT Minister Mr. Sultan Al-Malik, and heads of the licensed communications and information technology companies were present at the Regulatory Summit.

Speakers of the Regulatory Summit included Mr. Marc Furrer, ex-President, Swiss Federal Communications Commission, Mr. Dimitris Lioulias, General Manager of Corporate Strategy, STC, Mr. Fouad Halawi, CEO, Virgin Mobile KSA, Mr. Bruce Weinelt, Head of Digital Transformation, World Economic Forum, Mr. Steven Plimsoll, Chief Digital & Data Officer, Strategy&, Mr. Rolando Balsinde, Director Emeritus, McKinsey & Company, Dr. Andrew Arowojolu, Chief Regulatory Officer, Zain Group, Mr. Noel Kirkaldy, Business Development, Public Sector, Advanced Mobile Network Solutions, Nokia, Mr. Ziad Mohammad Al-Khwaiter, General Manager of Regulatory Affairs, STC, Moderators Mr. Philippe Defraigne, Director, Cullen International, and Mr. Bahjat El-Darwiche, Partner, Strategy&, and with the initial roadmap of the discussion of the Summit provided by Mr. Izhar Ahmad, SAMENA Council's Director of Industry Affairs.

SAMENA Council's Regulatory Summit in Riyadh reiterated the need for preparedness and prompt actions for progressing forward in the new eco-system, which must be made sustainable, and all stakeholders, including governments, regulators, ICT service providers, academia, research community, consumers and the civil society, should coordinate

and collaborate together to fulfill the demands of the business by creating a new enabling environment. The discussions revealed that revolution underway within the ICT industry is different on many accounts, with infrastructure having become more critical than ever before for the digital economy. Therefore, stakeholders' collaboration with each other on executing measurable action plans is tantamount to meeting success for all.

Specific discussion points raised by the speakers included following:

- Our economies are being shaped up for the future by the digital communications industry. Thus future would be driven by ubiquitous connectivity, smart environments, and complex business choices and opportunities.
- Harmonization of regulations and economic policies of the nations are essential for ICT development, as everything is revolving around ICT services, which are creating a widely visible social and economic impact, aided by digitalization.
- As a global trend, service provisioning has been transformed and is still continuing to change more rapidly. There is an important question now on what we should do to remain relevant for and within the sector.
- Disruptive businesses and approaches are taking us out of our comfort-zone. From the policy, regulatory and business perspectives, they need to be understood as they could be wake-up calls for us to do something different. We are moving to the asymmetrical business models and asymmetrical competition frameworks.
- Cyber security is already a big challenge, but will become





ever more so given our progression into the worlds of IoT and AI. There is much need for adopting globalized solutions and practices to counter this challenge as nations are now interdependent.

- Saudi Arabia's Vision 2030 is aligning technology. Maturity has been achieved but more digital services needed to be served by telcos. There are 13 national sub-programs of Vision 2030, focusing on people, process and platforms. The target was to increase broadband services, competitiveness and being a part of the program.
- The new digital economy would have a volume of US\$ 60 trillion in the next ten years, and this will have an impact on telcos, which are constituents of a recognizably big industry but not at all a rich industry.
- Telecom operators are redefining their value propositions, rethinking their portfolios, remodeling their core business, and venturing into new growth business. All of these aspects

are important to the digital transformation and the operators' central role in driving it.

- Stability is the top requirement for the industry, which can be easily impacted with frequent executive replacements at regulators, changes in governments, and other institutional changes that create a sense of uncertainty. Thus for digital progress to continue, a sense of predictability must prevail.
- New business rules need to be written, including those relating to the regulation of global services that use national telecom networks.
- For the industry to progress forward, awareness of trends happening within adjacent sectors, such as hospitality and transportation sectors, for example, should be gained. Disruptions emerging from such sectors do and will impact the communications industry and its business.
- One of the key resource-related issues, spectrum availability, has to be addressed through fair auction and allocation





processes. The region's spectrum needs should be understood better and the duration of licenses to operate on a spectrum should be made longer than 15 years for a good return of investment. In the world of data, where data is the new "oil", spectrum needs merit prioritized regulatory consideration.

- Sharing in 5G would be more important due to high densification. Accelerating permissions to roll out small cells for densification in urban areas after 5G would also be very crucial.
- As a whole, the industry needs to address four core areas: Digital Services and Digital Transformation, Data Regulation,

Spectrum Management, and reduction in Taxation and Industry Fees.

By conducting the Regional Regulatory Summit in Riyadh, SAMENA Council has created a way forward to work more closely with the national regulatory authority, and to supporting the Saudi Vision 2030 as well as similar ICT visions across the GCC region in all ways possible, while representing the needs and issues of telecom operators and the digital communications industry, at large.





TRA – UAE: Exceeding Expectations on Telecom and IT Development



The Telecommunications Regulatory Authority (TRA) of the United Arab Emirates (UAE) was established according to the UAE Federal Law by Decree No. 3 of 2003 – Telecom Law. TRA is responsible for the management of every aspect of the telecommunications and information technology industries in the UAE. Despite its relatively short life-span, TRA has exceeded expectations by achieving its projected goals in record time.

The organizational objectives of TRA are derived from the UAE Telecommunications Law, its Executive Order and the UAE National Telecommunications Policy. These objectives include: ensuring adequacy of telecommunications services throughout the UAE; achieving enhancement of services, both in terms of quality and variety; ensuring quality of service and adherence to terms of licenses by licensees; encouraging telecommunications and IT services within the UAE; promoting and enhancing the telecommunications sector within the UAE; resolving disputes between the licensed operators; establishing and implementing a regulatory and policy framework; promoting new technologies; ensuring that the UAE becomes the regional ICT hub; developing the country's human capital; and encouraging research and development.

Vision, Mission & Values

TRA, and as mandated by its mandate, is entrusted with a wide range of responsibilities related to the Telecommunications and Information Technology Sector, both within and outside the UAE. According to the UAE Federal Telecom Law No. (3) For the Year 2003 and its amendments, TRA is to exercise its functions and powers and under this Law and its Executive Order to:

- Ensure that the telecommunications services provided throughout the state are sufficient to satisfy the public demands of those who wish to make use of such services

- Enhance the level of service provided by the telecommunications sector in order to promote the interests of such services
- Ensure that licensees meet quality standards of performance and adhere to the terms and conditions of the licenses granted to them
- Encourage, promote, and develop the telecommunications and information technology industries in the state
- Promote and enhance the telecommunications system in the state as indicated by the development and the establishment of industry related training institutions and through the availability of the latest apparatus, equipment, and facilities provided by telecommunications technologies
- Developing and ensuring the implementation of the eGovernment initiatives' programs, and promoting the use of information and communication technology in government entities
- Developing related policies and standards, and following-up on government entities commitment with these standards
- Preparing an attractive electronic governmental environment in the country

TRA Sectors

The Telecommunications Sector

The Telecommunications Sector comprises three main departments: Spectrum Management Affairs Department, Regulatory Affairs Department, and Technology Development Affairs Department.

The main tasks of the Spectrum Management are to provide monitoring, planning & allocation, and services. The Regulatory Affairs Department develops relevant regulatory policies, in addition to managing economic & competition, consumer affairs, and licensing. Furthermore, the Technology Development Affairs department oversees wireless networks & services, type approval, telecom infrastructure & standards infrastructure, and technology & planning.

Support Service Sector

This sector includes four departments: Finance Department, Administration Department, Human Capital Department and Corporate Communications Department. The Finance Department handles the treasury management,

accounting, and financial reporting & budgeting. The Administration Department focuses on general service, internal IT support, and procurement & contracts. The Human Capital manages HR planning, employee relations, and talent management. Furthermore, Corporate Communications Department manages marketing, media & public relations and customer service.

Information and eGovernment Sector

This sector includes three departments: eGovernment Operations Department, Development Department, Policy and Programs Department.

The eGovernment Operations Department focuses on infrastructure management, cloud service and application management. The Development Department works on portal management, Market/Sector development and eCommerce. Furthermore, the Policy and Programs Department handles policies planning & standards, aeCERT, and national domains management such as (.ae) and (.امارات).



MEMBERS NEWS



STC to Activate the Digital Transformation for the Development of Health Services

Dr. Khaled H. Biyari, STC Group CEO, met Belgian Ambassador Mr. Geert Criel and CEO of Agfa Healthcare Car, Mr. Christian

Reinaudo. During the meeting, the two sides discussed the shared interests in addition to all ways to activate digital

transformation programs to serve the health sector in Saudi Arabia.

Dr. Biyari Attends the Consultation Meeting at CITC

Dr. Khaled H. Biyari, STC Group CEO, attended the consultation meeting for all CEOs of the telecom companies in the Kingdom at the Communication and

Information Technology Commission, headed by Abdulaziz S. Alrwais, Governor of the Communication and Information Technology Commission and in the

presence of number of the commission officials and Eng. Zyad Al Khwaiter, Regulatory Affairs General Manager.



Batelco Group AGM Approves BD41.58M Cash Dividends

Batelco, the international Telecommunications Group with operations across 14 countries, held its Annual General Meeting (AGM) for the twelve-months ended December 31, 2016 ("the year"). The meeting, was attended by Shareholders, Company Directors and executive management. The Group's 37th AGM saw shareholders approve the recommendation of the Board of Directors for a full year cash dividend of BD41.6 (US\$110.3M), at a value of 25 fils per share, of which 10 fils per share was already paid during the third quarter of 2016 with the remaining 15 fils to be paid in the coming weeks. Speaking on the occasion, Batelco Chairman Shaikh Mohammed bin Khalifa Al Khalifa said: "We are pleased to continue to build and return value to our shareholders as demonstrated by the dividend payment in spite of challenging market conditions in Bahrain and across a number of the Group's operations due to the world's economic climate in general and also due to the vibrant nature of the evolving communications industry." The Group ended the year with net profit of BD37.6 million (US\$99.7 million) compared to BD49.5 million (US\$131.3 million) reported in 2015. The Group's balance sheet and financial position

remained resilient and as of 31 December 2016, net assets were BD537.0 million (US\$1,424.4 million) with substantial cash and bank balances of BD172.4 million (US\$457.3 million). Earnings per share for the full year in 2016 stood at 22.6 fils. "However, in spite of decreased profits, we are encouraged to note that subscriber numbers were up by 4% year over year. The upswing in customer numbers is attributed to our investments in new networks including fiber and our efforts to strengthen our digital solutions portfolio. We are responsive to changes in our environment which helps us shape a flexible and sustainable business model and accordingly, we are optimistic that our subscriber base will continue to grow and ultimately boost the bottom line as a result of our plans going forward," Shaikh Mohammed noted. "Much appreciation is also due to Batelco's shareholders for their continuous support and confidence in our strategic plans. Our goal is to drive shareholder value through sharpening our focus on group wide synergies aimed at enhancing performance in all markets of operation," he said. "I look forward with enthusiasm to working closely with both the Board of Directors and executive management across the Group in the year

ahead." "Going forward, we will focus on our strengths based on the excellent reputation we have established in the home market of Bahrain and also across our overseas markets via our joint ventures. Our objectives are geared towards making substantial progress with our



strategic plans in order to exceed customer expectations and enhance their experience while boosting profitability and positioning Batelco Group as a top tier and leading integrator of digital solutions in its chosen markets." "Throughout the Batelco Group, our aspiration is to achieve operational excellence. That is central to our goal to drive sustainable revenue growth and deliver value for our stakeholders," Shaikh Mohammed concluded.

Batelco Enhances Data Roaming Package to 12 New Destinations

Batelco, the leading telecommunication solutions provider in Bahrain, has added 12 new international destinations to its data roaming packages to provide the best services for its customers. The bolt-on packages, which start from only BD5, are available for postpaid and prepaid customers to meet their requirement for lower priced data services while roaming across the GCC and a number of global destinations. Customers who subscribe to the 'Data Roaming Bolt On' pay a standard fixed one-day or seven-day fee based on their choice of package. The service which was introduced in 2016 for

a number of GCC and worldwide locations has been a huge success and very well received by Batelco's customers. The range of packages includes one-day with 1GB roaming in the GCC for only BD5 and seven days with 5GB roaming in the GCC for only BD10 while customers can benefit from worldwide roaming for only BD20 for seven days with 1GB. With the new additions, Batelco now offers data roaming bolt-on services in over 50 locations. The full list of countries and respective providers is available on www.batelco.com and new locations are added regularly. The data roaming Bolt-

on removes the worry about additional roaming charges giving peace of mind to customers. Once the package limit is reached, the data service will automatically stop. Batelco Bahrain CEO Eng Muna Al Hashemi said that Batelco is committed to transforming the lives of its customers; enabling them to connect, work and live better through the delivery of cutting-edge, technology-based products and solutions. "The 'Data Bolt On' service enables our customers to enjoy great value rates when using data services on the go," she added.



Brand Finance Ranks Zain as 2nd Most Powerful Brand in Region

Every year, leading valuation and strategy consultancy Brand Finance based in London, values the brands of thousands of the world's biggest companies. The Middle East's 50 most valuable brands, classified by both their industry and their nation, are featured in the Brand Finance Middle East 50 ranking. As part of its overall assessment of brand value, Brand Finance looks at two key factors. The first is revenues (both historic and forecasted) and second is the strength and familiarity of each brand. On this latter factor, Brand Finance looks at aspects such as marketing investment, preference, sustainability and margins. By stripping out the effect of revenues, it is possible to get an even clearer picture of what the brand power brings to the overall business and the effective it has on the success of its team's customer-focused efforts. Excluding financial indicators, Zain was ranked the second most powerful home-grown brand in the region behind Emirates, the UAE based airliner. The valuation of Zain's brand for 2017 was calculated at US\$2.34 billion, a 9% increase on its 2016 valuation. Zain has been a recipient of numerous regional and global awards since the introduction of its inspiring brand in 2007. This year's high ranking and increase in valuation has been driven by the tangible developments occurring within the company, where

talent development and customer-centric programs, heavy investment in network upgrades, and technology innovation is impacting customer experience positively. Additionally, Zain's Corporate Sustainability programs and eye-catching marketing and widespread social media campaigns have captured the imagination of the whole region. Bader Nasser Al Kharafi, Zain Group Vice-Chairman and Group CEO, said, "This accolade of being the second most powerful home-brand in the Middle East is a credit to the enthusiasm of all our employees, who we fondly refer to as Zainers, and our loyal customers, who are part and parcel of the brand and our greatest ambassadors. We value our brand dearly, and all that it represents with respect to empowering and improving the lives of customers and communities we serve. We shall continue to work hard together with all our various stakeholders to ensure this acknowledgment is reflected across all our activities." Brand Finance's Middle East Managing Director Andrew Campbell comments, "Zain flies the flag for Kuwait, firmly placing the country not only on the world telecom map, but also across its footprint as one of the most powerful brands in the region." The company's marketing campaigns across the region on various media channels have captured the hearts and minds of millions of

people across the Arab World and further afield. Zain's Ramadan 2016 TVC had a remarkable 12.5 million views on YouTube, with the company's Ramadan EID 2016 TVC also attaining 22 million views to date, both relevant and indicative factors of the brand power of Zain! Zain Group and its eight mobile operations now boast more than 8.3 million friends on Facebook, 5.7 million followers on Twitter, and 1.1 million followers on Instagram. Over the past 4 years, Zain Group's and all mobile operations' numerous YouTube channels across the region have had more than 200 million views. Sustainability, transparency and thought-leadership are at the very core of Zain's business and this is reflected in every aspect of the company's day-to-day operational activities. Zain's annual Sustainability Report highlights the company's regional leadership in pursuing its sustainability agenda and supporting its communities through outreach activities such as capacity-building, education, socio-economic development, and environmental stewardship. In addition, with a focus on supporting the entrepreneurial start-up ecosystem, Zain has partnered with the MIT Pan Arab Start Up Competition for the past three years and the global MIT Innovate for Refugees competition.

Zain Sponsored MIT Enterprise Forum Pan Arab Startup Competition Final in Bahrain April 27

The MIT Enterprise Forum (MITEF) for the Pan Arab Region will be announcing the lucky winners of the 10th MIT Enterprise Forum Arab Startup Competition in a final award ceremony to be held at the Kingdom of Bahrain's International Circuit on April 27. The competition is held in partnership with Community Jameel, a social enterprise organization that operates a wide range of initiatives which promote and contribute towards positive societal change and economic sustainability; Zain Group, a leading telecommunications innovator in eight markets across the Middle East and Africa; and Tamkeen, an organization tasked with developing Bahrain's private sector and positioning it as the key driver of economic development. The 74 semi-finalists from 11 Arab countries will undergo another round of training present their work over a three-day period from April 25 till the 27 to a jury that brings together some of the Arab world's key investors and businessmen. This year's edition, which is of special importance as it celebrates the competition's 10th anniversary, registered years of success and excellence while serving generations of young Arabs and their creative entrepreneurial ideas. Hala Fadel, Chair of the board of MITEF Pan Arab stressed on technology and innovation as drivers of entrepreneurship in the region saying, "For our 10th anniversary, we want to gather the best entrepreneurs from the region, for them to learn from each other and from the global ecosystem. We insist on technology and innovation as the main drivers going forward for entrepreneurship in the region, and we think we are best positioned to lead this new trend." Fady Jameel, President

of Community Jameel International, commented on the anticipated event: "The final award ceremony of this grand competition is just around the corner. The number of participants this year exceeded all expectations and we are absolutely delighted to be part of this exciting event, yet again, for the tenth year. Together we can truly give birth to an outstanding generation of young entrepreneurs." Zain Group CEO-Operations, Scott Gegenheimer said: "We are delighted to partner other esteemed organizations in the holding of this event in Bahrain, supporting the Kingdom's 2030 Economic Vision, which is based on sustainability, fairness and competitiveness. Zain recognizes that technology, innovation and youth are key drivers for entrepreneurship across the region and our collaboration with MIT Enterprise Forum reflects Zain's strategic vision of supporting young aspiring entrepreneurs to achieve their dreams." Chief Executive of Tamkeen, Dr. Ebrahim Mohammed Janahi emphasized the importance of this competition and said: "This year, Tamkeen chose to be a strategic partner for this prestigious competition. This is at the heart of our goals as a firm, to offer our support to all entrepreneurial initiatives in all vital sectors. We are proud to host this regional competition for the first time in the Kingdom of Bahrain stemming

from our belief that such competitions inspire entrepreneurs to challenge themselves enabling them to develop and present their ideas in a competitive environment." The 74 teams from 11 Arab countries competing in the semi-finals are distributed as follows: Egypt (20), Lebanon (11), Saudi Arabia (9), United Arab Emirates (9), Jordan (7), Tunisia (5), Morocco (5), Bahrain (3), Sudan (2), Libya (2) and Algeria (1). All the qualified teams participated in special trainings and preparatory activities that were held in Egypt, Jordan and the UAE. The cash prizes, which exceed \$160,000, will be distributed among three finalists who will be selected in each of the three tracks: Startups, Social Entrepreneurship and Ideas. The winners will also benefit from advanced training sessions, personal mentorship and guidance not to mention a great deal of media coverage and excellent networking opportunities.



Cisco Backs Digitization in Kazakhstan

Cisco announced a series of initiatives in Kazakhstan to help accelerate the country's digital transformation over the next three years. During a meeting between Bakytzhan Sagintayev, the

Kazakhstan prime minister, and John Chambers, the CEO of Cisco, an agreement between Cisco and the Kazakhstan national infocommunication holding company Zerde was signed. According

to the agreement, Cisco will support the government's 'Digital Kazakhstan' programme to strengthen the national digital infrastructure and drive economic growth and competitiveness.



Ooredoo Unites Business Community In Support of SMEs

Uniting business owners from across the Sultanate, Ooredoo recently organized a B2B workshop for its official indirect partners to discuss the evolving needs of Oman's SME sector. Held at the Grand Hyatt Muscat, the event, detailed a roadmap for the continued development of SMEs and new products and services to drive their growth. Monther Al Mamari, Director of Business Product Management at Ooredoo, said, "As Oman moves forward with its ambitious diversification plans, the importance of

SMEs continues to rise. Today, SMEs are the driving force behind economic growth and currently represent 90% of all companies in the Sultanate. This event was a fantastic opportunity to review their progress and identify ways of boosting their strong performances. Together, public and private sector companies will play an important role in helping entrepreneurs thrive and make significant contributions to the development of the communities they serve. As the business partner of choice throughout the

Sultanate, Ooredoo continues to deliver a wide range of cost-effective solutions to provide entrepreneurs with the advantages they need to achieve growth and stay connected. Its cutting edge and comprehensive products and services include Business Reach Mobile, Musafir Business roaming bundles, and Shahry Business Packs. More information can be found online at www.ooredoo.om/business.

Ooredoo Group to Transform Network

Ooredoo Group has signed a new network transformation agreement with Ericsson that will enable it to extend its competitive advantage by leveraging its global group-scale relationship with the technology leader. Under the agreement, Ooredoo will transform its network and will be backed by Ericsson's services organization and solutions portfolio enabling the company to continue to modernize its networks while ensuring that cutting-edge technologies are shared faster with customers around the world, said a statement. The agreement builds upon the two companies' 2015 Group Frame Agreement to standardize the terms and conditions of supply of the Ericsson's hardware, software, and services portfolio across all Ooredoo operations. Waleed Al-Sayed, deputy chief executive officer of Ooredoo Group, said: "This addendum to our 2015 frame agreement enables us to extend our competitive advantage by immediately benefitting from all of the world-class technologies Ericsson offers, while strategically positioning Ooredoo as an early adopter of new technologies Ericsson is set to bring to market in the future. We have committed to be a data experience leader across our markets, and strategic partnerships like this one with Ericsson will ensure that Ooredoo continues to lead from the front." Ericsson

currently supplies Ooredoo Group with 2G, 3G and 4G radio, core and transmissions solutions. Ooredoo provides 4G services in eight markets in the Middle East, North Africa and Southeast Asia, and is putting a framework in place in the build-up to the availability of 5G services that will be supported by this frame agreement. Rafiah Ibrahim, head of Ericsson Region Middle East and East Africa, said: "With the increasing demands on digital services,

we have experienced strong interests from the industry on deployments of advanced network services and solutions. Through this partnership, we will provide Ooredoo Group with the latest technologies that can provide smooth and efficient operation on their networks and deliver a differentiated customer experience to their subscribers across their different Operating Companies (OPCOs)".





Sudatel Posts 9.3% Rise in 2016 Revenue

Sudatel Telecom Group, which has operations in Sudan, Senegal, Guinea and Mauritania, has reported consolidated revenues of USD476.2 million for the twelve months ended 31 December 2016, an increase of 9.3% from USD435.9 million in the year-ago period. The growth came in spite of rising inflation, currency devaluation and recession caused by the drop in international oil and commodities prices that impacted the economies in most of Sudatel's operating countries, the firm said. Domestic revenue accounted

for USD305.9 million of total turnover in 2016 (compared to USD273.1 million the previous year), with the firm's Senegalese operations generating USD108.6 million (2015: USD92.9 million), Mauritania USD60.3 million (USD65.7 million) and Guinea USD1.4 million (USD4.2 million). Gross profit grew by 17.8% in 2016, from USD155.5 million to USD183.2 million, although an increase in tax and other expenses resulted in an 8.9% decline in net income, from USD51.6 million in 2015 to USD47.0 million twelve months

later. Sudatel ended 2016 with a mobile subscriber base of twelve million. Commenting on the results, CEO Tarig Hamza Zain Alabdain said: 'Sudatel began to reap the fruits of its investments in infrastructure, especially the broadband fiber-optic networks across Sudan which will go a long way in supporting Sudatel's effort in reinforcing the data and information technology revolution through current and expected broadband connections until 2020.'



Sudani Launches 4G Network in Sudan

Sudani, Sudatel's Operating Company, announced that its 4G network in Sudan is now live and providing customers with the fastest mobile data speeds. Sudani 4G users are already benefiting from faster download and upload speeds for images, video and documents, a significant reduction in the time to load web pages as well as reduced latency which improves

gaming, video calls and web browsing. Sudani is offering a wide variety of pricing packages for both prepaid and postpaid users including affordable bundles for low-income customers. Eng. Tarig Hamza Zainelabdin, CEO of Sudatel Telecom Group, said "We have invested a significant amount in our 4G networks as we know that fast and reliable telecoms

infrastructure will help our country's economic development". We want the people of Sudan to "Live The New Wave" and enjoy the benefits of 4G in both their personal and business lives". Sudani will be expanding the network to the major cities and towns in Sudan throughout the year.



Mobily Performs Successful Test of LoRa Network

Etihad Etisalat (Mobily) has conducted the first successful trial of LoRa – LPWA network (long range, low-power wide area network) for IoT applications in Saudi Arabia in collaboration with Cisco Systems. LoRa technology provides a lower cost connectivity solution with broad coverage and lower energy consumption. The trial on LoRa Network has taken place in two locations in Riyadh covering different IoT applications of

Smart buildings and assets tracking, the company said. Engineer Majed Alotaibi, SEO strategic planning and marketing at Mobily, said: "Mobily continues the path of strengthening its pioneering position by providing new and innovative technologies in the kingdom. IoT is one of the main pillars of Mobily's strategy that will enable us as the leading service provider in digital transformation and play a major role in the 2030 vision of

Saudi Arabia." "It is noteworthy that Mobily and Cisco Systems have a long and successful history of collaboration. Moreover; this successful trial confirms the joint commitment to introduce new technologies and innovations to the Saudi Market which leads to support the growth and development of national economy," the company said.



PCCW, CTM Implement Hong Kong-Macau VoLTE Service

The mobile division of Hong Kong-based integrated telecoms operator HKT – part of the PCCW Group – has jointly launched the first service offering international end-to-end voice-over-LTE (VoLTE) and video-over-LTE roaming/calling services between Hong Kong and Macau in partnership with Macanese operator CTM. TelecomAsia reports that the new service is being made available

to customers of HKT's main mobile brands – csl and 1010 – and CTM 'at no extra charge', by utilizing sister company PCCW Global's high-speed IP connection between the two markets. CTM and csl previously teamed up to launch the Call Macau Home Pass voice, data, SMS and video call roaming service last year, with a monthly fee of HKD138 (USD17.75) or a daily fee of HKD38.



Viu OTT Service Users Set to Target 6 million

PCCW Media said its Viu OTT video service has reached over 6 million active users in one and half year after launch and is driving 3G/4G acquisition and mobile data consumption for its telco partners in the region. Speaking at Broadband Forum Asia in Hong Kong Tuesday, Helen Sou, senior vice president and digital media head of OTT at PCCW Media, said Viu is now available in 14 markets in Southeast Asia, Middle East and India and the company is expected to continue to see strong growth in its user base. As of February, Viu had 6 million monthly active users, 80% of which were Generation-X with high disposal income and millennials who were receptive to digital ads. These users, Sou said, are highly engaging and valuable viewers, consuming an average of 1.8 hours of content per day or 12 videos per week. These 6 million users are very sticky and consistent. They are not just coming in and leave in two months, they view video quite often and consume

quite a long while," she said. They are valuable users [for us, our advertisers and telco partners], because they are willing to spend money, consume data, pay for content and be responsive to digital advertisements." Sou said Viu service has also created quantifiable value for its telcos partners in the region, driving up mobile data usage and 3G/4G customer acquisition in the markets where the service is available. We've heard a lot of good things from partners, especial telco partners...In some markets, there are users afraid of buying data plans or either buy low-end data plan, but because of Viu they upgrade their data plans or their smartphones, and in some cases, some extend their Wi-Fi plans from hourly to weekly or migrate to the mobile network," the executive said. Citing statistics from telco partners from one unidentified country, she said the Viu service has helped telcos achieve 3.5GB average monthly mobile data consumption per

user and 25% incremental data revenue and APRU growth in three months. Launched in October 2015, Viu targets emerging markets with strong potential growth for 4G, where there are expected to have 600 million 4G users in 2020, according to the GSMA. The company is currently working with 20 telco partners in the region, including U Mobile, Maxis, TM, Indosat, AIS, Vodafone, Airtel, Digi, Idea Cellular and Singtel. According to Sou, OTT video revenue, including subscription revenue and advertising revenue, is expected to grow tremendously in these emerging markets next four years, with Middle East growing at CAGR 33%, India CAGR 62.8% and South East Asia CAGR 27.3%. There is also strong potential for OTT video, which is expected to account for around 75% of mobile data traffic, generating 69 exabytes in 2020, compared to 8.5 exabytes of mobile data traffic in 2016, she added. Sou said Viu is now a dominant OTT player in the region, attributing its success to good product, localization and good content for the success. Instead of Hollywood content, the company started with premium Asian video content – Korean, Bollywood, Japanese and Chinese dramas - and variety shows from over 200 content partners. The company also differentiates with fast local subtitling by promising viewers to deliver popular content as fast as 8 hours after local telecast.



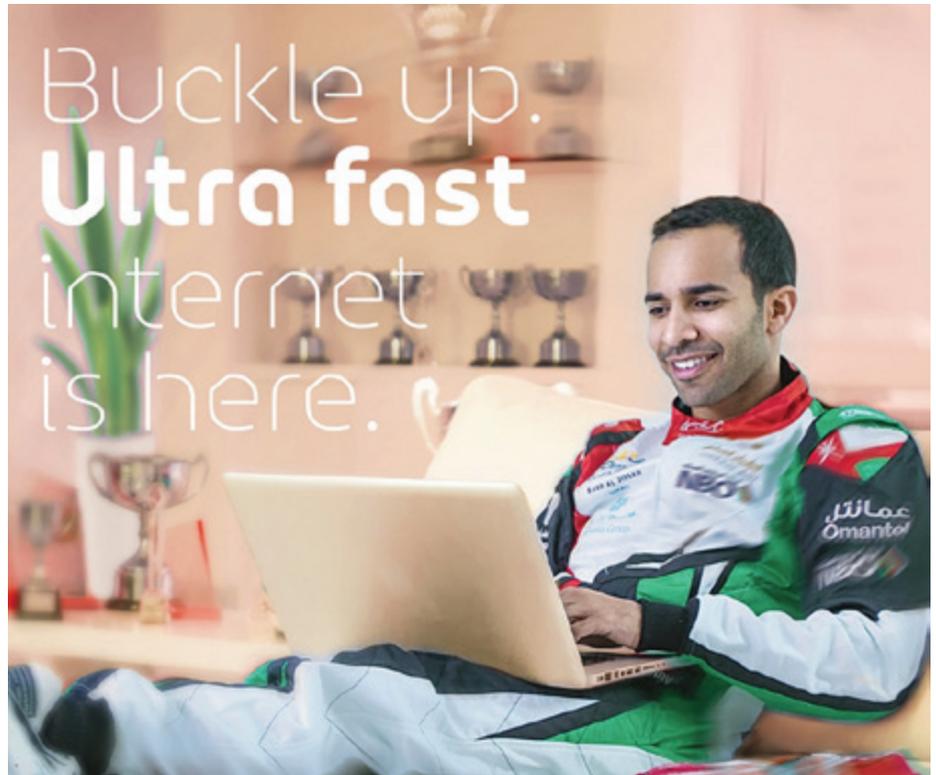


Omantel Expands Fiber Optic Services

Omantel, the Sultanate's leading provider of integrated telecommunication services, announced today the launch of fiber optic services to homes across Al Ghubra and Azaiba. The roll out will enable thousands of residents in those areas to benefit from high-speed fiber optic technology with competitive prices, giving customers great value while making online gaming, video streaming and downloading more affordable for all segments of society. Customers can experience the service for free in the first month, and will also receive a free Wi-Fi router. In addition, existing ADSL customers can retain their fixed line numbers even if they upgrade to fiber optics. Omantel is the only operator in the Sultanate that offers triple play services via fiber optics. These services enable users to experience high speed Internet, including home Internet services at speeds of up to 200 mbps. This is especially useful when combined with Omantel's TV + service and Smart Home System which operate through the brand's internet services. Said Salim Al Shanfari, General Manager Marketing Consumer at Omantel said, "At Omantel, we are committed to enhancing our customer experience, offering expanded broadband national coverage at the fastest possible data speeds across the country. We are pleased to extend our Fiber coverage to Al Ghubra and Azaiba and are proud to be Oman's digital partner of choice with the largest fiber optic network in the Sultanate in partnership with the Oman Broadband Company. Musab Al Hadabi

Senior Expert Broadband at Omantel said "We consistently invest in providing our consumers with an unrivaled experience and are determined to expand the reach of our network." "Omantel's high-speed broadband services can be subscribed to through any of the company's outlets near Al Ghubra and Azaiba such as Muscat Grand Mall, Oman Avenues Mall and Ghala outlet" Al Hadabi added. As demand for mobile and fixed broadband services continues to rise across the Sultanate, Omantel is investing heavily in

network expansion and modernization. Guided by the Omantel 3.0 transformation strategy, the company continues to innovate, streamline, and revolutionize its digital smart home and business services. Positioned as the digital partner of choice, in the consumer arena as well as for public and private sector businesses, Omantel is enabling the digital society to flourish and grow across all sectors in the Sultanate.



Omantel Net Profit Hit by Higher Royalty Fees

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, has announced its preliminary unaudited financial results for the first quarter of 2017, reporting revenue of OMR132.6 million (USD343.5 million), a decline of 1.0% from OMR133.9 million in the year-ago period. EBITDA totaled OMR68.8 million for the first three months ended 31 March 2017, down by 4.7% from OMR72.2 million in 1Q16, while net profit

dropped 31.6% year-on-year to OMR23.8 million. Omantel partly attributed the fall in net profit to a rise in royalty rates; effective from 1 January 2017 the Omani government increased the fee payable by telecoms operators from 7% of gross annual revenues to 12%. Omantel paid royalty fees of OMR14.6 million in the first quarter of this year, compared to OMR8.2 million in the corresponding period of 2016. In a separate development, Omantel

has expanded its fiber-to-the-home (FTTH) services to Al Ghubra and Azaiba, two suburbs of the capital Muscat, writes Times of Oman. The firm's fiber rollout has been facilitated by a partnership with Oman Broadband Company (OBC), a state-owned company responsible for the construction and operation of national broadband infrastructure, which is available to licensed telecoms operators on a non-discriminatory basis.



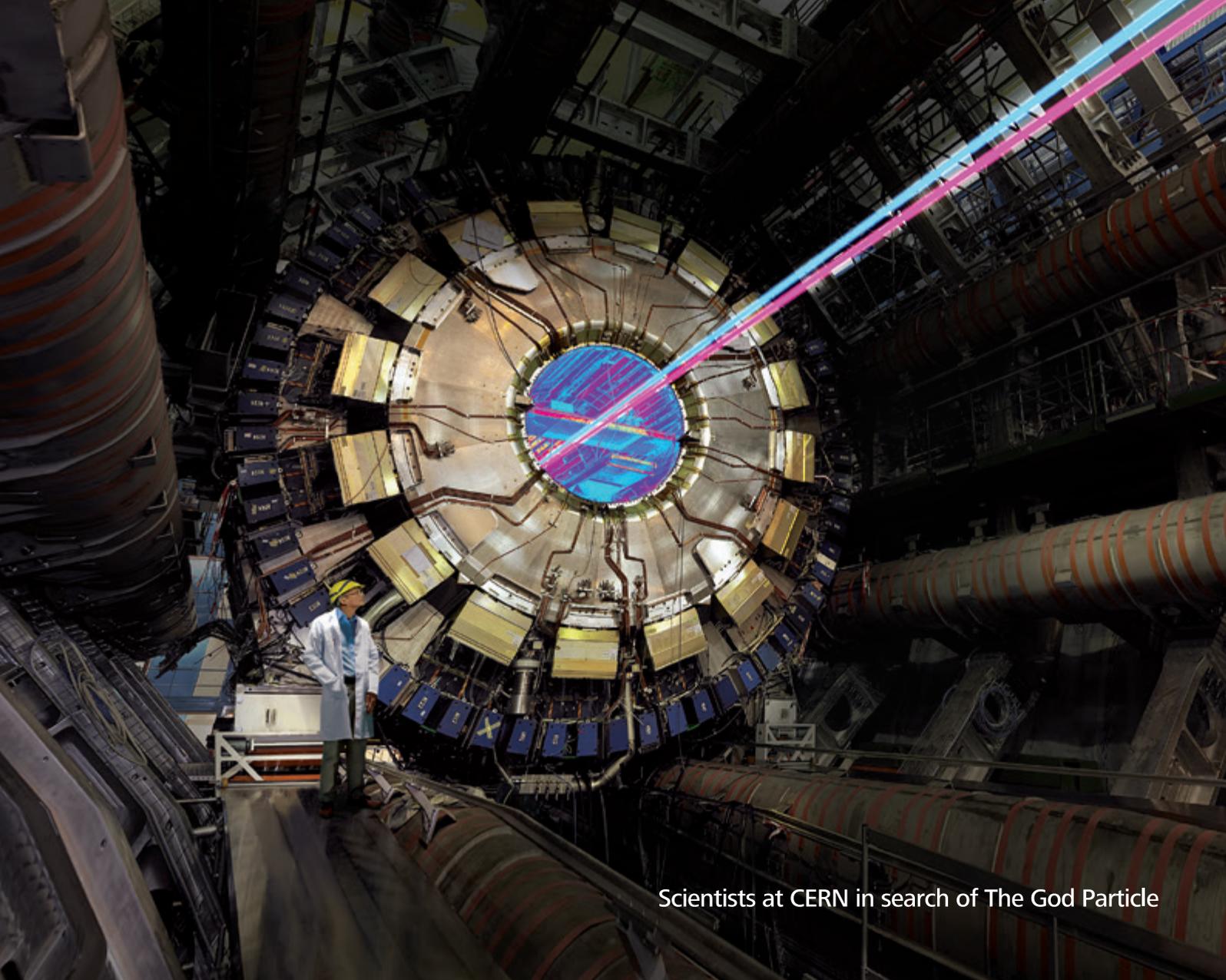
Orange Enhances the Local Telecom Scene

Orange is a provider of integrated communications that has, since entering the Jordanian market in 1998, become a leader and a staple of the telecommunications sector in Jordan. Venture spoke with Orange Jordan CEO Jérôme Hénique about the origin of Orange's Jordanian presence, its journey to becoming an indispensable part of the sectors in which it is involved (which have expanded beyond just ICT and now include social outreach), and what's in store for its future in Jordan. It has been 17 years since Orange first entered the Jordanian market. What were the main attractions that you saw in the market at the time, and, in hindsight, how do you regard the decision to invest in Jordan today? There were numerous things that initially attracted us to the Jordanian market. Jordan is characterized by its overall stability despite various regional challenges. We were very much encouraged by His Majesty King Abdullah II's vision of transforming the Kingdom into an ICT hub, thereby contributing to the growth of the country. Additionally, we find that Jordan harbors much talent, as its people have high levels of education, expertise, and passion for what they do in their respective fields. We still remain confident today that our decision to invest in Jordan was well made. Things have changed a lot over the past 17 years, but our primary concern is those challenges that have affected us recently. For example, beginning three years ago, there was a 150% increase in energy costs, in addition to a surge in tax rates and spectrum costs, as well as the lack of Mobile Number Portability (MNP). We have worked diligently to ensure that the adverse effects of these challenges have minimal impact on our operations, including embarking on a revolutionary solar farm project that will drastically



decrease our energy expenditures. We are also confident that, with time, the government, the TRC, and all other related entities will be able to find solutions to these issues and enhance the telecommunications industry on a national level. Historically, Orange has been the backbone of the ICT sector in Jordan, always being the first to introduce the newest technologies in the Kingdom and ensure that the infrastructure is prepared for them, whether they be fixed network, fixed lines, ADSL, fiber, or mobile networks. Orange Jordan started with 2G, was the first to introduce 3G, successfully launched 4G in 2015, and since then has refurbished its 2G and 3G networks. Moving ahead and motivated by our five-year corporate strategy Essentials 2020 since its launch, we are focusing on Next Generation Networks, which are a new era of networks representing the future of connectivity, including LTE, Fiber-To-The-Home (FTTH) for individual subscribers, Fiber-To-The-Business (FTTB) for enterprise customers, and IMS (IP Multimedia Subsystem). Along with reaching 95% 4G/LTE coverage, we have also already deployed 6,000 kilometers of FTTB cable and are in process of installing more than 700 kilometers of FTTH cable

by the end of year, collectively covering a majority of the Kingdom and connecting people to the fastest internet speeds via advanced fiber optic technology. Accordingly, we, backed by our global expertise, are successfully enabling these new networks to bring not only businesses but also consumers closer to meeting their connectivity needs with smart homes and offices to make their operations more efficient and effective, positively contributing to the economy. The total amount of investments made by Orange Jordan since 2000 is around USD2 billion. We are dedicated to developing fully sustainable CSR programs to give back to the community by focusing on several aspects, such as social solidarity through our longstanding partnerships with Generations for Peace, Tkiyet Um Ali, and the Jordanian Hashemite Fund for Human Development. We focus heavily on corporate entrepreneurship responsibility through a variety of initiatives, including sponsorship of students at Princess Sumaya University for Technology, the Orange Yarmouk Innovation Lab at Yarmouk University, and our Business Innovation Growth (BIG) growth-mode startup accelerator program at the King Hussein Business Park.



Scientists at CERN in search of The God Particle

Decades of patient investment,
for a moment of divine clarity

Focus · Persevere · Breakthrough



ARTICLE

Digital Transformation Accelerates Business Success

As we enter a fully connected era, digital infrastructure is facilitating economic growth. The telecoms industry is in a crucial stage of digital transformation as new technologies emerge to drive a high quality user experience. A Better Connected World is dawning and the potential opportunities for the telecoms industry, which is the primary enabler of industry digitization, are beyond our imagination.

Charles Yang, Huawei Middle East President highlights the company role in driving the digital transformation and ICT industry development on the way to 5G

After almost 30 years of expansion, Huawei is now a world-leading ICT solutions provider. Today it is establishing business alliances and industry alliances, leveraging open-source communities, and running its own developer platform. Huawei is committed to working with its partners to build an open, cooperative industry ecosystem that delivers success for all.

At Mobile World Congress 2017 (MWC 2017), recently concluded in Barcelona, Spain, Huawei led a number of activities including joint exhibitions, keynote speeches and industry forums, under the theme of **"Open ROADS to a Better Connected World"**. During the event, more than 100 operators and partners from around the world demonstrated new innovations and ideas jointly developed with Huawei. The company has also engaged in a dialogue with industry partners about the future of the telecoms industry and best practices to help operators achieve new value-driven growth.

Connectivity is now a basic necessity. Carriers are enablers of the digital transformation for many industries. They are joining hands with industry to build a Better Connected World. Carriers are shifting from "investment-driven" to "value-driven" model. They now attach more importance to user experience, service and delivering greater value to end users.



Charles Yang
President,
Huawei Middle East



Huawei is committed to becoming a business partner for carriers. We enable their digital transformation and business success and help them find value-driven new growth.

Huawei has united the industry's greatest minds in exploring ways to sustainable growth in a common ecosystem of opportunities and profits.

Defining the key themes and trends affecting technology growth for the year ahead

This year, Huawei Global Digital Transformation Forum - a highly-anticipated MWC kick-off session focused sharing on four of today's biggest themes: 5G Innovation, ROADS to New Growth, Network Value Maximization and Operations Transformation. The forum sessions provided a platform for operators to share industry-wide challenges, strategies, and best-practice digital solutions. Here, Huawei has united the industry's greatest minds in exploring ways to sustainable growth in a common ecosystem of opportunities and profits.

The ROADS (Real-time, On demand, All online, DIY, and Social) experience is key for carriers to go digital. To help operators lead in the digital age, Huawei is also delivering **All Cloud** solutions, enabling them to transform to a dynamic and on-demand approach that will allow them to rapidly expand and meet customer demands.

By 2025 there will be 100 billion connections globally, 85% of all enterprise applications will move to the cloud, 100% enterprises will use cloud services, and the penetration rate of industrial

The strategy of global telecom operators is changing from being "investment-driven" to being "value-driven". Huawei will team up with operators to embark on the value-driven ROADS to new growth.

intelligence will exceed 20%. The strategy of global telecom operators is changing from being "investment-driven" to being "value-driven". Huawei will team up with operators to embark on the value-driven ROADS to new growth. Huawei is dedicated to working with partners to build a sustainable digital business ecosystem.

Opportunities for Growth in Emerging Markets

As we enter a fully connected era, digital infrastructure is facilitating economic growth and emerging markets are on the cusp of a major transition towards digital economies. The Global Connectivity Index (GCI) published by Huawei in 2016 reported that for each GCI score point increase a country improved its innovation capacity by 2.2%, competitiveness by 2.1%, and productivity by 2.3%. Operators around the world are in a unique position to invest in these emerging markets to capitalize on huge ICT industry potential, untapped demographics, and national ICT strategies.

Huawei is prepared to lead a key role as an all-round strategic partner to countries looking to advance economic and social development. The company is committed to creating value for communities by collaborating with operators to help them maximize network assets, deploy home broadband and indoor digitalization, and drive connectivity to enhance the user experience, while promoting economic and social growth.

"By 2025, we will see 2 billion more people with mobile connections, and another 500 million broadband homes. Our commitment has always been to enable world's operators to build roads to new growth.

The Content Gold Rush

Back in the day, for operators, the voice market was worth about \$800 billion US dollars, and the data market was worth \$1.2 trillion. Looking forward, the video market will potentially generate additional revenue of over one trillion dollars for operators. This includes about \$650 billion from entertainment video and \$18 billion from communications video. Vertical industries will have video everywhere, and that market will be worth about \$350 billion. In the future, video will

become an integral part of our lives and our work, opening up enormous market potential for operators.

Content and video are redefining the telecom industry. For operators, video is not really a matter of choice; it's clear now that video is becoming a new basic service. It's a matter of fact, and it will open the doors to huge growth potential. Operators have to get it right with their video business.

2016 was a watershed year for mobile operators. On average, data accounted for more than 50% of total operator revenue from mobile services. Video and video-related traffic contributed 25%. We estimate that, by the year 2020, video's contribution to operator revenue will surpass 50%, and will drive up the revenue generated from all data to more than 70%. For mobile operators, that means their role needs to change. They can no longer limit themselves to being mobile network operators, but be digital content players too.

"By 2025, we will see 2 billion more people with mobile connections, and another 500 million broadband homes. Our commitment has always been to enable world's operators to build roads to new growth.

Telecom operators face a lot of challenges when developing their video business. The biggest challenge is fragmented content. Around the world, there are more than 1,000 content providers, 600+ telecom operators, and 100+ content operators. Video content is diverse and abundant, but it's very difficult to aggregate and distribute to consumers in a given country or region.

If we ever hope to address the demand for universally available content for all consumers and households, then content providers need to change, telecom operators need to change, and content operators need to change too. Everyone needs to make some changes. Only by becoming truly consumer-centric can they make content universally available to all mobile and household users.

In conclusion, we can say that video can become the power behind new growth for operators.

Road to 5G

On the Road to 5G, telecom operators to focus their preparations on three areas: infrastructure, operations, and ecosystem development. The formula for success in the telecom industry: Success = infrastructure x operations x ecosystem. 5G will require two major changes: Going from network-centric to application-centric, and from person-centric to thing-

5G will require two major changes: Going from network-centric to application-centric, and from person-centric to thing-centric—a significant paradigm shift. To prepare their infrastructure for 5G, operators need to begin the end-to-end cloudification of their architecture.

centric—a significant paradigm shift. To prepare their infrastructure for 5G, operators need to begin the end-to-end cloudification of their architecture.

Huawei's role as the "soil" and "energy" in the ICT ecosystem of a budding smart society. In this role, the company aims to serve as a platform for growth, and support strong alliances that push the industry forward and promote ongoing social progress. Huawei is building an open, dynamic cloud ecosystem with a competitive suite of products, open architecture, and open Application Program Interfaces (APIs), all designed to provide its partners with added convenience.

Adhering to the principles of "openness, collaboration and shared success", Huawei held joint exhibitions with 100+ operators and partners at MWC 2017, compared to 70+ last year. At its main exhibition booths, Huawei showcased its growth plans, business models and latest developments in themed areas: 'Maximizing Network Value', 'All Cloud to Support 5G', 'Agile Digital Operations' and 'Cloud-based Digital Services', including a complete range of All Cloud solutions (All Cloud core/wireless/bearer network

solutions etc.). Furthermore, customers and partners had the chance to visit the Huawei Consulting & Services VIP Showcase, Digital Transformation Dialog Center, Innovation City Exhibition and the Huawei Consumer Area to exchange views with Huawei or to experience Huawei's products and services.

Huawei is fully prepared to lead a key role as an all-round strategic partner to customers in their digital transformation journey, and to countries looking to advance economic and social development.

Huawei is fully prepared to lead a key role as an all-round strategic partner to customers in their digital transformation journey, and to countries looking to advance economic and social development. Huawei is keen to listen, share and contribute to the ICT industry to achieve its Open ROADS to a Better Connected World. 

ARTICLE

New Industries Undergoing a Digital Transformation can use the Emerging 5G Technology as a Disruptive Innovation



Rafiah Ibrahim

President and Head of Ericsson Middle East and Africa
Ericsson



5G technology will provide an innovation platform enabling emergent technologies such as the Internet of Things (IoT) to become integral parts of our economy and lifestyle. The question is, how will this technology be rolled out in the Middle East, how it will be used by the various industries and what business reasons are driving the 5G roll out and adoption?

Furthermore, 5G is the foundation for expanding the potential of the Networked Society where everything that can benefit from a connection will be connected. The move to the technology will add a new element: the industrial internet. We'll see new as-a-service business models based on network slicing. Moreover, 5G will enable more secure transactions and expand the battery life of IoT devices by 10 times. All this will create opportunities for new use cases that we haven't yet dreamed of.

5G offers the biggest opportunity to date, not only for the ICT industry, but for all other industries. To ensure that it reaches its full potential, collaboration between the different industry players in both the public and private sectors will be key

Rafiah Ibrahim, President and Head of Ericsson Region Middle East and Africa, sheds light on the ways that, if done right, 5G can benefit a host of different industries throughout the MEA region. She said: "5G offers the biggest opportunity to date, not only for the ICT industry, but for all other industries. To ensure that it reaches its full potential, collaboration between the different industry players in both the public and private sectors will be key to ensure that we have a global standard in place that prevents fragmentation."

When it comes to adoption of the technology, the Middle East is an extremely diverse region from ICT maturity perspective and economic advancement – if you look at something as simple as GDP, the variations from country to country are incredibly vast – Qatar, for example, has the highest GDP per capita ratio in the world, while Afghanistan is among the countries with the lowest. Hence, the

This is the next big thing. For new industries wanting to make use of the technology, 5G could be very disruptive. It is a powerful technology, and services which currently depend on fiber can now tap into 5G

technology adoption in each country is a direct correlation of the development. Having said that, this is also a region riddled with possibility. The uptake of 4G technologies in on the rise in countries such as Lebanon and Turkey, as well as the entire GCC region. Operators are also investing in the upgrade of legacy infrastructures to accommodate the anticipated growth in mobile traffic with the rise of the Internet of Things, as well as the ongoing industry transformation that requires increased mobility.

5G, however, will open new doors of opportunity for the region. "This is the next big thing. For new industries wanting to make use of the technology, 5G could be very disruptive. It is a powerful technology, and services which currently depend on fiber can now tap into 5G," added Ibrahim. It is a completely novel technology that will enable machine-

to-machine and machine-to-human communication opening new doors for service providers and the industry alike. 5G will enable new applications and use cases in areas such as cloud-enabled robotics and intelligent transportation that can benefit people, business and society – and it will therefore help realize the full potential of the Networked Society. "At Ericsson, we have a clear and differentiated position in relation to 5G, supported by strong proof points and use cases. We believe that 5G is a system that will interwork with existing 4G networks," said Ibrahim.

Growth through innovation is the promise of 5G. By enabling new applications and use cases that benefit people, business and society, 5G will help realize the full potential of the Networked Society. 5G systems will use both physical resources and network virtualization technologies. The concept of network slices is not new; a Virtual Private Network (VPN) is a basic version of a network slice. However, network slices in the context of 5G will be defined on a whole new level – they will be more like virtual networks on-demand.

"We're building the strongest global 5G ecosystem to enable rapid growth. And we are doing this by building closely interlinked, symbiotic relationships with operators, semiconductor vendors, IT-infrastructure providers, device

manufacturers, standards bodies, open source communities and industries," Ibrahim concluded.

As a company, Ericsson has a clear wanted position for each of its stakeholder groups – a leading ICT transformation partner for customers, a value creator for shareholders, a responsible and relevant driver of positive change for society and for its employees, a company that attracts, develops and retains the best talents. As such, the company believes that with a multi-stakeholder approach, ICT can be the enabler of a sustainable, prosperous and truly globalized society so called the Networked Society. 📍

We're building the strongest global 5G ecosystem to enable rapid growth. And we are doing this by building closely interlinked, symbiotic relationships with operators, semiconductor vendors, IT-infrastructure providers, device manufacturers, standards bodies, open source communities and industries



ERICSSON

IT'S A BIG SMALL WORLD

Away from home you're not alone. It's about making two people on two different continents feel like they are in the same room. And that begins with the people who connect almost half the population on this planet of ours.

ARTICLE

Smart Societies Need Smart, Safe and Sustainable Cities

Cities today occupy just 2 percent of the earth's surface, yet are home to more than half of its people. That will increase to two-thirds by 2050. The profound implications of this global migration require a fresh way of looking at urban centers—one that encompasses a new set of ideas and technologies.

The challenges

The global population shift toward cities is bringing increased pressure to urban areas in terms of energy use, environmental protection and citizen safety. Managing urban areas is expected to become one of the most important development challenges of the 21st century by many observers such as the UN DESA Population Division. Cities have to do more with less amid increased competition and must find more efficient and sustainable financial models, optimize infrastructure and offer smarter services. They are also competing to attract business and talent, while taking care of citizens' wealth, security, privacy and well-being.

Managing urban areas is expected to become one of the most important development challenges of the 21st century by many observers such as the UN DESA Population Division.

The opportunities

Cities have many opportunities to face these challenges and become "smart." These are enabled by technology, and in particular the internet of things (IoT), where everyone and everything becomes connected through data from billions of sensors everywhere. This vision is being enabled by improved Broadband speeds, diversified connectivity options, cheaper sensors and user interface devices, as well as innovative new applications and users. The Internet of Things (IoT) refers to the constant exchange of information among "smart" physical devices, including machines, vehicles, buildings and other items embedded with sensors. Network connectivity enables these objects to collect and exchange data, and be controlled and coordinated remotely.

The centrality of data is a common theme in smart cities. Some collect and use self-generated data to build their own applications and services; others have taken more of a "publishing" approach,



Dr. Brahim Ghribi

Head of Government Relations for
Middle East & Africa, Nokia

NOKIA

seeking to make available their data to stakeholders, or to “curate” data provided by others, which can be obtained via open data portals or through paid-for data marketplaces. In both cases, the expectation is that third parties may be better able to exploit the data than the city could itself.

Furthermore, new technology platforms, including the cloud-based platform as a service (PaaS), licensed-based on-

cities looking to thrive in the days ahead must get “smart” by investing in the six s’s: shared, secure and scalable information and communication technology (ICT) that enables human possibilities in a way that is smart, safe and sustainable.

demand software as a service (SaaS), open-source software and open APIs, will further broaden the reach and effectiveness of smart city services and citizen convenience, while creating new cost efficiencies.

Finally, creative financing models, including public-private partnerships (PPP), will enable all smart city stakeholders to invest in the technologies they require to compete and thrive in a global economy.

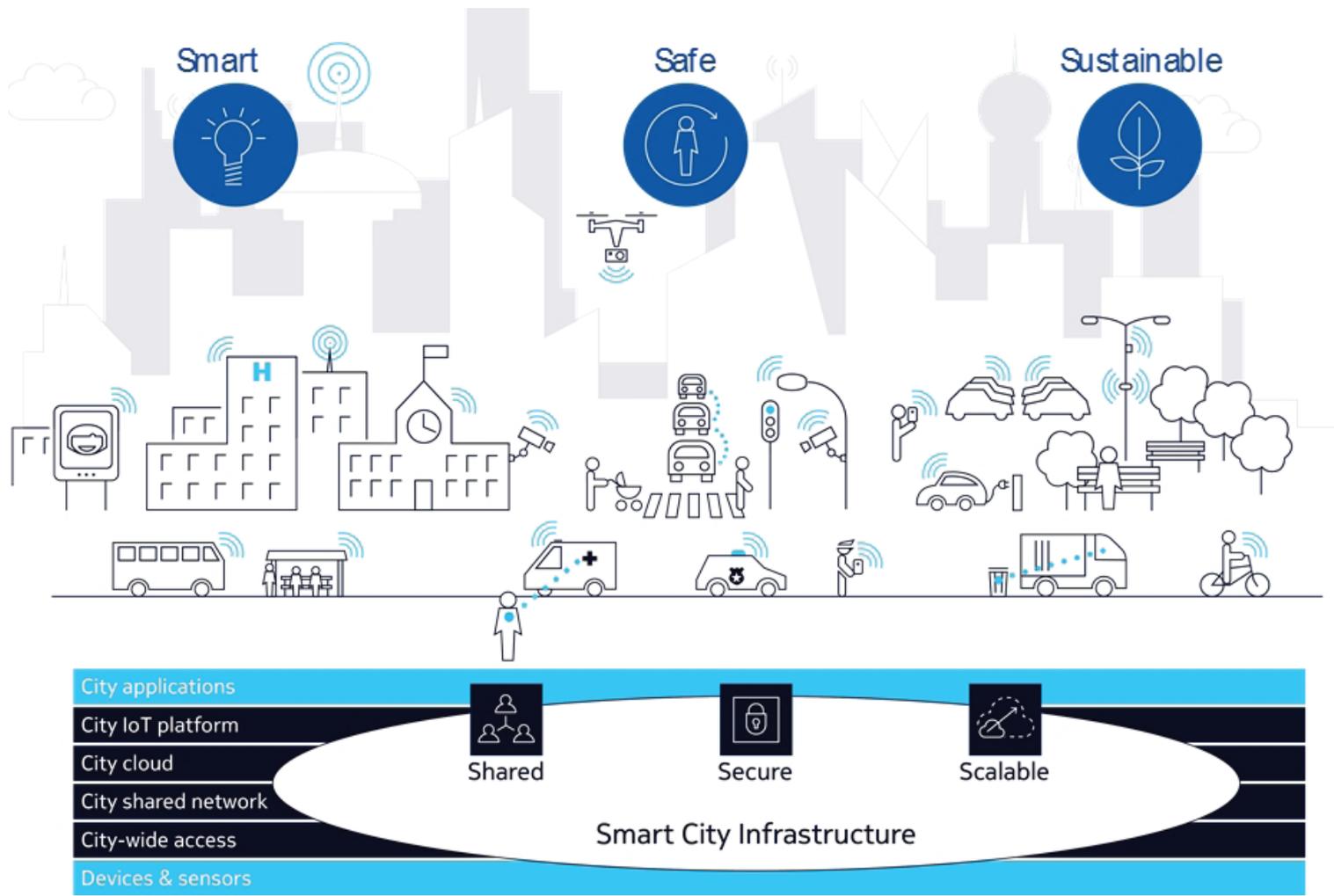
The Smart City Playbook

All of these developments and technologies will provide sustainable and productive urban environments—smart cities—that improve quality of life, bolster economic growth, attract business activities and create new jobs. These factors will enhance the way people live and work each day—making the world more productive, smart, safe and sustainable. Many minds and resources are needed to make cities smart, safe and sustainable. Success depends on

involving citizens, government, industry, academia and other stakeholders throughout the process, from vision to planning to implementation. With these challenges and opportunities in mind, Nokia commissioned a Machina Research study to find out how 22 cities – from Bristol to Dubai, Shanghai to San Francisco – are trying to become smart, safe and sustainable. The result is a compilation of best practices that urban centers everywhere can adopt: the Smart City Playbook. It aims to provide smart city stakeholders with relevant insights on strategies, solutions and pitfalls to be avoided in the process of becoming smarter cities.

The Six S’S

Amid increased competition and the imperative to do more with less, cities looking to thrive in the days ahead must get “smart” by investing in the six s’s: shared, secure and scalable information and communication technology (ICT) that enables human possibilities in a way that is smart, safe and sustainable.



Infrastructure: shared, secure and scalable

For optimal smart city implementation, a shared, secure and scalable infrastructure is needed.

Shared: To maximize synergies and minimize costs, city administration services can share reliable wireless and wireline IP broadband network infrastructure, applications and data over a single IP infrastructure. Application and service providers can have access to a 'horizontal' city platform with common set of capabilities, and residents can have ubiquitous and real-time access to applications, anytime and everywhere.

Secure: In a world where cybersecurity and data privacy are high on the agenda, endpoint and data protection, device management, authentication and authorization, traffic profiling and encryption are key points on both governments' and citizens' checklists. And, just like scalability, true security can only be achieved when possible threats are taken into consideration upfront.

Scalable: Many smart city initiatives will start small, but grow fast, and scale big. As such, the time is now for anticipating a massive take-up of sensor devices and applications, as well as an equivalent growth in data and network traffic. This can only be achieved through a city ICT infrastructure that is scalable by design.

Applications: smart, safe and sustainable

Effective applications are essential for smart city success. The Smart City Playbook groups smart city applications and activities under the categories of smart, safe, and sustainable.

Smart: These applications improve the quality of life for citizens, bolstering innovation, as well as social and economic development. These make cities more attractive places in which to live, visit and do business.

Safe: Applications which prevent or minimize the risks of adverse events, including crime, accidents and natural disasters.

Sustainable: Sustainable applications minimize the environmental impact of the municipality's own operations and the activities of its businesses and citizens. "Sustainable" also means selecting the right business model to fund, invest and cost-efficiently manage innovations.

Many smart city initiatives will start small, but grow fast, and scale big. As such, the time is now for anticipating a massive take-up of sensor devices and applications, as well as an equivalent growth in data and network traffic. This can only be achieved through a city ICT infrastructure that is scalable by design.

Nokia's commitment to smarter, safer, and sustainable cities

The approach to building out IoT applications is far too often silo-based, which is costly and time-consuming, neglecting interoperability, security, availability, scalability and sometimes the interdependence requirements for each application.

To assure smart city components that you can rapidly create, deploy, integrate and manage, a holistic, horizontally layered architecture based on leading products and solutions is required. It should align with the larger smart city ecosystem to assure shared, secure and scalable operations support. Our smart city framework is based on a horizontally

layered architecture encompassing the following:

- **City-wide connectivity** – both fixed and mobile access to connect all people, devices, systems and sensors
- **A shared city-wide network** – a single converged IP-based network for operational efficiency and lower costs
- **A city cloud architecture** – with a virtualized software-defined network to flexibly connect sites, people and applications quickly and securely
- **A city IoT platform** – to manage sensors and devices and collect, analyze and make data available to third-party applications
- **City applications** – developed within an innovation ecosystem of trusted partners.

Working with an open ecosystem of trusted partners—including technology vendors, application developers, service providers, system integrators, utility companies, research institutions and others—Nokia continuously explores new systems, applications, content and services. A good example is the ng Connect program, through which we have built an ecosystem that enables more than 300 member companies, including leading network, consumer electronics, applications, platforms and content providers. We work with these partners to develop standardization initiatives, solution concepts, end-to-end prototypes, business models and market trials that will unleash the full potential of the IoT and smart cities.

Our commitment to the six s's: building shared, secure and scalable infrastructures that enable the human possibilities of smart, safe and sustainable cities - means that Nokia is strategically positioned to help governments, communications service providers and large enterprises deliver on the promise of smart cities. 

REGIONAL NEWS

E-commerce May Pass US\$1 Billion Mark in Pakistan

Minister for Commerce, Engineer Khurram Dastgir Khan said that Ministry of Commerce was working on a policy framework for development of E-Commerce in the country. E-Commerce is still in its infancy in Pakistan compared to the global trends but it is rising very fast as this sector is doubling in size with every passing year. This sector may surpass \$1 billion in 2020 due to exponential growth in mobile broadband access. Speaking in a meeting with President Alibaba Group Michael Evans, Commerce Minister maintained that digital platforms have not only changed the economics of doing business across borders by reducing costs of international transactions enabling Micro, Small and Medium Enterprises to connect with

customers and suppliers around the world but has also promoted inclusive economic growth and have provided livelihood for the marginalized segments of the society including women. Alibaba is a Chinese e-commerce company that provides consumer-to-consumer, business-to-consumer and business-to-business sales services via web portals. It also provides electronic payment services, a shopping search engine and data-centric cloud computing services. The group began in 1999 when Jack Ma founded the website Alibaba.com. The meeting was also attended by Secretary Commerce, Secretary Finance, Secretary and Chairman Board of Investment, representatives from FBR, State Bank and Commercial Banks and other relevant government departments. Khurram Dastgir Khan said that Pakistan was leading in mobile banking transactions in South Asia with 11% of citizens using mobile phones for financial transactions and Pakistan's e-commerce industry is estimated at \$100 million with about 30 million internet users. The minister said that government of Pakistan is encouraging the private sector to take the lead and partner with the government in fulfilling Pakistan's potential in e-Commerce. Minister proposed collaboration with a world leader in the field such as Alibaba group, both at a

strategic and technical level to enable Pakistan to harness its true Potential. Khurram Dastgir Khan also informed the Participants that cognizant of the global developments in digital trade and e-commerce, Ministry of Commerce is working on a Policy Framework for development of E-Commerce/digital trade in the country. Michael Evans, president of Alibaba group appreciated the government of Pakistan for its hospitality and warm welcome and said that Alibaba is interested in starting its operations in Pakistan and to tap in to this high potential Market. He further said that Alibaba can offer its services in bringing in contact the consumer and businesses of Pakistan in contact with the world and this will not only result in endless opportunities for the Small and Medium Enterprises but also in creation of millions of jobs. Later on the secretary finance, chairman BOI and other distinguished participants shared their views followed by detailed question and answer session between Michael Evans and other participants. Minister for Commerce, Khurram Dastgir Khan thanked all the participants for their engagement at the end and expressed hope for continued bilateral and multilateral cooperation for the achievement of broad-based investment and economic development.



Pakistan to Promote Latest Technology at IT Conference

When it comes to introduction of technology in Government sector in Pakistan, the only province that is doing wonders in this area is Punjab. Punjab Information Technology Board (PITB) has left no stone un-turned in this regard and has introduced several significant initiatives to make Punjab a true digital province. Similarly, now PITB to Organize the Largest Gathering of IT Fraternity 'RoundTable Conference' on 6th April, 2017. This is 2nd conference held by

PITB as in 2016 it was also conducted. Recommended: PITB & Kazan Sign MoU to Expand Technology-Education Cooperation The fundamental purpose of RoundTable Conference is to bring together the entire IT industry under one roof. RoundTable Conference is a meeting which is convened by Dr. Umar Saif, Chairman of Punjab Information Technology Board (PITB) after every 6 months; where the most pressing issues of the industry and how to strategize

them and to overcome them is mainly discussed. PITB on its official Facebook said that: We as an industry need to join hands to gather data to prove how big an industry we are. It will help us project Pakistan at a global level. We invite all CEO's of the IT industry to join us on the 6th of April, Thursday and contribute towards the strengthening the foundation of this ground breaking initiative. We await your presence at Punjab Information Technology Board."

Operators Voice Concerns Over Proposed Spectrum Price Hikes

Mobile operators have opposed the telecom regulator's proposal to hike the spectrum prices and revenue sharing percentage for 4G services on grounds that the move would make the technology commercially unviable. In the proposed guideline for 4G services, the Bangladesh Telecommunication Regulatory Commission called for 15 percent revenue sharing with operators. At present, the operators share 5.5 percent of their gross revenue from 2G and 3G services with the BTRC. They also forward 1 percent of their proceeds as contribution towards the social obligation fund. In a letter sent to Tarana Halim, State Minister for Telecom, the operators said the high spectrum charges, overall high taxation, low data rate, low average revenue per user, low penetration of 4G-enabled handsets do not justify any increase of revenue sharing. "In the current context, any increase in revenue sharing will make the business case for 4G totally unviable," said the letter signed by TIM Nurul Kabir, secretary general of the Association of Mobile Telecom Operators of Bangladesh. It is also pertinent to highlight that technology-based revenue sharing is impractical and unworkable, it said. On its proposed guideline, the

BTRC suggested Tk 15 crore as licence fees for 15 years and another Tk 7.5 crore as annual fees. "Telecom is a capital-intensive industry and the question now is whether the industry can bear any more fees or taxes," the letter said. The telecom division yesterday forwarded the guideline to the finance ministry for final approval, said Shyam Sunder Sikder, secretary of the division. The telecom regulator is also drafting another guideline, where it proposed \$25 million for each MHz of spectrum and another \$7-\$8 million for per MHz of technology neutrality. "Spectrum price in Bangladesh is unusually high compared to benchmark countries," the operators said in the letter. The government is sitting on 148 MHz of unsold spectrum, whereas the operators are forced to run on low level of spectrum. "The increase in spectrum price demonstrates the confusing stance of the government in ensuring quality of services for the end consumers." The operators said the spectrum licenses should be technology and service neutral as it would be used efficiently rather than being tied to declining technologies and services. Technology neutrality means the operators would have the choice to use their spectrum as they see fit. The

operators have started their preparations for 4G rollout. They have already run tests on the 2,100 band and got a reasonable 50 to 100 Mbps of speed for both uploads and downloads. At present, they are offering 3G services from this band, which they acquired in 2013 in an auction at a price of \$21 million per MHz. "If the government is determined to impose so much charge, we will jointly go for a tough stance," said a top executive of an operator requesting anonymity. Before submitting the letter the AMTOB members had met with Finance Minister AMA Muhith and Tarana to voice their grievances. Out of every Tk 100 revenue that the operators earn, Tk 47 goes to the national exchequer, they informed the two ministers. The mobile operators have invested over \$3.8 billion in 3G technology since 2013 but they are yet to recoup the cost, let alone make any profit in the 3G segment, they said. Currently, 4G services, which offer broadband mobile capabilities, are available in all the neighboring countries save for Bangladesh. As of February, there are around 6.31 crore mobile internet users in Bangladesh, around 3 crore of whom use 3G services.

Website to Curb Electronic Devices Theft Launched in Iran

A new government-backed website has been launched to help Iranians counter the theft of electronic devices like mobile phones. Hamyab24.com offers a wide range of services for protecting smartphones and tablets. When someone loses his or her mobile phone the website enables the person to track the lost phone using the device's IMEI number, local technology website Webna.ir reported. IMEI or International Mobile Equipment Identity is a 15- or 17-digit code that uniquely identifies mobile phone sets. The IMEI code can enable a GSM (Global System for Mobile communication) network to prevent a misplaced or stolen phone from initiating calls. The location of the lost device can also be tracked by the code. When a phone is lost or stolen, the owner can blacklist the device on Hamyab24 using its IMEI number. After

that, the phone will become useless, even if someone swaps out its SIM card. However, although it is not an easy task, a skilled and determined cracker can sometimes change the IMEI number and use a stolen phone to place calls. The website charges 84,000 rials (\$2.3) for the services offered to owners of stolen goods. Moreover, when purchasing a new phone, people can check the IMEI code of the product on Hamyab24 to make sure that the phone has not been stolen. The user also can register electronic goods after purchase with the website for 50,000 rials (\$1.3). In addition to these, in case someone finds a lost electronic device, he can register the device on Hamyab24 assisting the owner in finding it. A report on Hamyab24 states that on a daily basis judiciary files 900 requests for tracking lost mobiles with just the country's

second largest mobile operator, MTN-Irancell. According to that report, from the 900 stolen or lost phones, only 300 can be tracked with the operator's assistance. Hamyab24 is a joint project of an Iranian private company, Saina Pardazesh and several national bodies including the Ministry of Justice. The website has also been endorsed by the Ministry of Culture and Islamic Guidance and the Ministry of Industries, Mining and Trade.



Mobile Data Sees High Growth in Bahrain

For the first time since 2008, total revenue and traffic for local and international calls has made a significant drop in favor of higher data consumption in Bahrain's telecoms market, said a report. Furthermore, traditional voice services receded in use by 17 per cent between 2014 and 2015. It's expected that data revenues will overtake voice concurrently. By the third quarter of 2016 there were, overall, 1.8 million mobile subscribers in the kingdom compared to 800,000 in 2012, an 89 per cent leap in four years, stated Bahrain's Telecommunications Regulatory Authority (TRA) in its report. Active mobile broadband subscriptions in the third quarter of 2015 accounted for 57 per cent, growing to 64 per cent one year later, it added. "The popularity of mobile services is undeniable at this point. Innovation in addition to investment in telecoms infrastructure and services are key to realizing the potential of today's mobile economy," remarked the deputy general director of TRA Bahrain, Sheikh

Nasser Bin Mohamed Al Khalifa. "There is a vast array of opportunities that Bahrain's market can cultivate from this development. Data over mobile can and is starting to stimulate local trade, support small, medium and large businesses; by enabling citizens to make use of e-services, there is room for much more to be done, and it can all be done over your smart device," he stated. According to him, the mobile data services are changing the global telecoms landscape in a big way. "With the increasing popularity of smart devices, forecasts predict that mobile subscriptions may pass eight billion users globally as early as 2022, 4.1 Billion of which will be made up of LTE subscriptions," noted Sheikh Nasser. This goes hand-in-hand with a trend the world is already witnessing; that the growth rate of data services is outpacing voice. Subscribers are displaying a clear preference to communicate over data-enabled services such as e-mail, instant messaging, VoIP, video chat and more

as people depend on the diversity of functions a consumer can perform over a smartphone, he stated. It's no surprise that a large number of telecoms providers the world over are taking advantage of the opportunity by pairing their data packages with free unlimited voice calls, he added. According to TRA, mobile service providers are all converging around one idea: that mobile data services are a major economic growth driver. Countries around the world are reacting to this differently. China Mobile reports 46.2 per cent of their revenues are coming from mobile data. With the same trend in the US, companies are partnering to fast-track 5G development. In Australia, the prices of voice services have been driven down by consumer reluctance to tolerate higher prices, thus companies there see the need to invest in mobile data network upgrades, it stated. Similar trends are making themselves visible in Bahrain, according to the TRA's Annual Market Indicators Report.

Pakistan Taking Initiatives for a Digital Pakistan

The Ministry of Information Technology was working towards making a digital Pakistan as digital economy through IT, freelancing work, ecommerce and mobile apps was the future of Pakistan. This was stated by Minister of State for Information Technology Anusha Rahman in a function organized by Rawalpindi Chamber of Commerce and Industry (RCCI) in connection with third ICT Awards (Information Communication Technology Awards). The minister said Pakistan had achieved remarkable achievement in the field of IT. We were 3% on broadband penetration in 2014, now it has jumped up to 27%. The IT ministry was working on testing of 5G, being the first country in Asia. Pakistan recently won GSMA award and ranked No 3, she added. She said freelancing industry had 100 million dollar documented industry in Pakistan and potential was more than one billion dollar, she added. The minister said the Ministry of Information Technology (MoIT) had partnered with Microsoft Corporation to increase

access for all to learn computer and communication skills. She also referred to the deteriorating financial condition of Pakistan in 2013 where we were facing extreme load shedding, terrorism and low foreign reserves and the world was predicting that this country would default. The consistency in national policies had resulted in increased investment in the country, adding Pakistan was now more secure and peaceful as compared to the year 2013. She also appreciated the role of RCCI for promoting IT culture in the industrial sector and entrepreneurship. Speaking on the occasion, President RCCI Raja Amer Iqbal said that IT industry was having market share of approximately \$3 billion in Pakistan and twin cities had 40 percent share of the total business of IT in the country as many multinational companies had established their offices here. RCCI ICT AWARDS aims at honoring Pakistani companies at the cutting edge of technology innovation as well as leading professionals. Earlier, the Minister distributed awards among the companies

including Pakistan Ordinance Factory, Rescue 1122, Trillium Information Security Systems, NetSol Technologies Inc., Telenor Pakistan, Shifa International Hospital Ltd and others. Chairman PTA Ismail Shah, Mayor City Sardar Naseem, MD Pakistan Software export board (PSEB), CEOs of leading IT and Telecom companies, government officials and members of the RCCI executive committee were also present on the occasion.



Ooredoo Plans New Submarine Cable System this Year

Marking a major step towards the completion of a technological and global communications breakthrough, Ooredoo's Southeast-Middle East-Western Europe 5 (SEA-ME-WE 5) submarine cable system will be activated this year. Installed at its base station in Qalhat in the Governorate of Ash Sharqiyah South, the 20,000 kilometer cable has been developed as a multi-regional data superhighway that will substantially improve data transmission across affected regions and provide extra resiliency for internet traffic to Oman, according to a press release. The SEA-ME-WE 5 cable has the capability to transfer data at a capacity of 24

Terabits per second. Its advanced 100 Gb technology will help meet the growing demand for bandwidth between Europe and Asia. In an illustration of the cable's high-speed capabilities, the SEA-ME-WE5 can allow 4,800 high-definition movies to be downloaded per second. Additionally, it will increase data capacity by almost seven times along the corridor connecting Southeast Asia, the Middle East and Western Europe. The SEA ME WE 5 is a step towards realizing the future of international cable systems in terms of capacity, diversity and network access for our valued customers. We believe that with SEA ME WE 5 state-of-the-art technolo-

gy, connectivity with the rest of the world will become a reality, contributing to the social and economic progress and integration of all included regions," said Jim Maxwell, Ooredoo's chief legal, regulatory and wholesale officer. The new SEA-ME-WE 5 will connect 17 countries across the Middle East, Asia, North Africa and Europe. Construction of the intercontinental undersea cable began in September 2014 and was completed in 2016 and 2017 will see the activation of traffic on the cable. The project is being developed through a collaboration of 19 leading telecommunications operators from around the world.

Next 10-20 Months will Reshape European Telecoms – ETNO

Telco lobby group calls on regulators to be open minded about access technologies. The next 10-20 months is a critical period that will reshape European telecoms regulation for the next decade, said ETNO director general Lise Fuhr. Speaking on day two Total Telecom's Gigabit Access event in Brussels, she said Europe needs to be very aware about how it updates its telco rules because it sends a critically important message to the investment community. "The big, underlying issue is, how we ensure it results in concrete benefits to end users?" she said. In September, the European Commission presented its Electronic Communications Code (ECC), which among other things calls for regulatory intervention only in areas where competition and choice are lacking. It also calls for stringent rules governing effective and efficient use of spectrum. The Commission hopes that

the ECC will help Europe meet its target of providing 1-Gbps broadband to schools, hospitals and large businesses, and a minimum of 100-Mbps for all households – which need to be upgradeable to 1 Gbps – by 2025. In addition, in May 2018, the EU's privacy law – the General Data Protection Regulation (GDPR) – comes into effect. Fuhr said that the ECC must be inclusive of all technologies and investment models, and not focus exclusively on fiber. ETNO's telco members should "choose the technology that is best for them," she said. Competition to invest in networks "should be at the core" of the ECC, she added. Perhaps most importantly, Fuhr said the ECC should allow telcos to innovate. "Without new and innovative services on top of them, they (networks) are going to be useless," she warned, noting that as it stands today, only 35% of homes passed by a 30-

Mbps+ broadband network have an active connection. Innovation will boost uptake and drive further investment in networks, she said. Europe's operators must be able "to gather the necessary resources to bring the Gigabit society to all Europeans in a short time frame," Fuhr said.



Turk Telekom Extends Maturity of Loan for 3 Years

Turk Telekom extended for 3 years the maturity of its USD 100 million loan agreement with Bank of Tokyo Mitsubishi

UFJ signed in March 2014 maturing on March 31. The annual interest rate of the new 3-year loan is Libor + 1.75 percent,

that's less than the rate of Libor + 2.55 percent of the previous deal.

ICT Minister, Dell EMC Head Discuss Cooperation Prospects During Innovation Summit

On the sidelines of his visit to the United Arab Emirates to attend the "Innovation Summit" held in Dubai, the Minister of Communications and Information Technology Yasser Elkady has met with Dell EMC Chairman Michael Dell, and a number of Dell- MENA region officials. During the meeting, they discussed means of expanding cooperation between the Egyptian ICT sector and the international Company, and new investment opportunities offered by Egypt to international and local companies. The meeting also tackled the general strategy of the Egyptian government and the presidential initiatives for building youth technological capacities, establishing technology parks and manufacturing electronics. Dell commended the cooperation between the two parties, denoting that the Company intends to design a new strategy to increase

cooperation between the two sides. The strategy that aims at increasing the number of employees and trainees at the Cairo Company's Center of Excellence by about 250 specialists annually, raising professional efficiency and contributing to the implementation of the presidential initiative for youth capacity building. Dell EMC will cooperate with the Ministry of Communications and Information Technology (MCIT) to provide technical content, aiming at preparing graduates for the labor market. For his part, Elkady said that the State is fully depending on young people in implementing its programs to achieve sustainable development in various fields, especially over the next ten years. MCIT agreed with Dell EMC to send a number of youth to one of Dell's innovation entrepreneurship and electronic applications centers, he added. Another specialized program will be

developed to enhance cooperation in the field of innovation and entrepreneurship to train the trainers on establishing pivotal labs in Egypt. Elkady extended an invitation to Michael Dell to visit Egypt to discuss new investment opportunities with the Company and start establishing partnership projects. During the meeting, both parties discussed cooperation in the electronics industry in the country and establishing Dell's first of its kind factory in the region. The factory will be established as part of the presidential initiative to serve the growing domestic demands for electronics, support priorities of the state such as education and health, and export to African countries in a later phase to maximize the benefits of the international agreements signed by Egypt. Discussion also tackled the possibility of cooperating with MCIT in cloud computing to make Egypt a central region for big data centers.

Unified Cloud Service to be Launched in Algeria

Avaya and Icosnet have announced a strategic partnership to jointly provide Unified Communications (UC) technologies from a cloud platform in Algeria. With growing demand for advanced connectivity and communications solutions, the new cloud-based offering will bring innovative technology consumption models to help drive digital transformation within organizations in the public and private sectors in this emerging market. Based on Avaya Aura (TM) and Avaya Equinox (TM), the UC cloud-based service offered by Icosnet provide streamlined, mobile-first communications that are less complex than many legacy systems. The service will enable Algerian organizations to leapfrog traditional enterprise communications models and add advanced capabilities in a hybrid or pure cloud model. For example, organizations can communications-enable the business applications and browsers that are used most often within the organization, making it easier and faster for employees to communicate and collaborate with customers, partners and other colleagues.



Middle East Operators Meet at Conference in Oman

The seventh Middle East Network Operators Group (MENOG) conference,

the latest edition of the international forum featuring key players from the

region's internet network operations field, opened on April 19 in Oman.

Plan for e-Oman Strategy Underway

The Information Technology Authority (ITA) is developing a 2030 strategy which will help plan smart cities, Dr. Salim bin Sultan al Ruzaiqi, its chairman said at the Smart City Summit Oman on Wednesday. Dr. Ruzaiqi said the strategy is expected to be completed by the end of the year. 'The plan for our e-Oman strategy is going to work towards looking at what are the new initiatives, what are the new jobs that are going to be valid for the country in the years to come, and what are the jobs that are going to be...with the artificial intelligence, with all those technologies that we are bringing to the country,' he said. The ITA strategy will provide policies and regulations based on its seven pillars, which include security, infrastructure, e-government, and society development. Dr. Ruzaiqi said that the strategy would have large impact on other government departments. 'The responsibility to deliver services actually lies with government agencies. They are the service providers,' he said. He said new smart cities include a logistics city near Muscat, Duqm, and

Madinat al Irfan (which includes Oman Convention and Exhibition Centre). He emphasized the role of entities such as Oman Broadband Company (OBC) in providing the infrastructure for these cities. 'We are going to build new cities. That's why we have OBC, which has been set up to put in the right infrastructure.' In a prototype smart city, municipal services such as lighting, traffic lights, garbage disposal and building management would be driven by technology. At the summit, experts said telecom and broadband companies, will play an important role in building the infrastructure to make the city possible. They emphasized the need for collaboration. 'It shouldn't be one way. It should be bi-directional and also partnering down to make sure we bring together in the fold, we build an ecosystem of SMEs, of smaller, more dynamic business of the private sector,' said Fadi Nasser, advisor to the CEO at Omantel. Ian Dench, CEO, Ooredoo said the growth of smartphones means there is already a solid base for smart cities.

'Already people are used to using smart services,' he said. Said al Mandhari, CEO, OBC agreed that the infrastructure is being developed well. 'The main requirements for a smart city is there,' he said. Logistics City Oman is building a new logistics city around Halban which will host the University of Oman, Dr. Ruzaiqi said. The University of Oman is currently in the project phase. On the sidelines of Smart City Summit Oman, he said the city would also host a science and technology park.



Libyana Deactivates Foreign SIM Cards in Security Measure



According to the Libya Observer, the country's dominant cellco by subscribers, Libyana has deactivated all foreign subscribers' SIM cards in order to 'maintain national security'. The company reportedly said that all foreigners in Libya who wished to have their SIMs reactivated must bring a valid

visa and passport photocopy to one of its business centers in Tripoli. The move comes after security sources said criminals and radical groups had been using Libyana numbers registered with foreigners' IDs, chiefly African nationals involved in criminal activity using Libya as a gateway to Europe.

SATELLITE NEWS

ULA Successfully Launches OA 7 under RapidLaunch Service Contract

A United Launch Alliance (ULA) Atlas 5 rocket carrying the OA 7 resupply spacecraft to the International Space Station (ISS) lifted off from Space Launch Complex-41 on Tuesday morning. The OA 7 mission represents the first execution of a RapidLaunch service contract, with contractual agreements finalized five months ago. ULA flew the mission for Orbital ATK under NASA's commercial resupply services contract, and the payload will deliver supplies, equipment and experiments to astronauts aboard the ISS. This is ULA's fourth launch in 2017. ULA launched this mission aboard an Atlas 5 401 configuration vehicle, which includes a 4-meter Extra Extended

Payload Fairing (XEPF). The RD Amross RD-180 engine powered the Atlas booster, and the Aerojet Rocketdyne RL10C engine powered the Centaur upper stage. The Cygnus spacecraft consists of a common Service Module (SM) and a Pressurized Cargo Module (PCM). Orbital ATK assembled and tested the SM at its Dulles, Virginia, satellite manufacturing facility, and incorporated in the SM systems from Orbital ATK's LEOStar and GEOStar satellite product lines. The PCM is based on the Multi-Purpose Logistics Module (MPLM), developed and built by Thales Alenia Space of Italy. ULA's next launch is the Tracking and Data Relay Satellite-M (TDRS-M) mission for NASA,



scheduled for Aug. 3 from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida.

UAE Set to Start Satellite Manufacturing

An advanced space laboratory inaugurated in Abu Dhabi on Monday will support the UAE's transformation from a satellite operator to satellite manufacturer, according to a senior official. "The UAE has been operating satellites, especially in telecommunication, for many years. The Hope probe [Mars Mission] announced by the leadership will also help develop local expertise in satellite manufacturing and this lab will support that transformation," said Dr. Saif Al Mheiri, Assistant Professor of Mechanical and Materials Engineering at the Masdar Institute of Science and Technology (MI) and a manager of the newly launched Yahsat Space Laboratory. He was speaking to Gulf News on Monday at the laboratory, which was launched by the senior officials of MI, and Al Yahsat Satellite Communications Company (Yahsat), and Orbital ATK. The lab is the result of the UAE leadership's call to develop and advance technologies within the space sector and to make continuing strides toward the UAE's advanced space ambitions, the officials said. The new lab will facilitate the

Masdar Institute Master's concentration in space systems and technology with the facilities required to construct, test and launch miniature satellite CubeSats. The high-tech and specialised research facilities within the lab will support the development of intellectual capital required to advance the space and aerospace sectors. Additionally, the lab will serve as a platform for future research in space technologies, allowing the UAE Space Agency to work with the Institute and other partners on collaborative projects that facilitate the advancement of the local space sector. Masood. M. Sharif Mahmood, Chief Executive Officer at Yahsat said the new facility was dedicated for advanced research and enabling students to develop CubeSats. Dr. Behjat Al Yousuf, Interim Provost at MI, said the inauguration of the lab is a momentous occasion for the UAE's space ambitions. The lab will develop CubeSats designed collaboratively by MI, Yahsat and Orbital ATK. Each CubeSat will be built with different payloads, such as cameras, sensors and scientific

equipment. MYSAT-1 is the programme's first satellite, design of which began with the first cohort of students from the space concentration in August 2015. It has been built with a camera and will test a novel lithium-ion battery designed and developed at Masdar Institute. Sumayya Al Muhairi, a Masters student at MI, said the new lab would help her ambition to contribute to the UAE's space programmes. The lab will facilitate industry-academic collaboration to enable knowledge transfer in pursuit of home-grown expertise in advanced technologies. Orbital ATK serves as the 'subject matter expert', providing testing facilities and facilitating the launch of miniature satellites developed through the programme. The Master's space concentration was developed to foster the advanced research areas in space science and technology needed to support the UAE national space programme and space-related industries with human resources, technical advancements and infrastructure.

ABS Co-Brands ABS 2A Capacity as MongolSat 1

At a ceremony attended by Mongolian Prime Minister Erdenebat Jargaltulga and Parliament Chairman Enkhbold Miyegombo on



April 19, Asia Broadcast Satellite (ABS) announced it will co-brand its 12 by 27 MHz payload on the ABS 2A satellite as MongolSat 1. ABS Chief Executive Officer (CEO) Tom Choi presented a plaque to the two Mongolian leaders in honor of the event. MongolSat 1 represents the country's first co-branded satellite payload, and ABS will use its capacity exclusively for launching a free nationwide digital satellite TV service, telecommunications and broadband services. The new services will be available throughout the entirety of Mongolia. Boeing manufactured the ABS 2A satellite, which entered into commercial service on January 21 and is equipped with 48 Ku-band transponders. It is the third and final satellite in ABS' latest build investment, after ABS 2 launched in 2014 and ABS 3A launched in 2015. According to the company, ABS 2A is located at 75 degrees east and is optimized for video services for growing cable TV and Direct-to-Home (DTH) businesses.

Yahsat Reaches Out to Humanitarian Aid Community

Satellite provider Yahsat plans to offer greater assistance to the global humanitarian aid community in conjunction with the UAE's Ministry of Foreign Affairs and International Cooperation. Yahsat, which is a unit of Abu Dhabi investment company Mubadala Development, held a one-day forum in Geneva last month, attended by senior representatives from various international humanitarian bodies together with senior UN representatives from the GCC, Jordan, Pakistan and Spain, highlighting potential collaboration activities between the satellite industry and the international humanitarian aid community. The Enabling through Connectivity forum, also held in conjunction with the UAE's permanent mission to the UN, follows a series of discussions held between Yahsat and the UN over the past three years. "Following the upheavals in the Arab world and beyond in 2014, we felt it was more

critical than ever to really understand the needs of the sector in order to serve it better," said Najat Abdulrahman, Yahsat's executive director for global strategic business development. "Increasingly people who have been displaced by crises take their phones with them and want to remain connected to their loved ones. Humanitarian aid agency staff, who are often out in the field for months on end, also want to remain connected." Such discussions coincided with an increasing openness within the UN, the international aid community and the UAE's Ministry of Foreign Affairs and International Cooperation about increasingly involving the private sector in humanitarian relief efforts worldwide, she told The National. "It's started a dialogue between us and the UN and the humanitarian aid community, meaning we can better develop solutions and services that helps them and the people they're helping," she said. Through its partners, Yahsat is already providing

support to humanitarian aid efforts in crisis zones including South Sudan, Turkey, Yemen, Syria and Iraq, she said. Yahsat was one of seven major satellite operators to sign a Crisis Connectivity Charter with the UN Office for the Coordination of Humanitarian Affairs in October 2015, intended to accelerate the ability of emergency response teams to access satellite-based communications when local networks are affected, destroyed or overloaded following a disaster. The charter's principles also include increased coordination to priorities access to bandwidth for humanitarian purposes during disaster operations, pre-positioned satellite equipment and transmission capacity at times of disaster in 20 high-risk countries in Europe, the Middle East, Africa and Asia, as well as training and capacity building for the humanitarian community across all five continents.

South Asian Satellite to be Launched in May

India plans to launch on May 5 the 'South Asia Satellite' that will benefit all the countries in the region, except Pakistan which is not a part of the project. "It's going up in the first week of May," Indian Space Research Organisation (ISRO) Chairman told PTI in a telephonic interview. According to ISRO sources, the launch of this communication satellite (GSAT-9) is scheduled for May 5 on board the space agency's rocket GSLV-09 from Sriharikota spaceport. Chairman said the satellite, with a lift-off mass of 2,195 kg, would carry 12 ku-band transponders. "Pakistan is not included in that. They

did not want (to be part of the project)," he said. Sources said the satellite is designed for a mission life of more than 12 years. Prime Minister had made an announcement about this satellite during the SAARC Summit in Kathmandu in 2014 calling it a "gift to India's neighbors." "It (name) was changed to this (South Asia Satellite) because of that only (Pakistan not being part of it)," Chairman said. Earlier, it was named as 'SAARC Satellite.' "Basically, it (the satellite) is meant for providing communication and disaster support, connectivity among States (countries of South Asia region). It will

provide a significant capability to each of these participating States in terms of DTH, certain VSAT capacity plus linking among the states for both disaster information transfer and also in terms of library type of things," he said. "So, there is a significant amount of inter-linking possible among the States (these countries)," Chairman said. According to ISRO officials, there is a potential for each participating country to use a dedicated transponder with a capacity of 36 to 54 MHz for its own internal use. Each country would be responsible for content generation and its use, they said.

Thales Alenia Space Delivers Panels For GEO KOMPSAT 2 Satellites

Thales Alenia Space has sent South Korea the third of three panels making up the communications payloads on the two GEO KOMPSAT 2 (Geostationary Earth Orbit Korea Multi-Purpose Satellite) satellites being built by Korea Aerospace Research Institute (KARI). KARI will integrate this last panel in the GEO KOMPSAT 2B satellite, and follows the two panels already delivered by the company at the end of last year for the GEO KOMPSAT 2A satellite. GEO KOMPSAT 2 is a key South Korean space program that will provide vital meteorological, oceanographic and environmental data for both government bodies and private end-users. The program comprises two satellites, each weighing around 3.5 tons, to be located at 128.2 degrees east longitude. The two satellites are scheduled for launch in 2018 and 2019. The GEO KOMPSAT 2A satellite will carry out meteorological and space environment monitoring, using

two main instruments: the Advanced Meteorological Imager (AMI) and the Korean Space Environment Monitor (KSEM). The GK2B will monitor oceans and the Earth's environment, also using two dedicated instruments: the Geostationary Ocean Color Imager-2 (GOCI-2) and the Environmental Monitoring Spectrometer

(GEMS). Thales Alenia Space integrated and tested the three communication panels in its plant in Spain. These panels house the subsystems that transmit to Earth the raw data from the instruments, as well as a communications payload comprising two repeaters, used to retransmit processed data to end-users.



Paradigm's Swarm45 Terminal Type Approved for Inmarsat Global Xpress

Inmarsat has granted type approval for Paradigm's flat panel Swarm45 terminal, as it enhances portability and ease of use of the Inmarsat Global Express (GX) service by offering fast setup and pointing. During successful demonstrations in multiple user scenarios, U.S. government end users were connected in less than five

minutes anywhere in the world without requiring specific region configurations or set up procedures. According to Paradigm, Swarm45 delivers high data rates for its antenna size. The company designed the terminal around the Paradigm Interface Module (PIM), which has an integrated modem and innovative

audio and visual pointing aids. Paradigm developed the pointing process ensure quick deployment by users with minimal training. It provides a straightforward method of acquiring any one of the GX satellites without the extra bulk of motors and controllers as part of the hardware.

Viva Kuwait Announces 35Gbps 5G Lab Tests

Cellco Viva Kuwait, a subsidiary of Saudi Telecom Company (STC), has announced in a press release the successful testing of '5G' network technology in its lab, achieving wireless data speeds of nearly 35Gbps, and claiming a 'country first,' although its statement did not specify details of its 5G lab equipment set-up.

The company noted that 5G will enable higher capacity and better latency than 4G systems, allowing a higher density of mobile broadband users, with 'multi-gigabit speeds in cityscape areas' whilst also supporting the spread of advanced Internet of Things (IoT) applications. As previously reported by CommsUpdate,

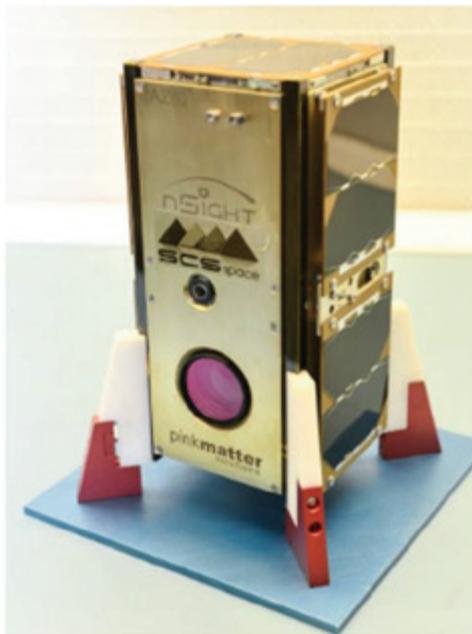
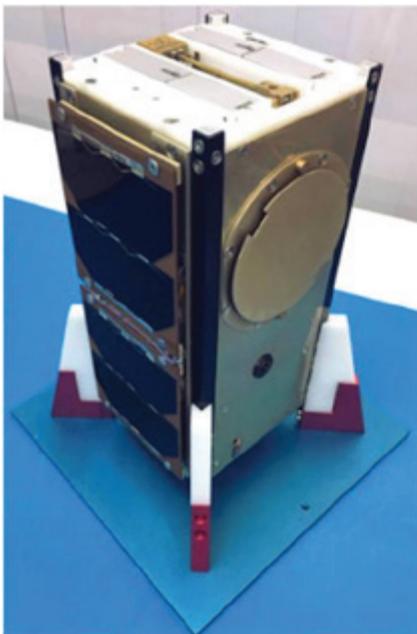
in December 2016 Viva's Kuwait-based rival Zain Group and Swedish equipment vendor Ericsson entered into a 5G research and development agreement, which will allow the two partners to evaluate performance and applicability of potential 5G key technology components.

South Africa Satellite Industry Grows with Nanosats Launch

The South African satellite industry is taking yet another step forward as a player in the international arena with the April 18 launch of two South African-built nanosatellites onboard a United Launch Alliance (ULA) rocket from Cape Canaveral, Florida. NSight 1, designed and manufactured by Cape Town-based SCS Space, a member of the SCS Aerospace Group, and ZA-Aerosat, designed and manufactured by CubeSpace of the

Stellenbosch University, will launch as part of a batch totaling 28 nanosatellites from 23 different countries. According to ULA, the Atlas 5 and Cygnus OA 7 launch is set for April 18 at 11:11 a.m. EDT, following a number of rescheduled events due to ground equipment readiness. Their initial destination is the International Space Station (ISS), where the ISS crew will unload and transfer the satellites to deployers with

the help of robotic arms. The crew will eventually deploy the satellites in Low Earth Orbit (LEO) over a period of 30 to 60 days as the ISS orbits the Earth. The SCS Space nSight1 satellite project is a joint investment by SCS Aerospace Group and Pinkmatter Solutions, who supplied the ground segment software. Engineers from the Space Advisory Company designed, integrated and tested the satellite before assembling it in the clean room of NewSpace Systems, both part of the SCS Aerospace Group. A key part of the satellite's mission is to test the newly developed SCS Gecko Imager as well as Nelson Mandela Metropolitan University's patented Radiation Mitigation Very High Speed Integrated Circuit (VHSIC) Hardware Description Language (VHDL) Coding Technique. The satellites are part of the QB50 project funded by the European Union and managed by the von Karman Institute to conduct research in the lower thermosphere between 200km to 380km altitude. Researchers will use the data collected from this experiment over a period of 18 months to complement current atmospheric models especially applicable to reentry trajectories of spacecraft. All the nanosatellites will eventually burn up at the end of their operational lifetimes.



KVH Announces New Connectivity as a Service Offering for Maritime

KVH Industries announced the immediate availability of AgilePlans by KVH, its all-inclusive Connectivity as a Service (CaaS) offering for the maritime industry. The subscription fee is \$499 per month for a

package including hardware, connectivity, installation at select ports, entertainment and training content, and global support. KVH designed AgilePlans to improve operational efficiency at sea, and also

allow customers to adjust quickly to changing market conditions and support fleet expansion or contraction as needed. For example, subscribers can end a subscription at any time without penalty.

Quintech Secures Order for L-Band Matrix Switch and Distribution Equipment

Quintech Electronics and Communications announced that a U.S. government media agency has procured Quintech's Xtreme 256 matrix switch and distribution equipment for expansion of its satellite network capacity. According to Quintech, the Xtreme 256 is an L-band matrix that provides a dedicated

redundancy path that does not require re-routing of any existing connections. Redundant power supplies, controllers and fans are standard. All active cards are hot swappable and accessible through the front panel, which reduces maintenance time and disturbance of cables as compared with rear panel

accessible cards. The Xtreme 256 matrix uses less than 600 Watts, whereas comparably configured matrices use more than 1500 Watts, thereby reducing the total cost of ownership, according to the company.

NASA Leaders on the Direction of the Agency

Reconstruction of Launch Pad 39B should be completed by August, said Kennedy Space Center Director Robert Cabana at the 33rd Space Symposium in Colorado Springs, Colorado last week. Furthermore, after the pad is back in operation, Cabana said NASA hopes to support up to 45 launches a year from the cape. Most of the activity will come from commercial launch providers such as SpaceX, which has already launched three successful missions from the Center despite delays stemming from its launch failure last year. Most recently, SpaceX marked a milestone by successfully lifting SES 10 into orbit atop a flight-proven Falcon 9. As a whole, the launch industry is working to return to form after a number of prominent setbacks, including Arianespace's inability to launch from French Guiana due to labor protests. Fortunately, the lineup of NASA directors at the panel seemed optimistic that launch rates will only tick higher as new entrants into the industry, such as Blue Origin, finalize their rocket designs and establish a customer base. NASA is particularly interested in supporting these commercial endeavors, Cabana said. "In all of history, three nations have sent humans to space. Today, there are four U.S. companies with facilities at Kennedy building hardware to send humans to space," he said, referring to SpaceX, Boeing, Lockheed Martin and United Paradyne. "Public-private Partnerships (PPPs) work," he added. Cabana stated he does not believe it is a matter of government programs versus commercial programs — rather, the U.S. space industry needs to fully integrate both in order to be successful. "I think you're going to see a continual push to

enable commercial operations ... We're working very well with the Air Force and the Federal Aviation Administration (FAA) to make this happen," he said. According to Ellen Ochoa, director of the Johnson Space Center, NASA has leaned heavily on the commercial sector for some of its latest projects. "One example of that is the hundreds of suppliers that Orion and the Space Launch System (SLS) use all across the country, including many small business that are capable of providing aerospacegrade parts," she said. However, Ochoa noted that NASA's support of commercialization isn't just limited to launch. She said the agency will continue to invest in both foreign and domestic companies researching new technologies across the industry, such as with its Small Business Innovation Research (SBIR) program. "We're particularly looking for technology that we know fits in our deep space exploration plans," she said,

which includes "infrastructure in the lunar vicinity." Ochoa also said she expects to see continued commercialization of Low Earth Orbit (LEO), which would take the form of additional use of commercial services for the International Space Station (ISS). "We're trying to be open-minded," she said. Despite the political tension underpinning the relationship between the United States and Russia, the space agencies of both countries have collaborated smoothly on ISS research projects until now. Russia especially seems keen to continue that partnership, as Rocosmos Director General Igor Komarov told reporters at the 33rd Space Symposium that the Russian agency is even willing to consider operating the station for an additional four years after its current retirement date of 2024. However, whether NASA can or will allocate funds to do the same is still a question mark.



Thuraya Allies with Else Startup

Thuraya Telecommunications and Swiss NewSpace startup Else announced they have signed a Memorandum of Understanding (MoU) paving the way for a strategic alliance between the two organizations. The agreement will allow both companies to collaborate and benefit from each other's capabilities on multiple fronts including technical, regulatory as

well as sales and marketing. According to the two companies, the agreement extends their product and service portfolios and facilitates expedited access to the market. Else has supported more than 10 European Space Agency (ESA) missions, seven nanosatellite missions, and is building a network of Low Earth Orbit (LEO) nanosatellites

named Astrocast that will provide Internet of Things (IoT) and Machine-to-Machine (M2M) services to global enterprises. Else has scheduled the first satellites to launch by 2018 as a demonstration mission, with a plan to have a total of 64 satellites in orbit by 2021.

ViaSat, Qantas Trial In-Flight Wi-Fi

Qantas, working with ViaSat and nbn, Australia's broadband network service provider, turned on free, gate-to-gate in-flight Wi-Fi on its ViaSat-equipped Boeing 737-800 aircraft. For weeks, Qantas, ViaSat and nbn have been conducting in-flight Wi-Fi tests on the trial aircraft, as they prepare to launch into production later this year. Qantas encouraged the

first in-flight Wi-Fi trial users to stream their favorite TV shows or movies; listen to their playlists; engage on social media; watch live sports; read the latest stories on various news magazine sites; and surf the internet. The trial provides the opportunity for ViaSat to develop applications for passengers, cabin and flight crews, pilots and operational

ground crews. For example, cabin crews can gain transfer information to ease passengers' travel experiences; flight crews can access aircraft data to improve operations and maximize efficiencies during flight; and pilots can access more detailed live weather data, to make better use of tailwinds to reduce flying time.

International Cooperation Key for Space Agency Leaders

Education and cooperation across borders was the main theme of the space agency leaders panel at the 33rd Space Symposium. The speakers, representing agencies from countries across the globe, outlined some of their plans and concerns for the short-term future – but each stressed that progress can only be made with assistance from international allies. Jean Yves Le Gall, president of the French space agency Centre National d'Etudes Spatiales (CNES) noted France's long-standing tradition of cooperation with foreign allies and emphasized that it is particularly important for more developed nations to support those only now emerging into the space industry.

"We consider that the more players we have in the space arena, the better it will be," he said. Mexico is a prime example of one of those emerging nations. Francisco Javier Mendieta Jimenez, general director of the Mexican space agency Agencia Espacial Mexicana (AEM), highlighted that the country has already begun to sign agreements with other space agencies to spur development of its own technological capabilities. Fortunately, Mexico is starting from a strong foundation with an aeronautical industry that is already "quite well developed" due to its proximity to the U.S. "We are trying to make this transition from aeronautical to space, from planes to satellites, from turbines to rockets," Jimenez said. Mexico hopes to address some of mankind's greatest challenges related to space, including connectivity, climate change and security, in partnership with the more than 20 agencies with which it has already signed agreements. "The idea is to capitalize our established aeronautical field with our established IT field, because these two pillars will constitute the space ecosystem of the future," he said. "Korea has been providing annual space training

programs to developing countries since 2010," said Insun Kim, president of the Korea Aerospace Research Institute (KARI). From a Canadian perspective, Sylvain Laporte, president of the Canadian Space Agency (CSA), also sees education as the major enabler of a strong space industry in the future. Canada is currently midway through an astronaut recruitment campaign and has used the publicity from the selection process to encourage young minds to pursue careers in Science, Technology, Engineering and Mathematics (STEM). "Once we whittled down the first 4,000 applicants to about 72, we posted the profiles to our website and got millions of hits on it. We now have gotten feedback that teachers and guidance counselors are using the profiles of these astronauts to show that there are real people who serve in these environments," he said. Laporte also highlighted Canada's Tomatosphere program, a nationwide experiment geared toward primary school students that allows them to measure the growth differences between Earth-bound tomato seeds and those sown in space.



These 3 Nations are Aiming Higher in the International Space Race

Japan and Canada are making significant changes to how their national space agencies operate, while Australia is examining whether there is a need for national space agency at all. Speakers from each had time to dig deeper into their respective countries' space industry plans during the 33rd Space Symposium last week in Colorado Springs, Colorado.

Space in Japan

According to Shuzo Takada, director general of Japan's National Space Policy Secretariat, the country has made a major shift in the goals of its space policy from the previous decade. Previously, Japan had banned all military use of space assets, limiting the industry to commercial and research purposes. Now, however, the country has established new laws on space development that place heavy emphasis on space security. This is due in part to growing threats from countries such as North Korea and, as Takada put it, "space's increasing importance in national security policy." Defense-wise, Takada said Japan had largely focused on the resiliency of its space systems in the past. Now it's taking a three-pronged approach: building resilient systems, but also taking measures to prevent incidents from happening in the first place, and emphasizing countermeasures in the event of an attack. All of these are "indispensable for mission assurance," Takada said. Although Research and Development (R&D) currently eats up the majority of Japan's space budget, Takada expects the amount of funds allocated toward space security to increase over time. He said that Japan plans to strengthen national security by using optical and radar observation to improve Space Situational Awareness (SSA), and by expanding cooperation with allied countries such as France and the United States. On the civil side, Japan's biggest short-term project is the completion of its Quazi-Zenth Satellite System (QZSS). The first satellite, Michibiki, launched back in 2010, and Japan plans to deploy the remainder of the seven satellites by 2023. As a Global Navigation Satellite System (GNSS), QZSS is designed to provide communications and also complement existing Global Positioning System (GPS) satellites by increasing accuracy down

to the centimeter. The constellation will fly in an elliptical Geosynchronous Earth Orbit (GEO) to ensure at least one satellite hovers over Japan at all times.

Space in Canada

Not unlike Japan, Canada's industry was largely built around its mandate for the peaceful use of space, said Canadian Space Agency (CSA) President Sylain Laporte. Any missions planned exclusively for national security are passed along to the military, which is part of the reason why the CSA is relatively small compared to other agencies such as NASA. Nonetheless, the CSA has been involved in a number of international space endeavors, including manufacturing instruments for the James Webb Space Telescope. Because of the country's geography, much of Canada's space investments have gone toward Maritime Domain Awareness (MDA) and Earth Observation (EO) technology. "We use Synthetic Aperture Radar (SAR) to look at ... these immense, vast agricultural fields. By feeding that back to the farmer he is able to optimize his yield," Laporte said. The panelists agreed that strength in these areas should continue, fueled particularly by start-ups entering Canada's maturing commercial space industry. "I see very rapid growth in the smallsat environment. That's really good news for space agencies like mine where you try do as much as possible on a limited budget," said Laporte. Laporte also highlighted Maritime Launch Systems' (MLS) efforts to construct a new launch pad in Nova Scotia as a testament to Canada's growing commercial prospects. "They have partnered with a company in the Ukraine looking at a medium capacity launch vehicle," Laporte said. "They're looking at reaching initial operating capability in the 2020-2021 time frame. It is entirely a commercial venture." Donald Osborne, president of MDA Information Systems, noted that the government of Canada has been very supportive of the commercial side of the industry and likely will continue to be. "The Canadian space industry is underpinned by strong relationships with the government. Whether you're large or small you've used the CSA or government funding to be successful," he said. "The secret for being

successful in our industry is leveraging what you can do with government funding into the export market or commercial sales." According to Laporte, the idea of bringing new technologies to the international market runs throughout all



of Canada's space activities, on both the government and the commercial side. He stressed that Canada will continue to rely on its friends across borders to advance space capabilities. "The rapid growth and exciting opportunities that we're seeing are being put into a context of international collaboration, and all of us are sharing our information to ensure we can leverage from one another. Humanity is going at this together," he said. To that end, Canada plans to contribute wherever it can to the international space community. Most recently, the government set aside funds for the CSA to begin preparing for the next Mars mission to modernize the satellites currently orbiting the planet.

Space in Australia

Meanwhile, Australian officials continue to debate the pros and cons of having a national space agency. Because there is no equivalent to NASA or CSA in Australia, research is typically done through the universities funded by the Australian Research Council, said Shaun Wilson, chief executive officer of Shoal Group. This has led to a desire for governmental coordination across the industry, according to Russell Boyce, chair for space engineering at the University of New South Wales-Canberra. "Such an agency could be the vehicle to stimulate a mature Australian space sector," he said. Nova Group co-founder Peter Nikoloff agreed, noting that it's important to have an organization driving a national strategy for space. His vision is to have one central

body governing everything from scientific research to national security to the growth of the commercial sector, each of which he said needs to be “equally balanced.” Anna Moore, director of Australia National University’s Advanced Instrumentation and Technology Center (AITC), said that despite the lack of a national agency, the Australian government hasn’t necessarily shirked its responsibility to fund science projects. In fact, it recently invested \$300 million into the Square Kilometer Array (SKA), a next-generation telescope that will be built across Australia and South Africa. Still, there are gaps she hopes a national body could potentially address, such as funding for small missions run by students. “There’s no funding

mechanism they can apply to that directly address space,” she said — and to make matters worse, they must also compete with established companies in Australia’s relatively large ground infrastructure sector. Moore said she hopes to see new funding sources in the next five to 10 years geared specifically toward young researchers. Anthony Murfett, minister counselor of industry, science and education at the Australian Embassy in the United States, said that it’s important for Australia to first establish its strategic priorities before running headlong into creating a national agency. “I think what will really assist the government in determining its role and [how] we go forward is getting a good

understanding of Australia’s competitive advantage,” he said. According to Wilson, Australia has thus far chosen explicitly to focus on ground infrastructure and data processing, with space segment services typically provided commercially. That should function as a good starting point for the industry’s continued growth as NewSpace companies such as Sky and Space Global enter the arena. Overall, even without a national agency, the speakers seemed optimistic that commercial initiatives can help propel the Australian industry forward into the future, both in its niche of ground infrastructure and outside of it.

Honeywell Introduces Satellite Personal Tracker for Remote Locations



Honeywell announced a new satellite-based connected solution to help governments, companies and other organizations monitor the location and safety of workers in remote locations. The Personal Tracker uses Iridium’s Low Earth Orbit (LEO) satellite network to allow companies to communicate with their workers or track assets anywhere in the world — across oceans, airways and even polar regions. Emergency services, maritime, military, and oil and gas workers can share their location with Global Positioning System (GPS) coordinates and send text messages using the device, which is certified to function in hazardous environments where explosions or a fire may occur due to flammable liquids or vapors. It can be used as a stand-alone, two-way communications device or can be

clipped to a backpack to serve as a tracking beacon. Users can also pair the device with an iPhone to access the Honeywell mobile app that offers features such as interactive SOS, messaging, push notifications, trip information and situational awareness. For example, in the event of an emergency, an organization can send push notifications to alert its workers and then track their locations and provide updates as they seek shelter. The mobile device supports Honeywell’s ViewPoint software, a web-based platform that provides organizations with real-time visibility for tracking and monitoring high-value assets such as vehicle fleets and cargo containers. The ViewPoint platform offers organizations and government users a 90-day tracking history, geofencing, scheduling reports, alert management and messaging.

ViaSat Debuts 2nd Generation In-Flight Internet Equipment

ViaSat unveiled its latest generation (Gen-2) in-flight internet equipment for its ViaSat 2 and ViaSat 3 satellites. The Gen-2 equipment is optimized to take advantage of the capacity increases from the ViaSat satellites, offering airlines faster and higher-quality in-flight internet performance. ViaSat designed the Gen-2 equipment to be forward and backward compatible across ViaSat’s satellite platforms, allowing airlines to meet the

growing broadband demands of the fully connected aircraft. Forward and backward compatibility ensures airlines can cost-effectively deploy the Gen-2 equipment today, and take advantage of the more than 3.5 terabits per second of total expected future global capacity ViaSat will bring to market, according to the company. Gen-2 compatibility will exist across all of ViaSat’s satellite platforms, which includes its first generation

spacecraft (ViaSat 1, WildBlue 1, Anik F2), its second generation spacecraft (ViaSat 2) and its most advanced spacecraft (ViaSat 3). Additionally, the Gen-2 equipment is compatible with most other Ka-band satellites according to ViaSat, giving airlines greater choice in satellite solution providers. The ViaSat Gen-2 equipment will be production-ready and available for installations starting in May.

SES, Luxembourg Government Extend Satmed Contract



SES and the Luxembourg Ministry of Foreign and European Affairs announced that they have extended a contract to maintain and support Satmed, an e-health satellite platform, until 2020. Under the new contract, SES will continue to develop the Satmed platform and its medical applications, support the platform's data-hosting facility, and provide full user support with single point of contact. The agreement also includes the extension of the service to support new medical tools, as well as the provision of satellite connectivity over Africa, the Philippines and Bangladesh. SES designed Satmed to connect doctors and nurses based in remote locations to the outside world. Healthcare professionals will use satellite connectivity to access the platform's medical applications such as e-training, accessing patients' e-medical records, virtual consultation, and video conferencing. Satmed also aims to support development programs and humanitarian operations in cooperation with both governmental and non-governmental organizations. The SES satellite fleet enables connectivity, while the Satmed web applications and the encrypted backups are hosted in a secured data hosting facility in Luxembourg. Once deployed, SES delivers the platform as a fully managed service and includes helpdesk, maintenance of terminals and continuous user training.

NASA Invests in 22 Exploration Concepts

NASA is investing in 22 early-stage technology proposals that have the potential to transform future human and robotic exploration missions, introduce new exploration capabilities, and significantly improve current approaches to building and operating aerospace systems. The 2017 NASA Innovative Advanced Concepts (NIAC) portfolio of Phase 1 concepts covers a range of innovations selected for their potential to revolutionize future space exploration. Phase 1 awards are valued at approximately \$125,000, for nine months, to support initial definition and analysis of their concepts. If these

basic feasibility studies are successful, awardees can apply for Phase 2 awards. The selected 2017 Phase 1 proposals include: a synthetic biology architecture to detoxify and enrich Mars soil for agriculture; a gradient field imploding liner fusion propulsion system; solar surfing; and a direct probe of dark energy interactions with a solar system laboratory. Phase 2 studies allow awardees time to refine their designs and explore aspects of implementing the new technology. This year's Phase 2 portfolio addresses a range of leading-edge concepts, including: a Venus probe using in-situ power and propulsion to

study the Venusian atmosphere, and novel orbital imaging data derived from stellar echo techniques – measurement of the variation in a star's light caused by reflections off of distant worlds – to detect exoplanets. Awards under Phase 2 of the NIAC program can be worth as much as \$500,000 for two-year studies, and allow proposers to further develop Phase 1 concepts that successfully demonstrated initial feasibility and benefit. All projects are still in the early stages of development, most requiring 10 or more years of concept maturation and technology development before use on a NASA mission.

Swedish Space Corporation, BridgeSat Partner to Improve Optical Communications

The Swedish Space Corporation (SSC) and BridgeSat announced a long-term partnership under which BridgeSat will install satellite optical communications equipment at a number of SSC's established Radio Frequency (RF) ground sites. SSC owns and operates a global network of ground stations to provide secure and reliable access to satellites seeking RF services.

BridgeSat is developing a global optical communications network that will offer secure delivery of data from Low Earth Orbit (LEO) satellites at fast speeds and low cost. The partnership creates incentives for the two companies to cooperate commercially for the benefit of their customers in leveraging their respective capabilities in optical and RF satellite communication solutions.

"Optical communications is well suited when satellite operators need to downlink large quantities of data, but have limited access to RF spectrum. BridgeSat is a perfect partner for us, as they are developing a commercial optical communications system we feel fits well with our mission," said Leif Osterbo, SSC's president of satellite management services.

GlobalStar to Leverage Yippy's Compression Technology

GlobalStar announced it will launch a new compression service for the satellite industry. The effort will include rolling out compression services developed by Yippy to GlobalStar's subscribers as well as providing this technology to other Mobile Satellite Service (MSS) providers and Fixed-Satellite Service (FSS) operators. Yippy's compression technology platform serves to significantly decrease load times for internet data sessions

and document retrieval services from corporate intranets. The technology allows web page content to load in seconds as opposed to minutes with many satellite devices. Using the Yippy Ease 360 platform, the service enables faster download and upload speeds while maintaining a secure connection and reducing critical overhead on satellite networks. The compression technology has completed qualification testing and

verification and has recently concluded production level testing for GlobalStar's second-generation network using the Hughes Network System radio access network and Ericsson core network. GlobalStar also said other service providers will also have the ability to embed the technology into their respective networks starting this year.

Iridium, Ligado Dispute over Spectrum Heats Up

The plot has thickened yet again in Iridium and Ligado's dispute over spectrum, with Iridium slamming Ligado's most recent analysis as "divorced from the legal reality that Ligado exists in today." Iridium's March 27 filing to the Federal Communications Commission (FCC) is just the latest addendum to a debate that has seethed since last May, when Iridium brought to light its concerns that Ligado's proposed terrestrial wireless network would interfere with Iridium's own transmissions from Low Earth Orbit

(LEO). While Ligado already provides connectivity services in North America via the L-band SkyTerra 1 satellite, the company has plans to modify its block of spectrum to create a more advanced network comprised of both satellite and ground infrastructure. But Iridium isn't having it, claiming that Ligado's Out-of-Band Emissions (OOBE) from 1627.5-1637.5 MHz would disrupt Iridium's adjacent operations at 1617.775-1626.5 MHz. This isn't Ligado's first roadblock – its proposed network has seen some

resistance from a flock of organizations nervous about interference, particularly within the Global Positioning Satellite (GPS) sector. But the company has forged ahead nonetheless, entering a cooperation agreement with five major GPS equipment manufacturers back in December. Ligado also highlighted a February report penned by the National Advanced Spectrum and Communications Test Network (NASCTN) as evidence its network would be compatible with such existing systems.

Yahsat Forms Partnership with X Sat

Yahsat announced the start of a long-term strategic partnership with UAE communications Solutions Company X Sat. Under the agreement, X Sat has committed to capacity on Yahsat's upcoming Ka-band satellite, Al Yah 3, to be launched later this year. The new partnership forms part of YahClick's Virtual Network Operator (VNO) service introduced last year. The benefits include the ability for X Sat to leverage high-speed and economical capacity from YahClick's network; full control and management of their allotted capacity; and an ability to commission, control and monitor their own remote sites, while designing and configuring their end-to-end Internet Protocol (IP) network. As Yahsat focuses on expanding its coverage area across the African continent, the company is in talks with local service providers to reinforce the presence of YahClick and strengthen its customer care. The launch of Yahsat's upcoming satellite will coincide with the rollout of YahClick, the company's satellite broadband service, to 19 new markets in Africa.



Leveraging Big Data to Unlock Value in Space

By the mid-21st century, businesses in nearly every industry on the planet will have to leverage Big Data to stay competitive, according to a panel of experts at the 33rd Space Symposium in Colorado Springs, Colorado. Without an in-house ability to analyze large datasets, running a business will become increasingly difficult, said Chris Boshuizen, entrepreneur in residence at Data Collective VC. And while this isn't limited to the space industry due to the world's entry into what he calls a "data-centric economy," Boshuizen pointed out that space companies in particular are "on average a little behind in terms of the adoption of machine learning ... and really using the data as a core part of the business." This is ironic because space companies were some of the first to adopt computers into their workflows, he said. "I think [it is] just like the train system and train infrastructure in the United States. The U.S. was one of the first countries to build a transcontinental railway but now it's over 100 years old." Similar to how the U.S. has fallen behind in upgrading its rail infrastructure, so too have space companies failed to keep up with businesses in other industries born in this data-centric economy, he said. Facebook, which recently leveraged Big Data to construct population density maps, is one salient example. But there are exceptions. DigitalGlobe, for one, has invested heavily into its analytical capabilities to make full use of its massive cache of Earth imagery. "We're producing approximately 270 terabytes of data per day. That's adding to a database now in the cloud that's 100 petabytes ... the equivalent of 100 million hours of video," said Jeffrey Tarr, DigitalGlobe's president and Chief Executive Officer (CEO). "This data is so massive that human beings don't have the capacity to analyze or make sense of it." Consequently, DigitalGlobe has invested heavily over the last few years to open up this data to a growing ecosystem of partners, which in turn are helping transform DigitalGlobe from just a satellite operator into a wider "information business," Tarr said. The panelists agreed that companies as a whole must strive to democratize these

large data streams for the benefit of the global economy. For DigitalGlobe, that means ensuring access to its data is as low-cost as possible, particularly for early stage startups, many of which are venture-backed. Tarr said that DigitalGlobe often shares its data based on its customers' percentage of revenue, and he sees this as a net positive for the industry. "As they unlock their market opportunity, we all benefit," he said. Boshuizen said Planet

space. I think that the biggest hurdle right now is unlocking these applications," he said. To facilitate new capabilities, World View CEO Jane Poynter suggested that collaboration across businesses may be the best approach, and as such has oriented World View to capitalize on its partnerships with companies such as Ball Aerospace. "Our business model is founded in the notion of an ecosystem ... I think a rising tide really does lift



has a similar objective in mind. "One of the founding principles was that data be accessible to everyone. It doesn't have to be free, but it has to be available," he said. To that end, the company has created an Application Programming Interface (API) around which anyone can build their own app. "Just like the Google Maps model, where you see Google Maps embedded in so many applications — we took a lesson from that," he said. Part of the reason the panelists stressed the democratization of data is because the industry needs as many companies as possible innovating new ways to leverage these data streams into actual value. For Lars Dyrud, CEO of OmniEarth, the current lack of applications is a significant limitation to growing Big Data businesses, particularly those focused on Earth Observation (EO). "The problem is there is not enough additional demand for all this stuff we're putting into

all boats," she said. As for the future, Poynter expects new data streams to continue to emerge. Although World View is one of the few observation companies operating in the upper atmosphere rather than in space, she thinks the field will quickly become more crowded. "In a few short years you are going to see that the stratospheric economy is going to be a major driver in this greater space and aerial economy," she said. These new data sources will add to what Tarr calls "a living digital inventory" of the planet. He believes that not too far into the future, humans will have near ubiquitous and continuous coverage of the Earth at a resolution that will improve our decision-making across all industries. "And that's going to make the world a better place," he said.

ARTICLE

Telco's Digital Controversy: A Challenge or an Opportunity?

As digitization conquers most aspects of the consumer's daily activities, an imperative for innovation has become deemed necessary, traditional business models need to be disrupted for businesses to maintain relevance with their stakeholders. The consumer's expectation for digitalization unravels organically as an entire generation is now fully accustomed to the digital environment. The development of the technology has allowed it to become affordable to the end user. Furthermore, the economic benefits of the digital world are massive. All are key factors that are driving the dynamic growth of the digital world. The question still remains intact, "How are telecom operators reacting to the dominant impact of digitization?"

The fear operators' face of becoming irrelevant in the digital revolution and the benefits reaped from digitalized business models has paved the way towards telecom digital strategies.

The effect of digitization has initially been viewed by telecom operators as a challenge, the perception of a product/service that is not extracted from the Telco's core portfolio is a threat. However, with slower revenue growths and declining margins operators find themselves at crossroads. In the MEA region, a region that enjoyed a 10 year run till 2016 and contributed to 20% of the industry's economic pool profit, is now strategically challenged. The high capital requirements, increasing operational costs complimented by relatively matured markets insinuates that cash wins will not be easy in the Middle East markets. Operators find themselves in a critical position that has led to the emergence of certain trends; Mergers & acquisition, cost optimization initiatives and introducing digitization to their portfolios. The time for altering Telco's strategic identity has now come. On the other hand the case of Africa is different, the telecom market and digital context vary significantly from one country to the other. In South Africa penetration rates have exceeded 133%, whereas in Sub-Saharan Africa penetration rates averaged at 44%. To grasp a solid understanding of digitalization in Africa one must be aware of the cultural differences and gaps in order to adjust their digital offering. The increase in smart phone penetration and aggressive demand for data is a weighty trend in the



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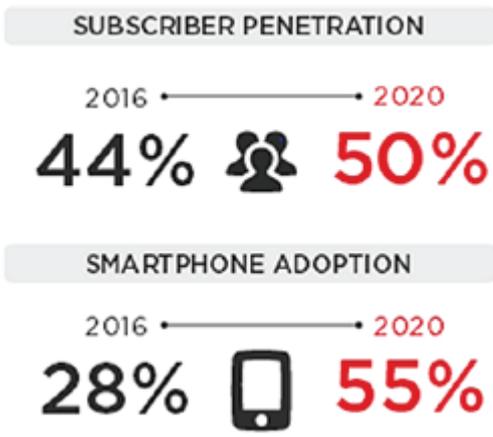
region, a factor that can stimulate the adoption of digitalization aggressively. Whether it's M-pesa in Kenya or the Nigerian Netflix, African countries can utilize digital transformation to bridge the gap towards further development. Therefore, the trigger for adopting digital transformation between Africa and the Middle East may be different, yet the role of telecom operators remains the same in both markets.

The fear operators' face of becoming irrelevant in the digital revolution and the benefits reaped from digitalized business models has paved the way towards telecom digital strategies. From precisely that context, Sudatel telecom group developed its five year corporate strategy. Sudatel operates in four African countries, three of the operations are located in West Africa, namely, Expresso (Senegal), Chinguitel (Mauritania) and Intercel (Guinea Conkary). As mentioned earlier, these African markets vary significantly yet all indicators illustrate high demand for data and huge potential for digital adoption. Sudatel operates in cut-throat competitive markets but enjoys a modest market share and a strong presence. In 2016, Sudatel recorded revenues of approximately \$500 million, enjoying EBITDA margins of 35% which comfortably fall within the region's average. Sudatel strategically targets revenues of \$ 1 Billion by 2020 and achieving an EBITDA margin of 45%. The strategy dictates a diversified portfolio by 2020 meaning that 50% of revenues are to be incurred from modern services (digital services & broadband).

The 2020 Corporate Strategy is divided between two stages to achieve the vision of becoming a leading ICT provider in the region. The first phase highlights the importance of bettering the basics and addressing key issues in regards to connectivity. During the past two years, the company has been working on improving its competitive abilities through optimizing the network, improving processes, maximizing synergies and building partnerships. Several cost optimization projects have taken place and enriched go to market techniques have been developed. The objective of this period is to ensure that STG is utilizing its assets in a manner that allows the company to realize its

full potential. When viewing this part of Sudatel's journey it aligns with the growth potential seen in all markets that needs to be realized prior to or in tandem with the digital transformation. An unserved demand still exists towards different services in all markets. For example, in Sudan and Mauritania a high demand for voice and data still exists whilst in Senegal and Intercel the demand for data shows high potential. Moreover, to lay the groundwork for ICT services Sudatel has been gradually started to introduce digital services. The second phase of the Strategy focuses on convergence and the portfolio Sudatel can introduce using its 13,675 km of fiber optic infrastructure, its state of the art data center based in Khartoum and markets that are ready for innovation. During this stage STG will extend its market reach into new markets, new segments and new products.

Forecast of adoption in Sub-Saharan Africa



Source: GSMA, the Mobile Economy 2017

The implementation of the strategy will occur by focusing on five main pillars ; creating organizational agility, leading customer experience, accelerating business growth, building richer connectivity and developing people and culture. Achieving a high degree of agility through developing organizational capabilities and ensuring a healthy financial performance is a major focus area for STG, given the highly competitive market and emergence of new forces in the industry. Moreover, leading customer experience through building a platform that consists of culture, systems, processes & procedures to bring SUDATEL closer to its customers. Through recalling the growth tone and expanding organizational capabilities to diversify growth opportunities the

strategy will accelerate business growth. Connectivity will always be a key element during both stages of the strategy and prioritizing investment based on customer experience impact. Finally, creating a work environment that provides a space for innovation and unity is vital for the employees of Sudatel. The five principles strategic plan aims to initiate and manage a smooth transition cycle for Sudatel group that starts by laying the ground and context effectively for ICT transformation.

The key challenge facing the STG strategy will be introducing digitalization to markets that have led a traditional manner and host a small population of digital savvy consumers. The emphasize of African governments set on developing a fully-fledged digital ecosystem is a key factor for telecom operators to play an active role in these markets. For instance, Rwanda's master plan developed by the government to use ICT as an economy enabler has highlighted the benefits of digitalization. Rwanda has managed to attain average growth of 7% between 2012-2015, primarily driven by ICT services. Fortunately, over the past few years government strategies have been influenced by the role ICT can play in the economy. Sudatel has witnessed that governments in all opcos have grasped the importance of digitalization. With the support received to date, Sudatel will be able to introduce e-commerce and e-government initiatives into its portfolio during the upcoming year.

As a telecom operator in a region that shows high growth prospects, Sudatel is arming itself not to reach a precarious position. The motive for telecom operators to introduce digitization may have come by force, yet the gains that range from increased revenues, churn reduction and customer acquisition position digitalization as a massive opportunity that telecom operators have to leverage from. In the case of Sudatel, the success of digital adoption is highly interlinked with national strategies. The success of operators will enhance the success of this new ecosystem, the gains will range from increased revenues for operators to higher growth rates in the economy. The necessity of an aligned collaborative ecosystem is crucial, only then can Sudatel realize the full gain from digitalization. 📍

WHOLESALE NEWS

Telecom Egypt: Signs Memorandum of Understanding with Orange Egypt for National Roaming Agreement

Telecom Egypt (TE) (Ticker: ETEL.CA; TEEG.LN), today announced the signing of a Memorandum of Understanding (MoU) for a National Roaming Agreement with Orange Egypt to provide 2G, 3G and 4G mobile services through national roaming over Orange's existing network. The MoU falls under the framework of the mobile license TE signed with the Egyptian National Telecommunications Regulatory Authority (NTRA) in August 2016. To ensure readiness to roll out mobile services for customers soon, TE has started the implementation of its fully converged Business Support

System (BSS), integrating functions such as Customer Relationship Management (CRM), Billing and Point of Sales. Alongside these activities, TE is rolling out its own radio network in order to decrease its dependence on national roaming provided through existing mobile operators. TE has also concluded a Memorandum of Understanding (MoU) with Orange Egypt for the provision of TE's Infrastructure transmission services for the benefit of Orange Egypt's customers for the amount of EGP 2.5 billion for a 5 years period, starting from 2018. Ahmed El Beheiry, Managing

Director and Chief Executive Officer of Telecom Egypt commented: "We have been working tirelessly behind the scenes to ensure that te is ready to launch commercial operations as swiftly and smoothly as possible. This Agreement signals the strength of our commercial cooperation with Orange Egypt. We have reached commercial terms on 2G, 3G and 4G access as well as transmission services." "The relationship is benefitting customers while also advancing the vision for a connected Egypt."

NCC Approves Reductions in Chungwha's Retail FTTx prices, IP Peering Charges

Taiwanese telecoms regulator the National Communications Commission (NCC) has given its approval to reductions proposed by Chungwha Telecom for both its monthly fees for FTTx subscribers, and its IP peering charges for other operators of fixed line broadband services. According to DIGITIMES, the new rates

actually became effective at the start of this month, with the IP peering fee rate having been almost halved, from TWD314 (USD10.3) per Mbps to TWD170/Mbps, with it noted that the revised charge is now close to the average in the Asia-Pacific. Meanwhile, the pricing of all tiers of Chunghwa's fiber-based

broadband services have been reduced by at least 5%, with the entry level plan – offering downlink/uplink speeds of 6Mbps/2Mbps – cut from TWD310 per month to TWD294, while the top-tier plan (100Mbps/40Mbps) is now charged at TWD484 per month, down from TWD510.

Brussels Court Cancels BIPT's Fixed Termination Rate Cut

Oman has slashed the cost of roaming mobile charges, the Telecommunications Regulatory Authority (TRA) has announced. The cost of mobile data per megabyte has been brought down to 327 baiza from 500 baiza – a reduction of 35 percent, according to the TRA. The new rates are effective from April 1.

According to the new tariffs, the charges for receiving calls in the GCC region have been set at 108 baiza - down from 135 baiza - a minute while outgoing calls to other GCC countries have been set at 238 baiza per minute, down from 246 baiza. The new regulations apply to voice calls, mobile data and SMS services. "This

is in line with the initiative of the GCC regulators - under the umbrella of the GCC General Secretariat - to regulate the prices of roaming services within the Gulf countries. The new price caps are effective from the 1st of April 2017," it said in a statement.

Sprint Global Roaming Service Receives Global LTE Roaming

Sprint's international roaming amenities have trailed behind T-Mobile's and have more recently been running up against pressure from AT&T and Verizon as the two have introduced new unlimited data plans. After leading the low-cost edge with its Unlimited Freedom plan package, the Kansas-based carrier is now coming around to update its Sprint Global Roaming Service, complimentary to its postpaid plans. Sprint now boasts partners in 165 destinations – 20 more than T-Mobile, but less than the “over 200 countries” available on AT&T Passport and Verizon's International Travel Plan. Free texting and free data at speeds of up to 64kbps are available in designated areas while calls cost 20 cents a minute. Phones must be GSM-capable, but most devices sold at Sprint within the past few years are. Mexico and Canada benefits include free calls from the US, free LTE-speed roaming data and free calls and SMS while in the countries, but only for those under the Unlimited Freedom plan umbrella, which starts at \$50 a month for a single line. Those stuck on deprecated plans will pay \$2 per day or \$10 per week for LTE roaming. What's really new is that every other destination now gets in on that high-speed roaming as well, though at a higher cost: pretty much every

subscriber is subject to a daily \$5 fee or a weekly \$25 fee for the LTE upgrade. However, the cost for roamers in China is \$10 a day and \$50 a week. Keep in mind that local network conditions and device compatibility may keep speeds relatively low – ask a service representative. Basic benefits are automatically applied. Customers can purchase LTE data plots through their account pages at any time. Comparing international feature sets between the major carriers on a holistic

tiered packages that have to be used over the course of a month (a one-time purchase lasts 30 days, but Passport can also be a recurring purchase). T-Mobile's offering does have unlimited data at its destinations, but its higher general starting price for its pre-requisite T-Mobile ONE combined with a maximum 256kbps speed cap on the T-Mobile ONE Plus plan limit its potential. The Un-carrier does offer free Gogo-supplied Wi-Fi onboard select domestic flights. Perhaps we'll see



level, Verizon's has the most restrictions and is the most expensive to maintain. AT&T Passport comes in the form of three

a little bit more competition in this field now as Sprint has opened up the doors to global LTE roaming.

European Parliament Signs-off Wholesale Roaming Deal

Proposed EU wholesale roaming price caps received final clearance from the European Parliament, paving the way for an end to retail roaming charges on June 15. Today's vote rubber-stamped roaming rate fees already agreed by representatives from the European Council, European Commission (EC) and European Parliament in February. The regulations will now be given a final reading to the Council before becoming law. Speaking to the European Parliament ahead of the vote, EC VP for the digital single market, Andrus Ansip, said the negotiation on the level of wholesale

price caps had been technically complicated and involved finding an adequate political balance. Defining the level of the wholesale caps – the rates operators can levy on each other for connecting customers within the EU – took several months as the three bodies argued for vastly different levels for the data cap. Its final figures were set at €0.032 per minute for voice calls, €0.01 per SMS and a decreasing scale for data starting at €7.70 per GB in June 2017, eventually reaching €2.50 per GB in 2022. Following today's European Parliament vote, Ansip said: “After nearly ten years,

the EU is now putting a definitive end to the roaming anxiety that has plagued Europe since the beginning of the mobile era. “Exorbitant roaming prices were an anomaly in a continent where people move freely between countries. With the end of roaming charges for travelers, we will achieve a much more vibrant Digital Single Market. At last, people will be able to stop turning off their data or phones when they cross an EU border and this will have an immediate positive impact on the lives of Europeans.”

CNMC Orders Telefonica to Slash Leased Line, Submarine Cable Prices

Spain's National Commission for Markets and Competition (Comision Nacional de los Mercados y la Competencia, CNMC) has ordered Telefonica Espana to reduce the wholesale prices included in its existing Reference Leased Line Offer (Oferta de Referencia de Lineas Alquiladas, ORLA), by between 14% and 35%. The ORLA generally applies to corporate customers, which typically have higher bandwidth

requirements than residential users, but also affects alternative operators, which use Telefonica's infrastructure to connect their base transceiver stations (BTS) with their backbone networks. The reduction in wholesale prices will also reduce tariffs for the use of submarine cables linking the Canary Islands and the Balearic Islands with one another, and Ceuta (an autonomous city located on the north

coast of Africa, sharing its land border with Morocco), with the Iberian Peninsula. The eight submarine cable routes affected by the reduced fees – the CNMC has proposed an average reduction of 35.6% – are Cadiz-Ceuta, Gran Canaria-Fuerteventura, Gran Canaria-Lanzarote, Tenerife-La Palma, Tenerife-Gomera, Hierro-Gomera, Mallorca-Menorca and Ibiza-Formentera.

ALTAN Selects Nokia to Deploy 700MHz 'Red Compartida' Wholesale Network

Mexican consortium ALTAN Redes has selected Finnish vendor Nokia to design, build and operate 'Red Compartida', the new nationwide LTE and 5G-ready wholesale network in Mexico. The contract includes the provision of the heart of the network: 100% of the fully virtualized core



network and 40% of RAN, IP backhaul, operations support system (OSS) and network operations Centre (NOC). This will be deployed in five regions, including those that are home to Guadalajara and Monterrey, Mexico's second and third largest cities. The project also includes a full range of services that will allow Nokia to deliver a turnkey project: site acquisition, construction, deployment, network integration, network planning and optimization, master system integration (core), operation and maintenance and managed services. Nokia claims that the agreement represents its largest-ever contract win by scale in Latin America. As reported by TeleGeography's CommsUpdate, in November 2016 the Secretariat of Communications and

Transport (Secretario de Comunicaciones y Transportes, SCT), selected Altan – a consortium including Axtel, Megacable, the International Finance Corporation (IFC) and Dutch and Chinese investors – as the winner of the wholesale network tender. Altan was left as the only eligible bidder after its sole competitor, New York-based Rivada Networks, was disqualified earlier this month for failing to meet the necessary financial obligations to compete. The wholesale network – which has exclusive access to a 90MHz block of spectrum in the 700MHz band – is scheduled to be operational by March 31, 2018, by which date it must cover at least 30% of the country's population.

TRA Bahrain Cuts GCC Mobile Roaming Rates

The Telecommunications Regulatory Authority (TRA) Bahrain has announced that GCC mobile users will enjoy further price reductions on roaming rates from April 1. This marks the second year of price reductions, and will continue with further reductions every year, until 2020, a statement said. Data roaming in the GCC will now cost 35 per cent less, apart from other roaming price reductions, the TRA said. Data roaming rates which used to be 489 fils per megabyte has now been

reduced to 320 fils. The roaming rates for calls made from another GCC country to Bahrain will go down from 241 fils per minute to 233 fils. Calls made within the GCC state, which used to cost 98 fils per minute, will now be 94 fils. SMS messages, which were 30 fils, will now be 26 fils per message. The roaming regulation began with the GCC Ministerial Committee's first decision in 2010, when the need arose to address the high costs of roaming that consumers were exposed to. This led to

the formation of the Roaming Working Group, represented by regulators from each Gulf country and spearheaded by TRA Bahrain with the goal of enriching the lives of its residents and citizens with a solution for more accessible roaming services, said the statement. "91 million mobile users in the GCC will be able to take advantage of the new price caps," said deputy general director of TRA Sheikh Nasser bin Mohamed Al Khalifa.

UAE Telecom Operator Etisalat Cuts GCC Roaming Tariffs

UAE telecom operator Etisalat has cut roaming tariffs for voice calls, SMS and data within the GCC region, it announced. The operator said that prepaid and post-paid customers will see rates for data drop by close to 35 per cent from

April 1. While the cost of an outgoing call to the UAE and other GCC states has been reduced from Dhs2.35 per minute to Dhs2.277, an outgoing local call will now cost Dhs0.918 per minute compared to Dhs0.955. An incoming call

will be charged at Dhs1.028 per minute, compared to Dhs1.285. The rate for an outgoing SMS has been reduced from Dhs0.294 to Dhs0.257, while the data charges have been cut from Dhs4.774 per MB to Dhs3.122 per MB. Etisalat is also offering roaming packages starting from Dhs35 per day. The new rates have been introduced in coordination with the Telecom Regulatory Authority (TRA) to "encourage roaming services within the GCC at affordable rates", a statement said. Last year, the TRA instructed the two UAE operators – Etisalat and du to cut GCC roaming charges by an average of 42 per cent. The new price caps were in line with an intra-GCC agreement to reduce roaming tariffs by 40 per cent, the TRA said. Regionally, the new unified rates were expected to help mobile phone users save up to \$1.13bn. This in turn could boost social welfare by \$404m, according to officials. The move was also aimed at helping people travel without the need to purchase a new SIM from each destination within the GCC.



BT Fined £42M for Wholesale Failings

UK regulator Ofcom hit BT with a record £42 million fine for breaching contracts with telecoms providers and failing to pay the required level of compensation for delays in Ethernet installations. Under the regulator's rules, BT is required to pay compensation for delays outside

of its contracted Ethernet installation time of 30 working days. In certain circumstances, such as when there are logistical or technical issues with the installation, the company can assume the customer agreed to an extension. During its investigation Ofcom found BT

had been misusing its extension clause to reduce the compensation it had to pay out. Following a complaint by Vodafone in 2015 accusing BT of failing to meet its contractual compensation terms and late delivery of Ethernet services, Ofcom opened a widescale investigation into operations at the company's soon to be spun-off Openreach operation. Ofcom investigations director Gaucho Rasmussen said: "These high-speed lines are a vital part of this country's digital backbone. Millions of people rely on BT's network for the phone and broadband services they use every day. "We found BT broke our rules by failing to pay other telecoms companies proper compensation when these services were not provided on time. The size of our fine reflects how important these rules are to protect competition and, ultimately, consumers and businesses." BT secured a 30 per cent reduction on the original fine by admitting full liability and agreeing to compensate all operators involved within 12 months.



Regulators Outline Final EU Roaming Rules

The Body of European Regulators for Electronic Communications (BEREC) published guidelines for the retail charging of roaming services in the EU, including clauses where operators can continue to add a roaming surcharge. Under the rules, which come into effect alongside new roaming legislation on June 15, operators will be able to apply to their national regulator for special permission to alter their charging model or add a small charge for roaming services to cover additional costs incurred. BEREC pointed out this would only be approved in "specific and exceptional circumstances"

to ensure the sustainability of a company's domestic business model and would require detailed evidence. Its rules state: "Roaming regulation stipulates that roaming providers, upon authorization by the national regulatory authorities, should be able to apply a surcharge to the regulated retail roaming services only to the extent necessary to recover all relevant costs of providing such services." The impact of new roaming rules on domestic tariffs came under scrutiny earlier this month following reports Republic of Ireland operator 3 Ireland intended to introduce a specific

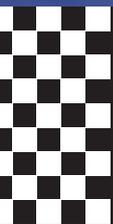
roaming allowance on some of its unlimited data plans. The operator cited costs charged to it by European operators as the reason for the change. Following the reports, the European Commission released a statement warning operators against attempting to circumvent regulations by changing tariffs to separate domestic and roaming allowances, or offering extra home market data services as a gift or side benefit. Although not confirming the identity of the operator, Irish regulator ComReg is currently investigating contractual changes related to unlimited tariffs and roaming.

OFCOM Wants to Cut Openreach's Wholesale FTTC Prices

U.K. telco regulator claims measure will encourage investment in ultrafast and full-fiber networks. Just days after fining BT £42 million for underpaying compensation to wholesale customers, Ofcom on Friday again took aim at its networks arm Openreach, proposing to cut the prices it charges telcos for its fiber-to-the-cabinet (FTTC) service. It is part of a range of measures included in Ofcom's newly-launched Wholesale Local Access Market Review, which aims to encourage investment in ultrafast networks, including fiber-to-the-premises (FTTP). BT warned that Ofcom's proposed price cut will not achieve the desired effect. Under the U.K. regulator's proposal, the wholesale price that Openreach charges for its 40-Mbps service would fall from £88.80 per year to £52.77 in 2020/21. Ofcom said it would expect the reduction to result in lower bills for end users. The reasoning behind the proposal is that until now, BT's ability to raise prices has been constrained by people's willingness to pay for cheaper, slower broadband as an alternative. However, this constraint is weakening as people require faster, more reliable broadband to access more bandwidth-hungry services. Ofcom said that it won't cap Openreach's wholesale charges for higher-speed services, including its upcoming G.Fast network. In a statement, Ofcom said its proposals

"would help BT's rivals to compete for customers," and "provide an incentive for BT's rivals to invest in their own ultrafast networks." An Openreach spokesman said in an email to Total Telecom that the incumbent is still reviewing the proposals, "but on first viewing, they do not appear to incentivize more investment in 'full fiber' networks." Building digital infrastructure is very expensive with long payback periods and we won't recover our more than £3 billion (€3.5 billion) investment in fiber until after this charge control period," he said. "The U.K. needs a regulatory framework that encourages investment and rewards risk." Unsurprisingly, one of BT's rivals sees it quite differently. "Ofcom is finally delivering on its promise to support full fiber investment and competition that will help close the U.K.'s embarrassing fiber gap," said Mark Collins, director of strategy and policy at CityFibre. Indeed, the U.K. still does make it onto the Fiber-to-the-Home (FTTH) Council Europe's list of countries with household FTTH penetration of at least 1%. As well as price cuts, Ofcom also proposed tough new measures to further improve Openreach's service levels. Under the plan, Openreach must fix 93% of faults within one-to-two working days of being notified, compared with 80% today; 97% of faults must be repaired in no later than six or seven working

days. For installations, Openreach must book an appointment for 90% of new installations within 10 working days of being notified. That compares to 80% within 12 days currently. Furthermore, 95% of installations must be carried out on the date agreed between Openreach and the retail telco, up from 90% today. These service requirements would have to be met in full by 2020/21, Ofcom said. These measures are in addition to proposals made by Ofcom last week for fixed-line customers to automatically receive compensation should they suffer from poor service. "We support the ambition of higher service targets and we want to work closely with the rest of the industry to make sure that these are the right measures and that they're achievable," said Openreach's spokesman. "We are determined to go even further in meeting our customers' rising expectations," he said. Interested parties can file submissions to Ofcom's Wholesale Local Access Market Review until June 9. Ofcom said it plans to announce its final decisions in early 2018, with any new rules taking effect from April 1 next year. Regulation is one of many themes up for discussion at Total Telecom's Connected Britain, which takes place in London on June 14-15. [Click here](#) for more information.



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**UPGRADE
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ARTICLE

Demystifying Digital

The need for digital

Ever since the launch of OTT players over the past decade, the telecom industry and its traditional connectivity business have been in a constant state of disruption. Telecom operators (telcos) have since been looking for ways to reinvent themselves – externally and internally – to offset the threat and capture the opportunity of digital.

In A.T. Kearney's recent "NextGen Operator" study 80% of telcos express a desire to become a "Digital Navigator", selling access, content and services. Moreover, the other 20% can and should also capture the benefits of digital in their commercial and operational functions. Yet the definition of what it takes to achieve this is unclear to most. A.T. Kearney's Practical Digital framework articulates the true meaning of digital across five areas.

Despite years spent talking about 'digital', telecom operators have all-too-often failed to nail down what they mean and what they want from that enticing but ambiguous word - and consequently failing to capture the potential benefits

'Practical Digital': Breaking digital down and making it actionable

"Why Digital": The success of digital in a telco begins by answering the fundamental purpose of digital in a company. For example, the digital needs that enable a platform play for a "Digital Navigator", which is looking for direct top-line impact from digital services, are inherently different to those of telcos pursuing other models where digital is primarily a bottom-line driver. Clearly, the question of "Why Digital" needs to be aligned upfront and driven from the company's overall strategy rather than as an afterthought.



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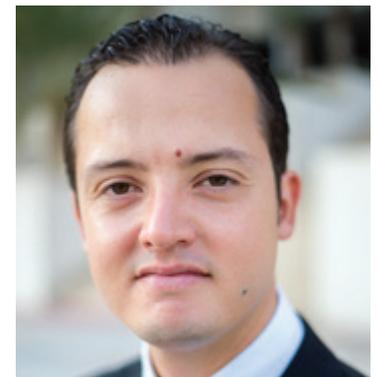
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“The What: Products & Services”: Meeting customer needs, especially as a “Digital Navigator”, necessitates telcos to move toward a platform play offering a diversified range of personalized services built around a partner ecosystem. Personal / customer data becomes the key monetization driver in creating products and services across connectivity, video, content and other digital services including diversification into adjacent industries such as eCommerce, mobile payments etc.

SK Telecom's app store, T-store, is a case in point. With over 2.5 million visitors / day, it is a leading digital platform offering a host of services including gaming, music, education, mCommerce etc. and an integrated payment platform called T-Pay. Some telcos have also leveraged digital to launch discount brands simplifying pricing yet providing a compelling digital experience. Examples include Ben from T-Mobile, Belong from Telstra and recently in the GCC, Jawwy from STC.

“The What: Customer Interaction”: The new norm is for customer interaction to be personalized, omni-channel, and differentiated around ‘pivotal customer events’ (PCEs).

First call resolution is being replaced with self-social-resolution. Guided CX and personalized recommendations are empowering customers, improving overall engagement and customer experience.

Digital is forcing the redesign of the channel mix to match customers’

preferences and an expectation of seamless transition between offline and online channels. For example, Verizon’s new physical “destination” store concept provides a differentiated experience by embracing digital in its store design philosophy, offerings and service.

The intelligence that is possible with digital customer interaction can enable telcos to move from good to a “wow” customer experience during PCEs. By linking customer experience to the customer’s mindset and their crisis moments or occasional needs, telcos can fundamentally redesign and improve E2E customer interactions.

“The How: Operating Model”: A sustainable digital transformation can only be achieved when the operating model embeds digital into the fabric of the company. Such a model requires a strong suite of digital capabilities including an understanding of analytics, business and IT integration, and an entrepreneurial and agile spirit.

Deutsche Telecom's Group Innovation+ is an orchestration function that drives roll-out of new innovative digital services by integrating new product development, technologies and business models. In addition, the operating model needs to incorporate a strong partner ecosystem that is essential to scale rapidly and satiate customers ever evolving needs. For example, NTT's iMode mobile internet platform delivers services to its customers based on a close collaboration with content providers and platform and handset vendors.

“The How: Process & Delivery”: Processes and Delivery is the core enabler of digitalization, simplification, agility, speed and personalization. Telcos and tech giants such as T-Mobile, Verizon and AWS are embracing DevOps environment to build an agile environment, reduce complexity and time to market.

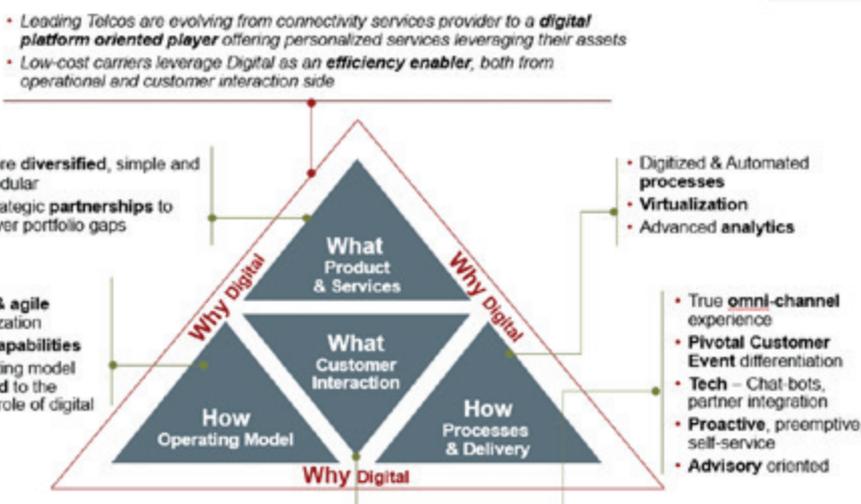
Emerging models such as NFV (Network Functions Virtualization) and Software Defined Network (SDN) are increasingly seen as an effective way to de-couple from complexities of the legacy system. Major telcos such as AT&T, Vodafone, Telefonica and Orange are already active in the development of NFV and SDN. AT&T’s goal is to have 75% of its network using NFV and SDN by 2020.

Telcos are increasingly focusing on ‘low-touch’ provisioning, investments in automation, fit-for-purpose IT systems and tight partner integration to further derive benefits from digital. Big data infrastructure has become crucial for mining customer insights and monetizing customer data.

Charting your own digital journey

While telcos are increasingly focusing on “digital”, the inroads made and consequently the impact achieved has been limited. Attention is still over-weighted towards trying, often unsuccessfully, to replicate a few well-known success stories on “Products & Services” diversification (with mPayments in East Africa the most notable example), and “Customer Interactions” enhancements that are usually more isolated and tactical than integrated and strategic.

Operators that address “digital” in a holistic manner focusing across all five Practical Digital areas can truly enable a successful digital transformation that unlocks revenue potential and enriches customer experience, while achieving operational agility and cost optimization. Most importantly, while the five areas are common to all, there is no single prescriptive end-state or path so each operator must demystify digital internally and use this newfound clarity to chart its own journey. 📍



TECHNOLOGY NEWS

Vodafone Turkey, Huawei Claim 'World Exclusive' GSM/LTE Spectrum Sharing Solution

Vodafone Turkey and Huawei have announced the 'world first' verification of a 'flexible' spectrum sharing solution between GSM and LTE on Vodafone's commercial 900MHz network in Diyarbakir, Turkey. Huawei says that its solution, codenamed 'GL', enables unprecedented overlap between GSM/LTE to increase both LTE data rates and capacity available in the network operator's 900MHz spectrum allocation

– in the test case increasing the average user throughput by around 58%/44% on downlink/uplink. Huawei adds that its GL spectrum sharing solution utilizes proprietary algorithms to free operators from the restrictions of standard LTE bandwidth, ensuring that scattered spectrum resources are fully utilized for higher data rates and better user experience, whilst by introducing more flexibility in terms of the LTE spectrum

usage, sufficient GSM channels are maintained to carry 2G traffic. Malik Rao, CTO at Vodafone Turkey, said: 'Frequency spectrum resources are extremely valuable. Spectrum allocation is fixed in the traditional refarming solution, which results in low utilization rate. In comparison, GL spectrum sharing supports more efficient spectrum sharing between GSM and LTE.'

SoftBank Picks Ericsson Radio Dot System to Improve Indoor Connectivity

Softbank Mobile, a subsidiary of SoftBank Group Corp, has selected Swedish firm Ericsson to deploy its Radio Dot System in Japan over the next two years, targeting medium to large buildings in a move to deliver superior indoor connectivity in high-density urban areas including Tokyo, Osaka and Nagoya. In

a press release, Ericsson confirmed that Softbank began extensive testing of the Radio Dot System and several other indoor solutions in Japan in June 2015 to evaluate its options for meeting the huge demand for better indoor coverage in mid-sized to large buildings. With those complete, the operator has decided to

opt for the Ericsson-supplied solution. Mass rollout will start in the densest urban areas in Tokyo, Osaka and Nagoya this year, addressing buildings such as office towers, shopping malls, and train stations.

Viva Kuwait Announces 35Gbps 5G Lab Tests



Cellco Viva Kuwait, a subsidiary of Saudi Telecom Company (STC), has announced in a press release the successful testing of '5G' network technology in its lab, achieving wireless data speeds of nearly 35Gbps, and claiming a 'country first,' although its statement did not specify details of its 5G lab equipment set-up. The company noted that 5G will enable higher capacity and better latency than 4G systems, allowing a higher density of mobile broadband users, with 'multi-gigabit speeds in cityscape areas' whilst also supporting the spread of advanced Internet of Things (IoT) applications. As previously reported by CommsUpdate, in December 2016 Viva's Kuwait-based rival Zain Group and Swedish equipment vendor Ericsson entered into a 5G research and development agreement, which will allow the two partners to evaluate performance and applicability of potential 5G key technology components.

Qualcomm, Facebook Take Aim at Mobile Machine Learning

Qualcomm was confirmed this week as working with Facebook to equip devices with machine learning capabilities. The world's biggest social network announced at its F8 conference on Wednesday that it is open sourcing Caffe2, its deep learning toolkit, giving developers and the like a software development kit (SDK) for building apps and devices that use AI. "Most of the attention around machine learning technology has involved super-fast data processing applications, server farms, and supercomputers. However, far-flung servers don't help when you're looking to magically perfect a photo

on your smartphone, or to translate a Chinese menu on the fly," Qualcomm said on Thursday. "Making machine learning mobile – putting it on the device itself – can help unlock everyday use cases for most people." With that in mind, Qualcomm is collaborating with Facebook to optimize Caffe2 for its Snapdragon neural processing engine (NPE) framework. "The NPE is designed to do the heavy lifting needed to run neural networks efficiently on Snapdragon, leaving developers with more time and resources to focus on creating their innovative user experiences," Qualcomm

said. The mobile chip maker plans to launch an SDK for its neural processing engine later this summer. "We don't yet know the full range of applications for the technology, but we can't wait to see how it's used by innovative developers around the world," the company said. Qualcomm also on Thursday published its financial results for the three months to 31 March. Fiscal second quarter revenue was down 10% year-on-year to \$5 billion (€4.65 billion), while operating income fell 48% to \$700 million. Net income fell to \$700 million from \$1.2 billion a year earlier.

3 Hong Kong Works with Huawei on 5G Preparations

Hong Kong fixed and mobile operator Hutchison Telecom, which operates in the wireless market under the '3' brand, says it is working with Huawei of China to prepare for future 5G services. The telco plans to upgrade its network capacity and coverage ahead of the government's sale of additional wireless spectrum. Telecoms regulator the Office of the Communications Authority (OFCA) recently opened a public consultation to discuss its plans to auction spectrum in the 3.4GHz-3.7GHz and 26GHz-28GHz bands for 5G services. Under the agreement with Huawei, Hutchison will adopt five component carrier aggregation (5CC CA) using its existing spectrum holdings in the 1800MHz, 2100MHz, 2300MHz and 2600MHz bands and employing both frequency and time division duplex (FDD and TDD) technologies. As part of this process, 3 is working to migrate its existing 2100MHz spectrum from 3G to 4G services. According to a report from Telecom Asia, Huawei will also upgrade the network to support 4x4 multiple-input, multiple-output (4x4 MIMO) and 256 quadrature amplitude modulation (QAM) technology, to enable 3 Hong Kong to provide customers with data download speeds of over 1.2Gbps. Hutchison says its capital expenditure

in 2017 is expected to total between HKD500 million and HKD600 million (USD65 million-USD77 million); the firm spent HKD509 million in 2016.



Elisa and Nokia Successfully Trial XGS-PON

Finland's Elisa has successfully completed a field trial of Nokia's XGS-PON technology in the Ostrobothnia region, the equipment vendor has announced. The technology tested included Nokia's 7360 ISAM FX with universal next generation PON solution and 7368 ISAM ONT. With 10Gbps symmetrical (downstream and upstream) capabilities, the vendor claimed that the use of XGS-PON will

allow Elisa to cost-effectively deliver ultra-fast broadband access for both residential and business users. Commenting on the development, Federico Guillen, president of Nokia's Fixed Networks business group, said: 'With the increasing demand for more capacity, next generation fiber technologies like XGS-PON are becoming more widely adopted as operators like

Elisa look to deliver enhanced services to customers. With nine deployments and more than 40 trials of next generation technology globally, we were able to bring our expertise to Elisa and demonstrate how our XGS-PON solution could help them evolve their network in line with demand.'

Ericsson Demonstrates 5G in Indonesia

Swedish vendor Ericsson claims to have completed the first demonstration of 5G technology in Indonesia, including a 5G test bed trial, 5G New Radio (NR) and live 4K video streaming. The demonstration was carried out during a three-day event to celebrate Ericsson's 110th anniversary in Indonesia, with the firm reporting its 5G radio test bed achieved peak downlink speed of 5.3Gbps and latency as low as 3ms. The vendor said its test bed includes 'all functionality required for pre-commercial trials and includes support for features such as beam forming and tracking, multi-user MIMO, multi-site transmission, ultra-lean design and dynamic TDD'. Thomas Jul, Head of Ericsson Indonesia, commented: 'For operators, 5G has the potential to offer 34% growth in revenues in 2026 compared to 2016. Meanwhile, consumers will be able to enjoy new applications like augmented reality and 4K video streaming and industries will benefit from innovative IoT applications such as smart transport and remote healthcare, creating significant opportunities. With 5G expected to be introduced around 2020 globally, Ericsson sees the need to support the government, telecom operators and industries in Indonesia to prepare for the launch of this next generation technology.' Meanwhile, Minister of Communications and Information Technology, Bapak Rudiantara, noted: 'The current focus of our ICT development is to accelerate broadband rollout to all regions in Indonesia as well as to create a healthy ICT ecosystem to support the growth of other industries and enable the nation's competitiveness in

the global landscape. Accelerating digitalization has always been high on the agenda in Indonesia. In this way, we contribute to realizing the government's NAWACITA [Indonesia's so-called nine-priority agenda, which is being worked on between 2014 and 2019] vision to address nine key areas and so transform the country. Initiatives such as Ericsson's 5G showcase will power innovations and help transform technology infrastructure in Indonesia, bringing more opportunities to people, business and society.'



North American CTOs Highlight Importance of 5G Standardization

Chief Technology Officers (CTOs) of leading ICT companies in North America have reaffirmed that fixed-mobile convergence will be fundamental to the success of 5G systems. CTOs have also highlighted the great promise of information-centric networking to assist dynamic, performance-oriented management of ICT service quality, in addition acknowledging that high-performance 5G signal processing will demand significant innovation in chip architectures. CTOs also agree that identification, and associated protections of security and privacy, will be essential to the success of 5G use cases of the Internet of Things. Eight high-level industry executives and the strategic management of ITU's standardization arm, ITU-T, met for the first North-American CTO consultation meeting in San Jose, CA, US, 30 March 2017. The meeting issued a communiqué outlining emerging trends in 5G innovation and associated demands

on ITU-T standardization. Achieving the full potential of 5G systems will demand true fixed-mobile convergence, ensuring that the wired and wireless elements of 5G networks operate in unison. CTOs emphasized that seamless 5G service operation will call for ITU-T standardization to support the emergence of a unified, access-independent framework for network management. CTOs encouraged ITU to accelerate its standardization work on information-centric networking (ICN), acknowledging the great potential of ICN to assist in optimizing content distribution. ITU-T was urged to address the scalability, mobility and security of ICN solutions as well as to monitor related open-source projects. 5G will have significant impacts on the semiconductor industry, pushing digital signal-processing platforms to their limits. CTOs highlighted that ITU-T standardization should provide for novel chip architectures able to meet the high-

performance signal processing demands of the 5G era, while concurrently achieving greater flexibility, security and lower power consumption. Identity Management (IdM), and associated protections of security and privacy, will be essential to the success of 5G use cases under the banner of the Internet of Things. CTOs underlined the importance of the efficient, sustainable use of ITU's international numbering resources allocated in support of the Internet of Things, as well as the value of related ITU standardization work on security and IdM. CTOs were briefed on the results of the ITU World Telecommunication Standardization Assembly 2016, in particular the agreement of the new WTSA Resolution 92 calling for ITU-T standardization to expand its study of the wireline networking innovations required to achieve the ambitious performance targets of 5G systems.

nbn and Nokia Test NG-PON2 Technology

nbn, the company overseeing the construction of Australia's National Broadband Network (NBN), has partnered with Nokia to trial NG-PON2 technology, in a move which it has claimed could help it eventually deliver symmetrical speeds of 10Gbps in areas served by its fiber-to-the-premises (FTTP) infrastructure. Further, nbn has suggested that a future deployment of NG-PON2 could also benefit end users connected to retail services over its fiber-to-the-basement (FTTB) and fiber-to-the-cabinet (FTTC) networks – through new technologies such as G.fast or XG.FAST – and could provide extra capacity in the fiber to

support the company's HFC and fixed-wireless networks. The trials, which were carried out in Melbourne, reportedly achieved aggregate broadband speeds of 102Gbps on a single fiber. Nokia confirmed that nbn has trialed several different PON technologies using the vendor's universal next generation PON solution, including: Time and Wavelength Division Multiplexing (TWDM-PON) with 40Gbps symmetrical; XGS-PON with 10Gbps symmetrical; and GPON with 2.5Gbps. Commenting on the development, nbn's Chief Technology Officer, Dennis Steiger, said: 'With more than two million homes now receiving

services from their chosen retailer over the nbn network and nearly five million able to order a retail service, the rollout is continuing at pace while we also have a very sharp focus on the future ... The NG-PON2 trials we have conducted with Nokia have shown us the huge potential this very exciting technology has in terms of helping us deliver on future consumer demand for data at speed.' nbn currently offers wholesale maximum speeds of up to 1Gbps to retail service providers and expects its GPON-based FTTP network will be available to around 2.5 million premises by 2020.

STC, Huawei Trial Massive MIMO in Dammam

Saudi Telecom Company (STC) has trialed Massive multiple-input, multiple-output (Massive MIMO) technology on its existing time division duplex LTE (TD-LTE) network in Dammam in cooperation with equipment vendor Huawei, Arab News writes. STC used 20MHz of spectrum in the 2300MHz band for the trial, achieving a peak downlink throughput of 677Mbps. Massive MIMO technology uses a large number of antennas and beam forming

to enhance spectrum utilization among multiple user equipment to improve the end-user experience. STC Technology and Operations SVP Nasser Al-Nasser commented: 'Once again, STC's partnership with Huawei has delivered new and unprecedented results ... This great result will enable STC to meet the explosive growth in demand for high-quality data services.'



Xeelas, Sade Set to Establish IoT Network in Turkey

Dutch IoT start-up Xeelas and Turkish group Sade partnered to build what they call Turkey's biggest LoRa network in the nation's largest city, Istanbul. The network will enable businesses, local governments and conservation groups to collect and analyses data from thousands of connected devices in a streamlined way enabling them to make intelligent decisions about their business operations. Xeelas said it worked on building its knowledge about the LoRaWAN protocol for the last 2 years. Sade has more than 10 years' experience in developing products and services that use wireless networks to provide connectivity for M2M and IoT applications. Sade already helps clients execute their communications strategies efficiently and profitably by using RFID, WiFi, Bluetooth/Bluetooth Low Energy, NFC, Sigfox, ZigBee and will be adding LoRa to their portfolio.



IoT Programmable Radio Enables World of Connected Possibilities

FreeWave Technologies, Inc announced the industry's first IIoT Programmable Radio (IPR), which supports third party

software applications for Edge and Fog Computing in IIoT communication networks. FreeWave's IPR can support

JAVA, Python, C, and C+ and connects to any IP device or sensor. The platform can host third party and proprietary IIoT applications for energy, utility, municipal, smart city, government, military use cases and more. "Our IIoT Programmable Radio is a key component in driving high-speed data transmission and connectivity from the Edge to the end-user – it serves as the '2' in Sensor-2-Server," said Scott Allen, CMO at FreeWave Technologies. The rise of Fog Computing as a driver of intelligent analytics created a need for industrial companies to transport more data faster from Edge sensors. Rather than transport massive packets of data – Big Data – a programmable platform deployed at the edge of IP networks enables sensor control functionality and allows them to send smaller packets of data as determined by the IIoT app. This results in Smart Data that streamlines decision making, provides predictive analytics for maintenance and support, and allows organizations to automate processes that previously required ongoing, manual attention.



A1 and Nokia demonstrate G.fast at 10 Gbps

A1 and Nokia have demonstrated G.fast technology, achieving transmission rates

in excess of 10 Gbps. This was the first time in Austria that such a high speed

was reached via copper cable on the fixed line network.

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ARTICLE

Aligning Visions to Meet the Demands of the Digital World

Digital disruption is evident across all industries driven by changing customer preferences, new digital competitors and access to new technologies. The telecom industry is no exception to this with shrinking revenues in traditional business; yet, new opportunities are emerging as industry landscapes are redrawn and transformative approaches become available in business operations.

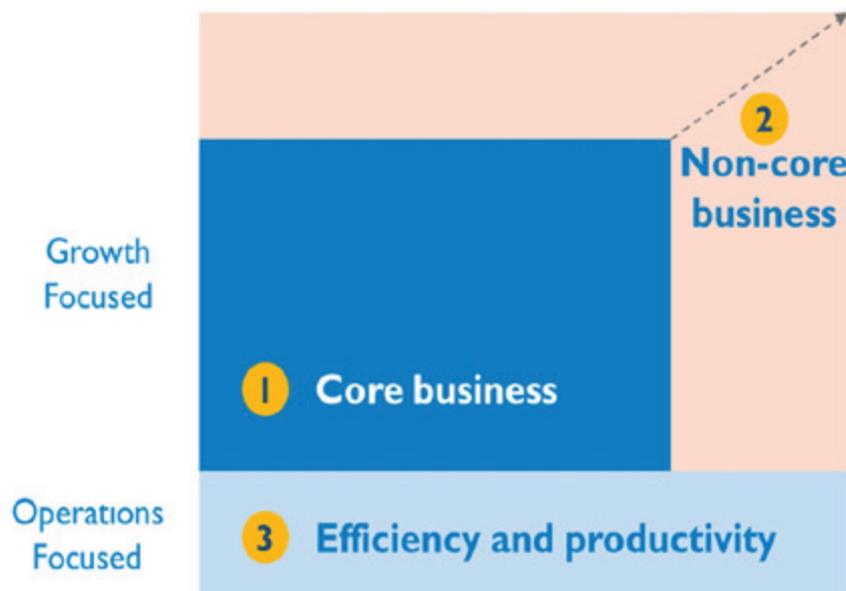
As a response, most executives have placed digitalization as one of their top priorities, but very few have achieved any significant level of digital enrichment in their businesses. In a recent global study on Reconfiguring for Value, only 22% of telecom executives believe that they offer state of the art digital products and 78% of the executives indicated that they could do much more in offering a richer digital experience to their customers.

What does digitalization mean?

We observe that one of the fundamental executive issues in formulating a response to digital disruption is lack of shared understanding within the organization on the potential of digitalization and the corresponding vision to capitalize on the potential.

In our view, digital potential encompasses any or all of these three broad areas:

- 1) How can we leverage digitalization to redefine the core business?
- 2) How can we benefit from new diversification opportunities?
- 3) How can we enhance the efficiency and productivity of our operations?



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Lokesh Dadhich

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In our interview-based cross-industry Digital Transformation Study, we have gathered data and insights from 100+ participants across the globe. The telecom industry scores well in the digital maturity of products & services and customer management but lags across operations, supply chain, workplace and culture.

We typically observe that most of the current digitalization efforts by telcos are focussed on either diversification opportunities or creating new digital offerings to arrest core revenue decline. At the same time, they tend to under-invest in the potential of effectiveness and efficiency enhancements. This is because most operators continue to view digitalization in operations through a narrow lens. With emerging building blocks of cognitive, connected, virtual and human-centered technologies, we believe it is possible to reinvent the operating model for a telecom operator, reconfiguring them for value and enabling truly digital business models.

Holistic view for digitalization

A holistic view encompassing all components of a telecom operator's business maximizes the potential of Digital Transformation.

Digital Front End entails digital opportunities impacting the telecom operator business model. As ecosystems continue to evolve in the digital world, exploring new partners and cooperation models

will help telecom operators to enhance the core products & services, reimagine customer interactions and venture into non-core business opportunities.

Digital Engine refers to opportunities of digitally enhancing the business operations to support the front-end. Customer journeys and business processes can be enhanced by generating insights from available data and redefining IT platforms. With increasing virtualization of telecom networks, the telecom operator 'business engine' can be completely re-hauled to instil agility and efficiency.

Digital Enabling secures the success of transformational efforts by ensuring a digital ready organization and capabilities. Defining and implementing the right organization model, acquiring required capabilities and instituting robust governance for steering and executing digitalization efforts are key for successful transformation.

Realizing an aligned vision through Digital Transformation

In our Digital Transformation study, 80% of companies achieved only a "low" Digital Maturity rating. This is because of their ongoing digitalization efforts limited to products and services, without a clear leadership and committed strategy. We recommend operators to adopt a five-step approach to set an aligned vision and realize the same through their transformation efforts.

Digital transformation starts with a **Target picturing** step that envisions the operator's target state. Ambition-based inputs facilitate a more clean-sheet, open approach to set the target picture and underpin the long-term goals / targets. Known Condition-based inputs from internal stakeholders should set the base and the minimum level for the vision.

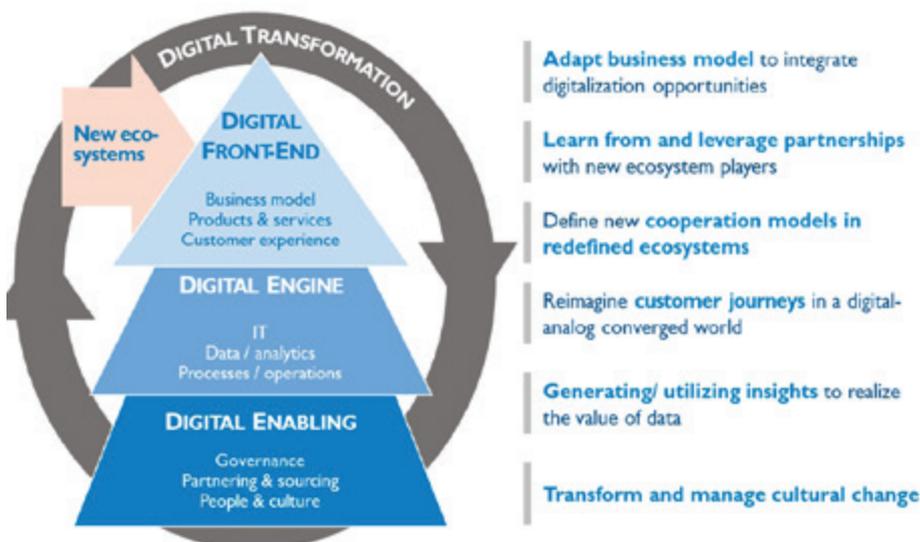
The second step complements the target picture with a **Maturity assessment** across all areas. An honest assessment helps identify pain points and inhibitors for digital transformation. For example, the digital front-end assessment should unearth the customer-engagement model is evolving to keep pace with customer behaviour and demand trends question. Similarly, digital engine assessment reveal if the infrastructure is adapting to customer business requirements, operations, and data analytics.

The third step builds upon the vision and constraints and entails **Planning**. Operators have to make conscious choices in defining the digitalization roadmap. In our experience, typical dilemmas include fixing vs. greenfielding; gradual changes vs. big bang; external incubation vs. internally driven changes. There is no one right answer to these choices; it should be determined by an informed evaluation in the specific operator context. Co-opting key stakeholders with objectives, responsibilities and accountability areas underpins the commitment to the plan.

The fourth step is of a continuous nature rather than a one-off initiative, and focuses on **Optimization and Overcoming Inhibitors**: Organizations are facing several inhibitors for change: people, capability and resources. We typically see top executives struggle with rapid execution: a common inhibitor being lack of digital-native capabilities within the organization. Continuously exploring ways to bridge these gaps going beyond corporate boundaries can help overcome the inhibitor.

Managing this Transformation journey is also about continuous adaptation with bold moves and decisions. The art of steering ongoing digital transformation towards the vision hinges on relentless focus towards committed results. 

Becoming a digital operator requires a holistic view



Components of Digital Transformation

REGULATORY NEWS

Minister Deflects Calls for Digicel Audit

Renewed calls from incumbent Guyana Telephone and Telegraph (GTT) to audit its cellular rival Digicel Guyana over allegations that it illegally bypasses GTT's international gateway were once again rebuffed by the government, Demerara Waves reports. Minister of Public Telecommunications Catherine Hughes was quoted as saying that, whilst she had 'no objections' to an audit of Digicel's activity, GTT's failure to comply with the terms of its license was a more pressing concern: 'The main issue is the fact that GTT does not have service in

many areas ... GTT has not provided, as their agreement stipulates, for the last ten years proper landline service to many communities.' The official added that she would not instruct Digicel to cease offering services, particularly in areas where the cellco is the sole provider of telephony services. As previously reported by TeleGeography's CommsUpdate, earlier this year GTT accused its sole mobile competitor of carrying out illegal international transmission of voice and data traffic, claiming that such activity has cost the government more than USD30

million in unpaid taxes. The government responded to the accusation, however, by instructing GTT to provide evidence that its international links were sufficient to serve Guyana's the growing demand. Mrs Hughes noted that GTT has refused to cooperate in that regard, with the operator providing a blanket statement that it 'operates a reliable international service ... and has the capacity to handle all of our country's overseas traffic' rather than details of its capacity, as instructed.

Ufone Could Be the Only Operator to Participate in 4G Spectrum Auction

Although Pakistan Telecommunication Authority (PTA) has made the upcoming auction for Next Generation Mobile Services (NGMS) spectrum (3G/4G) more lucrative for new entrants, it remains pessimistic about the participation of any new player. "There is no chance of a new telecom operator/entrant as the market is already consolidating," said a senior official of PTA while speaking with ProPakistani. "While PTA has sought applications through national and international media for the upcoming spectrum auction, it is highly unlikely for a new player to join the spectrum auction," said the official adding that an open outcry auction process will be applied to assign spectrum lot if demand exceeds supply. According to the Information of Memorandum (IM), all the existing telecom operators and new entrant(s) can participate in the auction process. A Potential New Entrant in the Cellular Mobile Market gaining spectrum in the NGMSA shall have the right to negotiate national roaming with existing Operators. A NGMS licensee that is a New Entrant in the Cellular Mobile Market will also have a longer period to fulfill rollout obligations. If NGMS spectrum rights are awarded to an existing Operator, then numbering

resources already allocated to that Operator may also be used for NGMS. If an Operator instead wishes to have separate numbering series for NGMS, the same shall be allocated to it from the National Numbering Plan relating to mobile cellular services. New Operator can request numbering series as per the procedure and regulations devised by PTA. A New Entrant in the Cellular Mobile Market shall be provided a unique network identity code.



Chances for Existing Operators

While this is highly speculative, we think that only Ufone will participate in the auction. Well-placed sources confirmed to ProPakistani that Pakistan and UAE discussed the matter at government level and Mr. Ishaq Dar somehow convinced UAE government to push Etisalat to take

part in the the spectrum auction. Again, we don't have confirmations for this, but it is said that Ufone is all good to participate in the auction. Not to mention, Ufone board has not yet given a go ahead for the participation in the auction. Telenor's participation is out of question, given that they just bought 10MHz in 850MHz band for \$395 million some six months ago only. Mobilink won't be needing 4G spectrum, thanks to Warid's rich spectrum resources (that are not expiring till 2019). Additionally, they are refarming their spectrum to make their network more efficient for various 2G, 3G and 4G networks. Zong, however, may go ahead and buy 4G spectrum but only if it wants to waste some bucks. They are under-utilizing their already available 4G spectrum and will not need any additional spectrum for at least one year if not more. If Zong decides to participate in auction, it will do so for two reasons: It would like to show-off its deep pockets, or It would want to block Ufone from buying 4G spectrum and may acquire the company (in couple of years) for a lesser amount as compared to a company with 4G spectrum and 4G network.

Vivendi Mulls Legal Action After Italian Regulatory Slap

French firm 'surprised' by AGCOM order to sell down stake in either Telecom Italia or Mediaset. Vivendi revealed that it will challenge a ruling from the Italian telco regulator that requires it to reduce its holding in either Telecom Italia or media outfit Mediaset within the next 12 months. L'Autorità per le Garanzie nelle Comunicazioni (AGCOM) conducted an investigation into the influence held by Vivendi over both companies and concluded that its position in the two companies violates Italian law. The regulator is concerned about protecting competition; in this case it is anxious to preserve media pluralism and avoid the creation of dominant positions. While many industry watchers had been expecting such an announcement, Vivendi itself said it was "surprised"

by the decision. "It is indisputable that Vivendi neither controls nor exercises a dominant influence on Mediaset which is controlled on an exclusive basis by Fininvest with a stake close to 40%," Vivendi said in a statement late on Tuesday. Vivendi's stake in Mediaset stands at around 29%. "Vivendi reserves the right to take any appropriate legal action to protect its interests, including filing an appeal to the AGCOM decision at the Regional Administrative Court (TAR) and to submit a formal complaint to the European Commission for the breach of EU law," the firm added. Vivendi is Telecom Italia's largest shareholder with a stake of 23.94%. Its activities over the past couple of years suggest that it is looking to increase rather than reduce its influence at the telco, so should it fail in its bid to

challenge AGCOM's ruling, it seems likely that it will sell down its Mediaset holding rather than reduce its Telecom Italia stake. A fortnight ago Reuters reported that Vivendi had informed the European Commission that it could take de facto control of Telecom Italia by increasing its representation on the telco's board at a shareholder meeting in May. Just days later Vivendi submitted a list of Telecom Italia board nominees headed by its own CEO Arnaud de Puyfontaine, a move that backs up reports that it is keen to replace existing chairman Giuseppe Recchi. Recchi is present on Vivendi's list, but lower down the order, as are Telecom Italia chief executive Flavio Cattaneo and others.

Court Freezes SCM's Ukrtelecom Shares; Move Related to Historical Allegations

A Ukrainian court has issued a decision freezing the controlling shares in national fixed line incumbent Ukrtelecom and its mobile subsidiary TriMob held by domestic conglomerate SCM, itself wholly owned by the country's richest man Rinat Akhmetov. As reported by the Kyiv Post, the Pechersk Kyiv Court decision comes amidst an investigation into previous

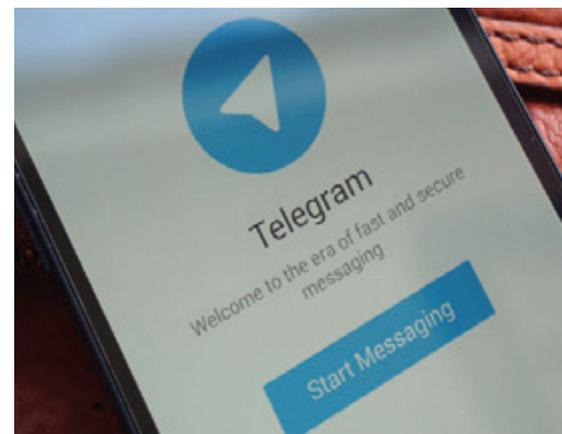
alleged misappropriation of state funds. Led by Ukrainian General Prosecutor Yuriy Lutsenko, the investigation focuses on possible embezzlement connected to Ukrtelecom's original privatisation in 2011 during the presidency of Viktor Yanukovich (who went into exile in Russia in 2014). BizLiga cited SCM's response to the share freeze: 'As the controlling

shareholder and the owner of Ukrtelecom and its subsidiary TriMob, SCM group is interested in an objective and independent investigation into all the circumstances of Ukrtelecom's privatisation. As we have previously stated, the SCM group did not participate in the privatization of Ukrtelecom in 2011, and acquired the asset of its previous owners in 2013.'

Iran Accepts Policy for Mobile Messaging App Use During Election

An Iranian judicial body devised new regulations on the use of Telegram, the most widely used mobile messaging application in Iran, in political campaign activities for the May 19 presidential election. The Committee for Determining Instances of Criminal Content (CDICC), a group working under the supervision of Iran's Attorney General, has introduced regulations on the appropriate use of Telegram ahead of the presidential election, a member of the committee told Tasnim. Ramezan Ali Sobhanifar said individuals and groups using the

popular mobile messaging app will have to comply with the election campaigning rules, stressing that any "offense or defamation" in the Telegram channels will be tracked and prosecuted. People will face prosecution for insulting the candidates, he warned. Iran is going to hold the 12th presidential election on May 19. The number of eligible voters in the upcoming election is estimated to be around 1.5 million higher than the 50.5 million in the previous round four years ago.



The FCC and the ACMA: Opposite Ends of the Spectrum

Two watchdogs on different sides of the planet, and with different approaches to regulating the market, end up facing similar problems. The first thing you will notice about this week's Friday Review, is that it is being published on a Thursday. This is not some time-warping new editorial policy that completely ignores the Gregorian calendar and laws of physics. It is because tomorrow the U.K. is off on its Easter holidays. With that bit of admin out the way, let's crack on. Two spectrum stories this week served to highlight the tricky balancing act that regulators must perform in order to capitalize on the 5G opportunity. First, Vodafone Hutchison Australia (VHA) on Monday warned the government that state-owned broadband wholesaler NBN Co currently holds frequencies in the 3.4 GHz and 3.7 GHz bands that could prove vitally important for future 5G services. Later that same day, on the opposite side of the world, AT&T agreed the \$1.6 billion (€1.51 billion) acquisition of Straight Path, which holds nationwide 28-GHz and 39-GHz spectrum; both bands are being used extensively for testing millimeter wave (mmWave)-based 5G technology and services. On the surface, it looks like the U.S. government has once again let the market get on with what it does best, while Australia's has intervened to the possible detriment of end users. Dig a little deeper though, and it becomes clear that when it comes to allocating frequencies, regulators need to take as longer term view as possible to make sure they are put to good use, and that the governments they serve don't miss out on potential windfalls. The job of a regulator is getting more complex because technology evolves all the time," noted John Naylor, CTO and co-founder of Cambridge Broadband Networks Ltd (CBNL), in an interview with Total Telecom earlier this week. The principles of providing fair access to spectrum, ensuring efficient use of resources, and technology neutrality are fairly well established the world over, he pointed out. Nonetheless, "regulators are feeling their way a little bit." That seems to be

the case for Australia's Communications and Media Authority (ACMA). Spectrum bands which do not have a clear use at one time can rapidly evolve to be prime candidates or even the only possible solution for major technology evolutions which could bring substantially higher economic benefits to Australia," said VHA, in a submission to the government's Joint Standing Committee inquiry into the NBN rollout. The 3.4-GHz and 3.7-GHz spectrum was set aside so NBN Co could use fixed wireless technology to connect around 80,000 premises located on the fringes of metropolitan areas, outside the planned footprint of its fiber-to-the-node (FTTN) network. Since then though, these frequency bands have been identified as suitable for mobile broadband use, including 5G, on a global basis. This spectrum band is the only internationally-aligned 5G band which is likely to be available in Australia," VHA claimed. According to VHA's calculations, if the per premises cost of pushing FTTN out to these extra 80,000 customers was 50% more than the existing FTTN footprint, the total cost of the entire FTTN network would be around A\$270 million (€192.36 million). By comparison, re-auctioning the spectrum would fetch several billion dollars, the operator said, some of which could be set aside to cover the cost of NBN migrating to a new technology or frequency band. The ACMA is not the only telco regulator that appears to have missed out on fully capitalizing on 5G spectrum. AT&T's acquisition this week of Straight Path and its nationwide 28-GHz and 39-GHz licenses, in a deal worth \$1.6 billion including debt and civil penalties, looks on the face of it like a great example of hands-off regulation. But the fact is, in the 90s, the Federal Communications Commission (FCC) gave those 39-GHz frequencies away for free because they were considered worthless. The individual that was gifted the airwaves, legendary telco lawyer Leo George, sold them to fixed wireless pioneer Winstar Communications. Winstar picked up the 28-GHz frequencies at an FCC auction in 1998 for a mere \$42 million (research

subscription required). Winstar expanded a bit too fast, and when the dot-com bubble burst, the debt-laden company was unable to raise enough cash to keep the lights on or pay its creditors; it filed for bankruptcy in April 2001. Winstar's spectrum licenses were acquired by IDT, which spun them off in 2013 into a separate unit, called Straight Path Communications. In November 2015, an anonymous source accused Straight Path of misleading the FCC in order to renew its 39-GHz licenses. According to the source and the investigation that followed, Straight Path deployed network equipment solely to convince the FCC that it was fulfilling its obligation to put its spectrum to use. Once the renewals were granted, the equipment was taken down again. Under a settlement with the FCC reached this January, Straight Path agreed to pay a \$15 million fine and return 196 of its 39-GHz licenses to the regulator. It also agreed to sell its remaining frequencies within 12 months to avoid a further \$85 million fine. 20% of the sale proceeds are payable to the U.S. Treasury. That brings us more or less up to this week's AT&T deal. This long and winding tale shows that two telco watchdogs with vastly different approaches to regulating the market can still end up facing similar problems. In the ACMA's case, it allocated spectrum for a state-run fixed wireless service for hard-to-reach areas, but now it faces the prospect of possibly re-allocating that spectrum in order to make better use of it. For the FCC, it gave away a huge chunk of spectrum for free to a private entrepreneur who, unlike the FCC, saw the frequencies' true potential. However, in the 23 years since then, nothing of great consequence has been done with that spectrum, and FCC intervention was necessary in order to ensure things didn't stay that way. The lesson in all this? Predicting the future is difficult and hindsight is always 20/20, but it is worth considering that what makes sense in the short term could be storing up trouble for later. Ultimately, it seems that with spectrum, it pays to play the long game.

CMA Publishes Ruling on Dark Fiber Pricing Appeals

Determinations regarding appeals by alternative operators TalkTalk and CityFiber over leased line charges have been published by the UK's Competition and Markets Authority (CMA). CityFiber and TalkTalk had previously lodged separate appeals with the Competition Appeal Tribunal (CAT), following regulator Ofcom's final decision regarding the amount that fixed line incumbent BT could charge other providers for

purchasing leased line services in April 2016. Subsequently, the CAT referred both appeals to the CMA in November 2016. In its final determination on the TalkTalk appeal, the CMA ruled that Ofcom had made an error in the methodology used for calculating the price for Dark Fiber Access. As a result, it said it has given guidance to the CAT that the decision should be remitted to Ofcom, with the regulator required to amend its

methodology. CityFiber's appeal was, however, dismissed. In confirming its findings, the CMA noted that the final determination had been made by 'a group of independent panel members supported by a case team of CMA staff'. It added that the CAT is now required to determine the specified price control matters in accordance with the CMA's findings, unless the latter's determination is set aside on judicial review grounds.

Internet Giants Square Up to FCC Over Net Neutrality



Lobby group representing Google, Amazon, Facebook etc. says existing rules should be kept. Lobbyists on behalf of some of the world's biggest Internet companies met with U.S. Federal Communications Commission (FCC) Chairman Ajit Pai this week to voice their support for net neutrality. The Internet Association (IA), which counts Amazon, Facebook, Google, Microsoft, Netflix, Paypal, Twitter, Uber, and Yahoo,

among others, as members, said the 2015 Open Internet Order is working well, and should be kept intact. The Internet industry is uniform in its belief that net neutrality preserves the consumer experience, competition, and innovation online," said IA chief executive Michael Beckerman, in an ex parte filing with the FCC dated Tuesday, and published online on Wednesday. Preliminary IA research indicates that the FCC's net neutrality rules, which came into force in June 2015, have not impeded investment by broadband providers, he said. The FCC's Pai is a known opponent of the regulator's decision to enforce net neutrality under Title II of the Communications Act. According to a recent Wall Street Journal report, Pai plans to make net neutrality a set of principles that telcos can voluntarily pledge to abide by. He also wants to return jurisdiction of ISPs to the Federal Trade Commission (FTC), which would require scrapping the Title II classification

of ISPs as common carriers. The IA's Beckerman this week said "consumers want and need their Internet experience preserved and protected, regardless of the legal or regulatory mechanism." Any net neutrality rules must prevent ISPs from offering paid prioritization; must apply to fixed, fixed wireless, and mobile broadband services; and should prevent interconnection being used as a choke point to artificially slow traffic or extract money from over-the-top (OTT) providers. The IA also made its voice heard with regard to rolling back the FCC's broadband privacy rules. Beckerman was keen to point out that OTTs have limited visibility into consumers' online practices compared to telcos. "Any continued departure from the FTC's framework should be grounded exclusively in the regulatory, policy, and economic factors that actually distinguish ISP and edge provider markets," he said.

NBTC Likely to Require OTTs to Secure Licenses

Thai telecoms regulator NBTC is considering requiring OTT communications service providers to secure an operating license and an internet bandwidth fee to ensure a more level playing field between OTT players and telecoms operators. NBTC Secretary General Takorn Tantasith told the Bangkok Post that a fee could be imposed on OTT services by 2018. Initially OTT services running over mobile networks could also

be expected to secure an operating license from the NBTC and pay a value-added tax the same as traditional businesses, he said. He said the regulator is making the move to reflect the dramatic increases in revenues generated by OTT providers and the strain demand for services such as YouTube places on mobile networks and accordingly operator revenues. The NBTC plans to hold an open forum to discuss the issue in Bangkok in September,

and will invite representatives from all telecoms regulators in the Asean region, as well as 50 operators across the region and the major OTT service providers. The NBTC's decision was motivated by a meeting of the Asean Telecommunication Regulators' Council focused on the challenges OTT services pose to business ecosystems.

MoIT has Prepared a Special Package for IT Sector Covering Enhancement in Existing Incentives, Rationalization of Duties/Taxes

Ministry of Information Technology and Telecom (MoIT) has prepared a special package for IT sector covering enhancement in existing incentives, rationalization of duties/taxes and simplification of tax regime envisaging to promote local assembly/manufacturing of IT hardware and double software exports, it is learnt. It is expected that the draft package would be made part of the Finance Bill (2017-18) after announcement of upcoming budget. Official sources revealed that the IT Ministry will focus on "hardware development/manufacturing" as a thematic area of existing funding agencies like National ICT R&D Fund Co. to finance hardware related R&D and manufacturing proposals. The proposed package would promote the local assembly and manufacturing of IT hardware (Desktop PCs, laptops, mobile handsets, network equipment, LEDs, microprocessors, etc). The existing special incentives package for mobile phone manufacturers in Pakistan (Finance Bill – 2015-16) will be further enhanced and such initiatives will be introduced to boost local assembling and manufacturing for a broad range of IT hardware. Sources revealed that tax regime on raw material and local assembled IT hardware will be simplified while duties would be rationalized in line with the tariff structures in regional countries which are competing with the local hardware industry. For public sector procurement regarding IT hardware, government will give first preference to local manufacturers to ensure local value addition. Transfer management control of existing manufacturing concerns in the public sector to the private sector through equity participation or long-term lease, is also part of the package. MoIT will collaborate with existing platforms of federal and provincial governments such as NAVTTC, TEVTA etc to launch specific skill development programs for local work-force on assembling processes, tools and technologies. The Ministry would work with relevant stakeholders regarding accession to Information Technology Agreement (ITA) under the framework of WTO in-line with necessities

of local hardware manufacturing industry. The government will pursue all measures including legislative, policy, administrative and international marketing measures to double software exports by 2020, create jobs and contribute towards the government's efforts to increase overall IT exports and remittances. Pakistan's IT exports have grown many folds over the past decade to \$2.4 billion. In addition, annual revenues from freelancing and the domestic markets are \$90-100 million and \$500 million respectively. Hence, the total annual revenue of Pakistan's IT Industry is nearing \$3 billion mark. The Ministry has targeted to concentrate on emerging areas of mobile application development, responsive web applications, big data analytics, Internet of things (IoT) and cloud computing to leverage existing competencies in Pakistani IT industry and to improve its export potential. The government would promote domestic software market through public projects and procurement by adopting best practices for facilitating local firm participation. As per the package, Pakistani Diasporas in the North American, European and Middle Eastern markets would be utilized to enable inclusion of young Pakistani IT entrepreneurs into the global IT value chain, provide enabling environment for companies to set up venture capital funds, accelerators and other support mechanisms for start-up companies. The Ministry would work with relevant stakeholders on continual basis including

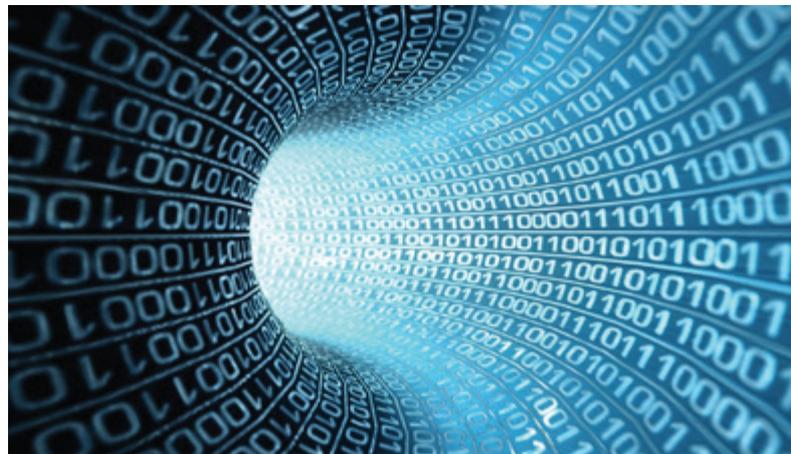
FBR, Finance Division and provincial revenue authorities for preferential tax treatment of IT industry, maintain a database by conducting market surveys regarding IT companies' annual exports, domestic revenues, HR strengths and areas of technical expertise etc. Further the Ministry would pursue the placement of ICT business development experts at Pakistani embassies, commercial consulates, and offices of Trade Development Authority of Pakistan (TDAP) to promote and showcase Pakistani IT products and services while for some large markets, such as North America, Europe, and Middle East, dedicated consultants to be hired to spearhead the market development and promotional efforts. The government would encourage equity participation of banks in software projects by setting up venture capital funds. The necessary changes in legislation are being carried out by the SECP (Securities and Exchange Commission of Pakistan). The government would earmark sufficient additional funds and support infrastructure for PSEB to perform its role effectively in promoting IT exports by encouraging Pakistani IT companies' participation in international IT events, trade fairs and exchange of IT delegations. The Ministry has targeted to attract local investors and business groups to invest in software industry through a comprehensive incentive program.



U.S. FCC Chairman Plans Fast-track Repeal of Net Neutrality: Sources

The chairman of the U.S. Federal Communications Commission is moving quickly to replace the Obama administration's landmark net neutrality rules and wants internet service providers to voluntarily agree to maintain an open internet, three sources briefed on the meeting said. FCC Chairman Ajit Pai, a Republican appointed by President Donald Trump, met with major telecommunications trade groups to discuss his preliminary plan to reverse the rules, the sources said. The FCC declined to comment but Pai previously said he is committed to ensuring an open internet but feels net neutrality was a mistake. The rules approved by the FCC under Democratic President Barack Obama in early 2015 prohibited broadband providers from giving or selling access to speedy internet, essentially a "fast lane", to certain internet services over others. As part of that change, the FCC reclassified internet service providers much like utilities. Pai wants to overturn that reclassification, but wants internet providers to voluntarily agree to not obstruct or slow consumer access to web content, two officials said. The officials briefed on the meeting said Pai suggested companies commit in writing to open internet principles and including them in their terms of service, which would make them binding. It is unclear if regulators could legally compel internet providers to adopt open internet principles without existing net neutrality rules. As part of that move, the Federal Trade Commission would assume oversight of ensuring compliance. Three sources said Pai plans to unveil his proposal to overturn the rules as early as late April and it could face an initial vote in May or June. Internet providers like AT&T Inc, Verizon Communications Inc and Comcast Corp have argued net neutrality rules would make it harder to manage

internet traffic and investment in additional capacity less likely. Websites worry that without the rules they might lose access to customers. AT&T and major trade groups sued the FCC in 2015 over the net neutrality rules. Democrats and privacy advocates say net neutrality is crucial to keeping the internet open. Pai in December predicted that net neutrality's days were numbered. He told Reuters in February he believes "in a free and open internet and the only question is what regulatory framework best secures that." Pai and congressional Republicans have moved quickly to dismantle Obama-era telecommunications rules. Trump signed a repeal of Obama-era broadband privacy rules a victory for internet service providers and a blow to privacy advocates. Politico Pro reported some details of the meeting with trade groups.



US Congress Votes to Scrap FCC Internet Privacy Rules

The US government is on the brink of overturning forthcoming Federal Communications Commission (FCC) regulations covering internet privacy, in a move which would ease restrictions on the information service providers are allowed to gather about subscribers. A decision to overturn the FCC regulations was cleared in a vote by the House of Representatives, the lower house of the US Congress. The motion had already been approved by the US Senate, the upper house, leaving only approval by President Trump as the final hurdle to repealing the laws. In a statement, the White House implied such presidential approval is highly likely to be forthcoming. If true, communications service providers would be freed from rules limiting their ability to use information collected on mobile and fixed broadband subscribers, including internet browsing habits, app usage and location data, which were due

to come into force during 2017. The rules would have required service providers to get explicit opt-in from subscribers before using customer information for services including marketing and third party advertising. The legislation also laid down guidelines on how companies can share other information including e-mail addresses and service information. Companies including Facebook and Google were excluded from the forthcoming laws, which were unveiled in March 2016 by the previous FCC administration and passed into law in October 2016.

FCC privacy pledge

A White House statement said the current administration "strongly supports" the decision to overturn the rules, and added it viewed the FCC's regulation as inconsistent with other privacy rules and would have applied "very different

regulatory regimes based on the identity of the online actor." Current FCC chairman Ajit Pai said: "Last year, the Federal Communications Commission pushed through, on a party-line vote, privacy regulations designed to benefit one group of favored companies over another group of disfavored companies. Appropriately, Congress has passed a resolution to reject this approach of picking winners and losers before it takes effect. "Moving forward, I want the American people to know that the FCC will work with the FTC to ensure that consumers' online privacy is protected through a consistent and comprehensive framework. In my view, the best way to achieve that result would be to return jurisdiction over broadband providers' privacy practices to the FTC, with its decades of experience and expertise in this area."

National Policy Pipelined to Create Digital Market in Pakistan

The State Bank of Pakistan (SBP) in collaboration with Ministry of Commerce developing a National Policy on e-Commerce to attract foreign investment for establishing a desired digital market in the country. "The Policy... shall support and work towards building desired ecosystem for E-Commerce market and also to encourage local trade and foreign investments in the country," Ashraf Mahmood Wathra, Governor, SBP, said at the 10th Jazzcash International Mobile Conference in Pakistan. The one-day conference was organized by Total Communications with the support of SBP and Pakistan Telecommunication Authority (PTA). Governor said he has been part of the conference on regular basis for the last four years, as "participating at this conference or at IMF and World Bank remains equal for me." The central bank was aware that the high cost on e-Payment was "due to risk associated with online payments, but we are also mindful that new mechanism for proactive fraud detection are being developed to safeguard the merchants, consumers and their banks from losses." Keeping in view the development, he urged upon banks and payment schemes to rationalize the cost of transactions on e-Payment to further boost mobile and e-Commerce in Pakistan. He said the central bank has allowed the entry of non-banks – Payment System Operators

and Service Providers (PSO/PSPs) – into the domain of payment services through intensive regulations in 2014. However, "their effectiveness remains yet to be seen," he said. He noted that the number of m-wallet accounts stood at more than 16 million in the country. However, majority of these wallets were still inactive. Even though, branchless banking industry has seen acceleration and basic financial services can now be accessed in remotest parts of the country through agent network of around 350,000, he said. "A total of 110 million transactions worth around Rs520 billion were carried out during quarter of July-September 2016," he said. Dr. Syed Ismail Shah, Chairman, PTA said in a video message that the regulator would soon launch more services in Pakistan like Uber and Careem, the Apps to call cabs at your door. He urged upon the industry players of e-commerce to join hands for strengthening digital market instead of trying to dominate each other. He also urged upon them to keep investing in technology and big data houses to keep up with the world. Nadeem Hussain, Founder & Coach, Planet N Group of Companies, said Pakistan was evolving through digital revolution, which directly contributed towards economic growth of the country. The revolution has allowed people to open basic bank account via using mobile phones literally in

one minute and purchase half a dozen oranges against digital cash. "The time is not far when a woman in a remote area would have access to main markets for her products through six clicks only," he said. He said 8-10 entities were establishing big data houses in Pakistan that would pace up the revolution. However, challenge remained with the industry players as how to get activated the dormant m-wallet accounts. Ghazanfar Azzam, President & CEO, Mobilink Microfinance Bank, said that the number of active m-wallet accounts stood at two million only. "Telecom led banks are aimed to increase number of m-wallet accounts to 50 million by 2020," he said. Ali Riaz Chaudhry, President, & CEO, Telenor Microfinance Bank, said that industry players should join hands together to fight against poverty, as this would help them achieve the goal of financial inclusion. He anticipated agriculture as potential growth area for e-commerce. Mudassar Aqil, CCEO, FINCA Microfinance Bank, suggested making e-Payment transactions free of cost to acquire desired results. The conference also held two panel discussions on the topics (1) Challenges and Solution to Mobile Payment Adoptability and (2) Digital Pakistan. (3) Vision for ECO system in 2020.



Australian Watchdog Sues Apple Over Alleged 'Bricking'

The Australian Competition and Consumer Commission (ACCC) filed a lawsuit against Apple in a federal court alleging the smartphone giant disabled some Apple devices which had been repaired by a third party. Australia's consumer watchdog said it started an investigation following reports relating to 'error 53' – an error which disabled or 'bricked' some consumers' iPhones or iPads after downloading an update to Apple's iOS. Many consumers who experienced the problem between September 2014 and February 2016 previously had their Apple device repaired by a third party, usually replacing a cracked screen. The ACCC alleges Apple: "made false, misleading

or deceptive representations about consumers' rights". Its investigation found Apple appears to have routinely refused to look at or service consumers' defective devices if the user previously had the device fixed by a third-party repairer, even when the work in question was unrelated to the fault. "Consumer guarantee rights under the Australian Consumer Law exist independently of any manufacturer's warranty and are not extinguished simply because a consumer has goods repaired by a third party," said ACCC chairman Rod Sims. "As consumer goods become increasingly complex, businesses also need to remember that consumer rights extend to any software

or software updates loaded onto those goods." The ACCC is seeking penalties, injunctions, declarations, compliance programme orders, corrective notices and costs.



COAI Advocates Spectrum Auction to 2018

Cellular operators' body COAI has said the government should not rush to spectrum auction this year and instead, allow the market to settle down in the wake of recent mergers and acquisitions. COAI emphasized that the next round of sale of airwaves should ideally be scheduled in 2018. "In the immediate context, we don't expect a whole lot of demand for the spectrum because mergers and harmonization will lead to efficiencies in terms of use of existing spectrum. Companies like Idea Cellular and Vodafone (which have announced decision to merge in India) will put their spectrum together for efficiencies," COAI



DG Rajan S. Mathews told PTI. Companies will be keen to wait a little more to see how the market dynamics plays out, Mathews said, adding that other factors which need to be taken into consideration are demand for data and smartphones. "The problem with having an annual spectrum auction (that is being talked about) is that it requires three months of preparation, hence a 12-month window is too small... Companies cannot spend three months every year in recalibrating their strategy on airwaves," he said. After buying airwaves, telecom companies also need time to order equipment, get infrastructure ready and be tuned in to the existing network. Also, typically companies tend to buy spectrum keeping in mind their requirements for the next 2-3 years, he said. "Other than the dynamics of license requirement, a 2-3 year timeframe to conduct auction is more than adequate to allow for predictability and strategic planning by firms," he said. Mathews' comments come at a time when the industry is going through a massive phase of consolidation, intensified by the disruptive entry of challenger Reliance Jio.

Idea Cellular and Vodafone have decided to merge in India to create the country's biggest telecom service provider with a customer base of over 394 million. Telecom operator Bharti Airtel, the current market leader, has said it will acquire Norwegian Telenor's India unit, and more recently announced the acquisition of Tikona Digital's 4G airwaves. Last month, then Telecom Secretary J. S. Deepak had said the government is looking to make spectrum auction an annual event. "We are not worried if there is no demand for spectrum. We are interested in giving the industry an opportunity to buy spectrum," Deepak had said on the sidelines of the Mobile World Congress in Barcelona just a day before he was named India's next Ambassador to the World Trade Organization (WTO) from June this year. Last week, however, in a written reply in the Lok Sabha, Telecom Minister Manoj Sinha had said the government had no immediate plan to provide telecom companies with an option to buy spectrum annually.

BT/Openreach Fined GBP42m Over 'Serious Breach' of Rules

British telecoms regulator Ofcom has found that BT's infrastructure division Openreach had breached its contractual and regulatory obligations by inadequately and retrospectively applying 'Deemed Consent' – an agreed process which allows Openreach to halt the installation and reschedule the delivery date for providing dedicated business services (known as Ethernet) in a number of specific circumstances beyond its control – between January 2013 and December 2014. Following the investigation, Ofcom decided to impose a fine of GBP42 million (USD52.4 million) on the wholesale provider; in addition, Openreach agreed to provide full compensation to the affected communications providers – currently estimated at GBP300 million. TeleGeography notes that earlier this month, BT and its former network arm agreed to legally separate their operations, in order to address the competition concerns raised by the regulator. Under the restructuring plan, Openreach will become a distinct company with its own management board, separate



strategy and control over budget allocation, with company assets to be controlled by Openreach alone.

T-Mobile Requests 3.5GHz Permission from FCC; Charter Eyes 28GHz 5G Tests

T-Mobile US has asked the Federal Communications Commission (FCC) for permission to conduct tests in the 3550MHz-3700MHz band, using an 'experimental license'. When probed by Fierce Wireless, the cellco noted: 'The 3.5GHz band has the potential to provide additional spectrum for LTE but we also think it is ideal for 5G, in alignment with the rest of the world.' T-Mobile is seeking permission to use the 3.5GHz spectrum at three sites in Washington, near its Bellevue headquarters. If approved, the tests will run from 15 April to 30 September 2018. In

April 2015 the FCC voted to proceed with offering commercial telecoms operators free access to additional wireless frequencies in the 3.5GHz 'Citizens Broadband Radio Service (CBRS)' band, then used by military radars and other government organizations. Specifically, the decision added another 100MHz of spectrum in the 3550MHz-3700MHz band to the 50MHz in that range already available for commercial use. In related news, Fiberlink, a subsidiary of US cable giant Charter Communications, has requested permission from the FCC to

test 5G fixed and mobile services using the 28GHz band in Orlando, Florida. The company seeks a two-year experimental license, commencing on June 1, 2017. The regulatory filing notes: 'The proposed operations will advance Charter's understanding of 5G technology and network potential in the millimeter wave bands and will advance the deployment of 5G fixed and mobile services.' Charter says that it has already coordinated its trial plans with StraightPath, which holds 28GHz licenses in the Orlando, Florida area.

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



Afghanistan's Ministry of Communications and Information Technology (MCIT) has reduced the cost of international bandwidth by 20%, as it looks to lay the groundwork for the introduction of 4G services in the future. Acting Telecom Minister Ahmad Shah Sadaat was quoted as saying that the ministry has lowered the price per Mbps for connections to Kazakhstan, Pakistan and Iraq from US\$336, US\$120 and US\$180 to US\$268, US\$96 and US\$144 respectively. The official went on to warn that the ISPs are expected to pass on these price reductions to end users, saying: 'If telecom companies do not transfer this discount to the customers, the discount will be

taken from them.' The development follows an announcement from Mr. Sadaat last month, in which the official responded to complaints of the high prices and low quality of telecom service by promising to slash costs by 20%. At the time, the official added that the ministry was hoping to increase the number of people using the internet from around four million to 15 million in the next four year years, Customs Today reported. Mr. Sadaat also warned that companies could face fines of between AFN2 million and AFN100 million (US\$30,000 to US\$1.497 million) for raising prices whilst offering poor quality services.

(March 29, 2017) telegeography.com

Afghanistan



TRA's board of directors in their first meeting this year, discussed key developments in the Kingdom's telecoms sector. TRA reports that consumers in the Kingdom now enjoy more welfare, with mobile telephony prices dropping by 29% between 2015 and 2016 and broadband prices by 50% in the same period. "The International Telecoms Union (ITU) set a world target back in 2014 for broadband services to cost no more than 5% of average monthly income by 2020, and we're proud to report that Bahrain has already achieved this target not only with the regular speeds of broadband services but the superfast speeds as well." Says TRA Chairman, Dr. Mohamed Ahmed Al Amer. "The latest market indicators point to greater broadband affordability than ever before, with prices lower than the average prices in the GCC and Arab countries." The Chairman continued.

According to the ITU reports, Bahrain ranked 2nd regionally and 20th globally in the fixed broadband prices basket in 2016 compared with 3rd regionally and 32nd globally in 2015. Also noted, market penetration numbers continued to climb in 2016, with mobile penetration reaching 213% compared to 187% in 2015. On the other hand, broadband services penetration rose from 146% to 172% in the same period. The Board of Directors expressed their gratitude and praised the TRA's efforts in fostering the telecoms sector's progress. They expressed their thanks and appreciation to the TRA team members for their support and professionalism and outstanding role in developing the sector. These indicators came as a result of the hard work and persistence of the highly professional team members that this was made possible. (April 12, 2017) tra.org.bh

Bahrain



The Bangladesh Telecommunication Regulatory Commission (BTRC) has finalized its plans for the upcoming 4G spectrum auction and will send the proposals to the government for approval shortly Chairman Shahjahan Mahmood said. Under the proposals, operators would pay a license fee of BDT150 million (USD1.85 million), a further BDT75 million in annual fees and a revenue share of 15%. A floor price of USD25 million per MHz of spectrum has already been approved by the government, but the BTRC is planning to add a premium of between USD7 million and USD8 million per MHz to make the frequencies technology

neutral, although the official noted that the exact amount has not yet been fixed. In terms of rollout obligations, the BTRC's plan calls for operators to launch services in all divisional cities within nine months, and all district headquarters within 18 months, whilst the entire country should be covered within 36 months. The tender will feature an unsold 2x15MHz 2100MHz block, plus frequencies in the 1800MHz band and a portion of 900MHz bandwidth made surplus following the recent merger of Robi Axiata and Airtel Bangladesh.

(April 6, 2017) The Daily Star

Bangladesh

The government has undertaken a project to extend fiber-optic connectivity to an additional 772 union councils – the country's smallest rural administrative sub-divisions – by the end of 2018, funded by the Social Obligation Fund (SOF) to which operators contribute 1% of gross revenues. The project under the banner 'Establishment of ICT Network to Remote Areas (Connected Bangladesh)' is expected to benefit '25-30%' of the population, according to the state ICT Division, and its implementation is the responsibility of the Bangladesh Computer Council (BCC). The project is aimed at connecting Union Digital Centers (UDCs), offices, schools and colleges in rural areas to high speed services, boosting the scope of e-commerce and online services in remote areas by enabling more affordable broadband connections, plus adding numerous new jobs, in alignment with the government's 'Vision 2021: Digital Bangladesh' goals.

(March 30, 2017) The Dhaka Tribune

It is heartening to hear that the Bangladesh Telecommunication Regulatory Commission (BTRC) has appointed an organization for independent assessment of the service quality of mobile operators in the country. Quality monitoring and enforcement, when it comes to the service provided, is much needed in Bangladesh. The BTRC's move is a right step towards ensuring

consumer rights. As of August 2016, according to BTRC, the number of mobile phone subscriptions in Bangladesh was 117.758 million. In 2016, the number of mobile internet users crossed 60 million. Clearly, the market is huge, and growing. Associated services, such as 3G internet, are also gaining greater number of users. In this context, it is unfortunate that complaints about the service quality of these operators have persisted. Disruptions, call drops, lack of coverage and low call quality -- these complaints span across all operators. The users of even the most successful operator are still plagued by frequent call drops. Till now, the BTRC had to rely on reports by the operators themselves to judge the quality of service. We hope that this independent assessment will provide the BTRC with the information needed to get a proper picture. It has been reported that the operators have asked to be consulted before the parameters for measuring quality are set, which we feel may hamper the objectivity of the assessment. We look forward to a successful fruition of this assessment drive. However, BTRC should be wary that this positive step does not become a tool for harassment of the service providers. We hope that the companies themselves see the assessment as an opportunity to improve the valuable service they provide and do their part to ensure the rights of the consumers they serve.

(March 27, 2017) thedailystar.net



Egypt

A recent report published by the National Telecommunication Regulatory Authority (NTRA) for February showed that the quality of voice calls provided by the three mobile operators improved compared to December 2016. According to the NTRA report, 17,353 mobile voice calls were examined in February in the Greater Cairo area, compared to 26,533 calls in December 2016. Out of the total calls examined, 42 calls were dropped in February, compared to 61 calls in December. The number of blocked calls reached 30 in February, compared to 23 in December 2016. NTRA's data showed that Orange performed the best among the three companies in terms of voice service quality. 5,683 calls of Orange were examined; only two were blocked and nine dropped. The voice services of Vodafone were examined through 5,916 calls, 14 of which were blocked, while 8 calls were dropped. Etisalat was examined through 5,754 calls, 14 of which were blocked, and 25 calls were dropped. All three mobile operators—Orange, Vodafone, and Etisalat—didn't exceed the 2% maximum limit for blocked calls that NTRA had set for the providers during the examination. However, Vodafone and Etisalat exceeded the 2% maximum limit of dropped calls. The NTRA examined the service through 6,468 connection attempts through the networks of the three operators, of which 10 were blocked compared to 6 in December 2016, with no interrupted connections. NTRA conducted 2,202 connection attempts via the Vodafone network, of which two were blocked and none dropped. Etisalat blocked three attempts and dropped none out of 2,123 attempts, while Orange blocked five out of 2,143 internet connection attempts. (April 19, 2017) dailynewsegypt.com

The Minister of Communications and Information Technology Yasser Elkady has participated in the opening session of the "Innovation Summit 2017" held in Dubai, discussing the latest innovations and practices in the industry to provide innovative solutions for enterprises using advanced technologies. During his visit to Dubai, Elkady met with Ali Khafran, the head of Apple government affairs for the Middle East, India and Africa and head of legal affairs for the Middle East. They both discussed cooperation prospects between the Egyptian government and the Company especially in the field of big data centers industry, as part of the ICT sector strategy to make Egypt a global hub in this area. Elkady underlined recent developments in regulating the telecommunications sector, growth of the local electronics industry and national initiatives to empower technological calibers in advanced disciplines. The ICT Minister said that the state provides special packages and incentives for manufacturing and investing in technology parks. In this context, Apple's expressed its interest to invest in Egypt, and hailed the current developments in various economic and technological sectors, saying that the Egyptian market is promising to inject new investments in various tracks and benefit from available qualified Egyptian programmers. Joint work will be initiated when the Company's officials visit Egypt by mid of next month, to study the establishment of a software and application development center that will provide approximately 10,000 job opportunities. The visit is also meant to examine the possibility of establishing a big data center for the Company in one of Egypt's technology parks, and study investment opportunities in electronic manufacturing. (April 11, 2017) mcit.gov.eg



Iran

In a meeting between the Iranian and Russian officials, Russia's Minister of Telecom and Mass Communications discussed cyber cooperation with Iran in various spheres including e-commerce and software development. During a meeting in Moscow, representatives of Iran and Russia discussed various collaborations in the IT sector. Nikolay Nikiforov, Russia's Minister of Telecom and Mass Communications stated that the two countries could extend their joint effort in Internet projects, software development, data security, e-commerce and other related areas. "Our goal is that the companies and academic, research and innovation institutes of both sides cooperate mutually and carry out joint communication initiatives," said

Nikiforov. During the 2-day visit of Vaezi and the Iranian delegation, the two sides discussed the development of their relationships and prepared grounds for the visit of President Rouhani to Moscow. On Tuesday March 28th, Rouhani and Putin met to discuss projects in various areas. It's been said that the talks will include topics such as energy, infrastructure and technology. "The growth of Iran's trade relations with Russia was the biggest last year in comparison with any other country... It seems to me that this trend will continue, and we will reach a considerable trade of \$10 billion in the coming two or three years," said Mehdi Sanaei, Iran's Ambassador in Russia as Sputnik has reported. (March 29, 2017) techrasa.com



Jordan

The Telecommunication Regulatory Commission (TRC) has started work on developing a centralized database to gather together the coverage details of all of the nation's fiber-optic networks. The database will be published online as an aid for investors, operators and government agencies, with the hope that the resource will help maximize investment by limiting the duplication of infrastructure and encouraging network sharing. The move forms part of the TRC's strategy for accelerating the deployment of next generation infrastructure, which the regulator sees as essential for the development of the nation's

economy and to improve quality of life in the Kingdom. In addition to the database, TRC Chairman Dr. Ghazi Al-Jabour stressed that the regulator will cooperate with all parties concerned to overcome the obstacles operators face in rolling out network infrastructure. To that end, the TRC is planning to ink memoranda of understanding (MoUs) covering Right of Way (RoW) issues, sharing and leasing infrastructure, and the prevention of network duplication.

(April 20, 2017) telegeography.com



Kuwait

Boursa Kuwait's telecommunications sector enjoyed a positive performance in the fourth quarter of 2016, registering a year-on-year growth of 34%. The sector includes four stocks, namely Mobile Telecommunications (Zain), Kuwait Telecommunication Co. (Viva), National Mobile Telecommunications (Ooredoo), and Hits Telecom Holding. Combined profits for the four companies reached KWD 51.49 million (\$168.5 million) in Q4-16, compared to KWD 38.43 million (\$125.8 million) in the same period in the year before, according to statistics by Mubasher. Annually, the sector's profits grew 9% to KWD 237.8 million (\$778.35 million) in 2016 from KWD 218.26 million (\$714.4 million) in 2015. Zain took up the lion's share of Q4-16 and 2016 profits with KWD 32.23 million and KWD 156.7 million, respectively. Meanwhile, Viva recorded the lowest profits on both levels after reporting

KWD 10.76 million in Q4-16 and KWD 39.81 million in 2016. On the other hand, Hits Telecom was the only company that suffered losses in the two periods, with KWD 5.97 million in Q4-16 and KWD 5.38 million in the full year 2016. Ooredoo turned profitable in the last quarter of 2016 with KWD 14.47 million against KWD 1.44 million in losses in the same period the year before. It also recorded the highest rise in profits, posting a 75% surge to KWD 46.67 million for the full year 2016, compared to KWD 26.67 million in 2015. In terms of cash dividends, Ooredoo's share got the highest after its shareholders approved an 85% cash dividend, while Viva's was the lowest at 100 fils per share. Hits' board has not decided whether or not it will distribute dividends.

(April 4, 2017) english.mubasher.info



Nepal

The Nepal Telecommunications Authority (NTA) has ordered local cellcos to begin charging calls on a per-second basis from mid-October, in order to bring down the cost of mobile services for end users. Calls are currently charged in 20-second units, but this will drop to ten-second pulses from April 14 then to one second from October 18. According to a report the pulse duration for national fixed line calls will remain at 60 seconds, though the pulse duration for international calling will fall to ten seconds from October. (April 4, 2017) *The Himalayan Times*

Not happy with the service of the telecom operator but hesitating to switch owing to hassles of changing the number? A six-month wait could offer you an option that would allow you to change the service provider without the need to change the number you are currently using. The option is expected to be available soon as the government is gearing up to introduce the Mobile Number Portability (MNP) service in the country. The MNP is a telecom service that enables mobile users to switch from the network of one telecom operator to another while retaining the same mobile telephone number. This means that users subscribing to the network of any of the six telecom service providers in the country can retain their original mobile phone number when changing from one mobile network carrier to another. For this, the telecommunication sector regulator – Nepal Telecommunications Authority (NTA) – has started initial works to introduce MNP in Nepal and is in the final stage of hiring an international consultant to implement the project. NTA has already shortlisted the proposal of three companies, one each from India, United Kingdom and the Netherlands, and is preparing to seek detailed proposal from these consultant

firms in second phase. “We will soon ask for a detailed proposal from these selected companies and appoint one of them as the consultant for the MNP project in Nepal. The selected consultant company will be responsible to recommend NTA on the modality of MNP implementation in Nepal and international practices on MNP,” Min Prasad Aryal, spokesperson for NTA, said. Based on the recommendation of the consultant, NTA will also appoint a third party company that will be responsible to operate MNP in the country by migrating the service from one telecom operator to another as per the demand of customers. The third party will also be responsible to maintain the database of telecom service providers in the country, which is required to implement MNP. NTA will also develop an MNP directive to regulate the service. As per Aryal, MNP would directly benefit customers as it would provide an option for customers to switch to the best network by retaining the original mobile number. MNP is a relatively novel service in telecommunication sector, with Singapore and Hong Kong adopting it in late '90s. Australia, Italy, Germany, France and US had implemented the MNP service in between 2001 to 2003. India implemented MNP in January 2011. As per some domestic telecom operators who did not wish to be named, the implementation of MNP service would also be beneficial for operators as it will increase competition and push telecom operators to deliver enhanced and quality service. “As customers would be able to easily switch to another network if an operator is not providing quality service, implementation of MNP would make telcos more committed in delivering quality service and enhanced consumer satisfaction,” a telecom source said. (March 29, 2017) *thehimalayantimes.com*



Oman

The Telecommunications Regulatory Authority (TRA) will display an awareness poster to educate consumers on their rights with regard to telecom services at COMEX 2017. The exhibition will be held from March 28 to April 1. TRA has designed this poster as part of its responsibility towards safeguarding beneficiaries' interests in the telecom sector, stated a press release. The awareness poster displays a number of rights set forth in the Telecommunications Regulatory Act, such as the

right to privacy, the right to receive proof of service application, the right to have a copy of the Service Agreement and other basic rights that beneficiary needs to be aware of before using telecom services. The event will also provide a platform for TRA to present a number of awareness programmes, such as fraud and cybercrimes awareness campaign, child online protection, beneficiary's contact channels and the procedures for submitting complaints. (March 28, 2017) *muscatdaily.com*



Pakistan

The upcoming auction for Next Generation Mobile Services (NGMS) spectrum (3G/4G) [planned in May 2017] is very crucial for telecom operators in the country as after this; next spectrum auction will take place in 2021. This was confirmed by the State Minister for Information Technology and Telecommunication Anusha Rehman. Signifying the importance of the upcoming auction for Next Generation Mobile Services (NGMS) spectrum (3G/4G), the minister stated that after this there will be no auction till 2021 in the country. "There is huge demand for spectrum and government would achieve its auction targets in the current financial year", said the Minister. While explaining that why next spectrum auction cannot be held before 2021, the Minister stated that exact year i.e. 2018, is a year of general election in the country and no government will have time to go for auction during this year. The operators [including Telenor and Warid (now Jazz)] will have to renew their licenses in 2019, which would require huge investment for the purpose, said the Minister. After investing in the license renewal, operators would not be able to go for auction in 2020. Hence next auction – after the current planned one – is likely to be held in 2021, said the Minister. She hinted that next auction, planned for 2021 will also include spectrum for 5G services. Independent industry experts said that Minister is just trying to gain some traction, otherwise – in this age and time – there's no way for the operators and the government to hold for spectrum auction for four years. If we look at 2014's auction, government held two spectrum auctions with-in three years, indicating that holding a spectrum auction – when there's a need (from either side) – isn't impossible. Current spectrum allocations, especially in 3G bands will exhaust capacity for majority of operators in next 2-3 years and there's going to be an auction in any case, the experts said. (April 5, 2017) propakistani.com

Pakistan Telecommunication Authority (PTA) was all set to hold auction for Next Generation Mobile Services (NGMS) spectrum (3G/4G) on May 16, 2017 (which has been postponed until May 24, 2017). PTA has released Information Memorandum (IM) for the auction of spectrum in the 1800 MHz range and to grant the successful bidders rights to establish, maintain and operate 3G/4G network and to provide services across the country. The IM sets out the rules, process, planned timetable and other background information to help prospective applicants to decide if they want to participate in the NGMSA. Base price for 2x10 MHz block in 1800MHz is set at USD 295 Million. The NGMSA is for licenses to use spectrum from internationally harmonized band in 1800 MHz band. The spectrum included in the NGMSA comprises of 10 MHz of paired spectrum in the 1800 MHz band, however exact lot details will be finalized later as per the re-farming plan. A license for spectrum awarded in the NGMSA provides exclusive right for use of the frequencies assigned to that operator. The services permitted are governed by each specific license. New spectrum will be for 14 telecom regions of Pakistan, excluding AJK Gilgit-Baltistan (GB) while the base price for the spectrum is set at \$295 million. New as well as current operators can bid for the spectrum. The

successful bidder will be given a license to establish, maintain and operate a technology neutral network and offer licensed services in Pakistan excluding AJ&K and GB to consumers for meeting the roll out and quality of services (QoS) obligations. The licensee will have to take all possible measures while installing its network to ensure that the out-of-band emissions are under the permissible limits defined by ETSI, ANSI, ITU, IEC standards. The licensee will have to take all possible measures while installing its network that ensures that there is no harmful interference to other licensees' networks. The assigned spectrum must not be used to provide fixed services or any services not explicitly authorized under the license conditions. The license shall be personal to the licensee and shall not be assigned, sub-licensed to, or held on trust for another person, without the prior written approval of PTA. The 15 years' license to use the NGMS spectrum will be awarded by means of a two stage auction process. (April 3, 2017) propakistani.pk

The Ministry of Information Technology and Telecom (MoITT) has today issued Policy Directive for the Auction of Unsold Next Generation Mobile Services (NGMS). As during the 2014, auction in Pakistan, 30 MHz paired spectrum 1.9/2.1 GHz, 20 MHz paired spectrum in 1.8 GHz band and 7.38 MHz paired spectrum in 850 MHz band (only for new entrant) were put to auction. During the auction all 30 MHz paired spectrum in 1.9/2.1 GHz and 10 MHz paired spectrum in 1.8 GHz band were sold whereas a block each in 1.8 GHz and 850 MHz remained unsold. For this purpose, the Government of Pakistan has decided to auction the remaining spectrum block in coming May, 2017. Keeping in view the growing 3G and 4G subscribers rate in Pakistan i.e. 38 million users, the MoIT has issued these policy directives to conclude the remaining spectrum auction process as soon as possible. The PM Muhammad Nawaz Sharif constituted an Advisory Committee for the Auction of Next Gen-Mobile Services (NGMS). The committee based on the emerging market scenario analysis conducted by PTA, FAB and MoIT has recommended auctioning of 10 MHz paired spectrum in the 1800 MHz frequency band as a single block. Based on the recommendation of Advisory Committee, the Federal Government, has issued the following directives for the auction of NGMS: Transparent competitive auction process will be launched by PTA for assigning a single block of 10 MHz paired spectrum in the 1800 MHz band All existing cellular mobile operators as well as the new players will be eligible to participate in the auction The spectrum assignment will be technology neutral and usable for all NGMS (including 3G, 4G and advance generations) PTA will design the auction process to ensure fulfillment of the policy adjective of optimal outcome mitigating chances of collusion among bidders. The auction shall accordingly will be conducted by the PTA in minimum possible time after the issuance of this directive within the financial year 2016-17. The base price set for the 10 MHz spectrum auction is USD 295 million and payments and terms and conditions will be based on 2014 NGMS auction Information Memorandum (IM).

(March 28, 2017) phoneworld.com.pk

The Pakistan Telecommunication Authority (PTA) has issued a policy directive for the auctioning of unsold 3G and 4G frequencies, with the tender set to take place by the end of June 2017. The government has decided to sell the remaining 2x10MHz of 1800MHz as a single block, with a reserve price of US\$295 million. All of the nation's cellcos, plus any prospective new players, are eligible to participate in the auction. The concession has a 15-year duration, and will be subject to the provisions of the Telecommunication Policy 2015 with regards to quality of service (QoS), spectrum and infrastructure sharing, and national roaming. Only one of Pakistan's four major mobile providers has yet to introduce 4G services: Pakistan Telecommunications Mobile Limited (PTML), which operates under the Ufone name. China Mobile Pakistan (CMPak, operating under the Zong brand) was the only cellco to purchase 1800MHz 4G spectrum in the April 2014 tender and launched an LTE network in September that year, whilst Telenor snapped up 850MHz band frequencies in June 2016 and inaugurated a rival platform in September 2016. Mobilink, meanwhile, is entering the 4G market through its ongoing merger with Warid, which was granted permission in 2014 to use its existing 1800MHz spectrum to offer LTE services. (March 29, 2017) telegeography.com

Pakistan Telecommunication Authority (PTA) has set up Rs. 1 million initial license fee for Third Party Service Providers (TPSP) who will be playing the role of a bridge between telecom operators and banks for providing advanced mobile banking services throughout the country. Pakistan Telecommunication Authority (PTA) offered the long awaited Third Party Service Providers (TPSP) licenses in the mobile-banking sector of the country by inviting applications from interested companies for a 10 year license. In the Information Memorandum issued, the authority said that Initial License Fee (ILF) of Rs. 1,000,000/- (Pak Rupees one million) shall be paid within 15 days of the intimation letter from PTA to issue TPSP license. The Annual License Fee (ALF), equivalent to 0.5% of the Licensee's annual gross revenue from Licensed Services, will be paid annually by service providers. Each Applicant will also be required to submit along with its application a non-refundable processing fee of Rs. 50,000/- in the form of PO/DD in favor of "Pakistan Telecommunication Authority". Licenses will be granted within 15 days of having received payment of Initial License Fee in line with the IM.

Technical Requirements for TPSP

The licensee should be capable of switching and routing all interbank Wallet to Wallet and Wallet to bank account fund transfers from BB Issuer to BB Acquirer through an Authorized PSO which will be responsible for clearing and providing day-end report(s) for reconciliation. However, settlement will be done at SBP as per existing mechanism. On the other hand, TPSP will be maintaining logs of routed transactions, security and privacy of information passing through its systems and providing high

quality of service, availability of resources, network redundancy, security/secretcy, authenticity and non-repudiations of financial and technical transactions in addition to all such requirements set out in the Regulations for the Implementation of Mobile Banking, 2016 and Regulations for Mobile Banking Interoperability. The licensee shall also set up unified USSD channel platform to open and access mobile account(s) offered by any of branchless banking provider of his choice e.g. Asaan Mobile Account (AMA), accessible to subscribers of all cellular mobile operators and facilitation for any-to-any model. The TPSP should also integrate itself with NADRA for real-time verification of customer credentials to facilitate account opening. TPSP license authorizes the licensee to establish, maintain and operate for the provision of Financial and Applications Service Provider and permits the channeling, routing, and switching transactions for branchless/mobile banking only under Service Level Agreement (s) between financial institution (bank), cellular mobile operator(s) and TPSP(s). The TPSP License shall be granted on nationwide basis for the whole of Pakistan excluding Azad Jammu & Kashmir (AJ&K) and Gilgit Baltistan (GB). Mobile-banking is an emerging sector which is being regulated by Pakistan Telecommunication Authority (PTA) and State Bank of Pakistan (SBP). After due diligence process, the PTA – SBP Joint Regulatory Committee will assess the applications in the light of technical, financial and regulatory requirements. Pursuant to Joint Regulatory Committee decision, PTA shall issue TPSP License (s) to the successful applicants. Thereafter, authorization and approval for commercial launch will be issued as per process. PTA reserves the right to modify, amend, supplement, cancel, annul or replace any or all of the TPSP licensing process at any stage without incurring any liability to the affected applicants or any obligations. Subject to the above, PTA shall issue TPSP License (s) to the successful applicant (s). The Licensee shall deliver to the Authority an unconditional, irrevocable and continuing Performance Bond of Rs 10 million in the shape of Bank Guarantees from a local bank in Pakistan with credit rating of AA+ and above, or a foreign bank having credit rating of A1 and above, on a format acceptable to the Authority in respect of its minimum rollout. State Bank of Pakistan (SBP) set up a requirement of Rs. 200 million for paid-up capital for Third Party Service Providers (TPSPs) in March 2016. The banking regulatory also made it mandatory for TPSPs to maintain at all times at least ten percent (10%) of the required capital or any other amount prescribed by SBP from time to time, as security deposit at the central bank. Five percent (5%) of the security deposit will be kept in a non-remunerative current account with the SBP Banking Service Corporation Office and five percent (5%) in the form of Government securities to be kept under lien at the same department. TPSPs will have to invest in additional millions on infrastructure besides fulfilling the paid-up requirements of the central bank as per regulations rolled out jointly by State Bank of Pakistan and Pakistan Telecommunication Authority (PTA) on Mobile Banking Interoperability 2016.

(April 5, 2017) propakistani.pk



Qatar

The Communications Regulatory Authority (CRA) in 2016 met full and diverse range radiocommunication spectrum needs for the State of Qatar issuing a total of 4,059 (up by 145% from 1,654 licenses in 2015) spectrum licenses during the year. The number of frequencies assigned also increased significantly to 2,538 (up by 117% from 1,167 in 2015). Type approval certificates issued for radio and telecommunications terminal equipment (RTTE) remained relatively unchanged at 1,114 (from 1,212 in 2015). In 2016 CRA also finalized the National Frequency Allocation Plan (NFAP) with appropriate consideration to planning of projects in sectors that are critical to Qatar's economy. NFAP is a comprehensive frequency allocation document that provides a transparent, non-discriminatory and predictable approach to spectrum management and to reserve appropriate spectrum for future innovative technologies. It also integrates planning of new mobile broadband technologies, public protection & disaster relief measures, unmanned aircraft systems, global flight tracking, maritime safety, amateur radio. "We were very busy last year in all matters relating to the management of frequencies in Qatar, as the figures indicate, there is rapidly growing demand for Spectrum across the nation. Radio Spectrum a fundamental, finite and valuable national resource and its careful management is critical to the smooth running not only of major global events taking place in Qatar but everything from Information & Communications Technology (ICT) and other nationally important sectors, as the effective management of this scarce resource ultimately impacts the country's GDP," said His Excellency Mohammed Ali Al-Mannai, President of CRA. CRA received 84 spectrum interference cases and conducted 11 investigations of quality of service relating to the complaints received during 2016. Furthermore CRA conducted two routine inspections of shops selling radio and telecommunication equipment and a total of 79 violation notices were issued for using or selling equipment without valid licenses. CRA's inspection team visited a total of 195 stores during the year, targeting popular locations for sale of communication equipment including malls, souks, commercial areas, as well as neighborhood grocery stores. In 2016, CRA proposal to reduce the annual license fees for VHF Radio for small ships, and dual-band radio for hunting was approved by the Cabinet, thereby reducing the fee for the above from QAR 500 to QAR 100 per year. CRA issued 363 import of authorization licenses and received 24,670 custom clearance applications last year. As of the beginning of the 2016 the CRA started providing authorizations for import of telecommunications and radio equipment to businesses through the Qatar Government Portal – 'Hukoomi'. The Communications Regulatory Authority (CRA) is the communications regulator in the state of Qatar established by virtue of Emiri Decree (42) in 2014. CRA regulates the communications & information technology and postal sectors, and access to digital media. (April 17, 2017) cra.gov.qa

As part of its mandate to monitor the markets in the State of Qatar, the Communications Regulatory Authority (CRA) has conducted an assessment of the telecommunications sector

for FY 2016. The assessment shows that the sector contributed 1.7% to Qatar's GDP (up from 1.3% in 2014) towards effective diversification of the economy. The telecommunications market also saw investments of around QAR 1.25 billion (12% of service providers' annual revenues) towards development of infrastructure and services, and in preparation for future technologies. The assessment confirms that the consumers benefited from competition in the mobile market. However, there is a distinct lack of competition in the fixed market. It is also evident that the service providers continue to diversify in providing innovative services and products, adapting new business models paving the way to a truly digital economy. Market revenues remain unchanged compared to 2015 (around QAR 10b), a sign that the mobile telecommunication market in Qatar have matured. This is due to an effective competition framework implementation in the mobile market and a different population mix. The service providers are also diversifying their revenue streams into associated activities, such as handset and equipment sale, data center activities, IP-TV, etc., accounted for 22% of their revenues in 2016 (up from around 19% in 2014). "The ICT sector in Qatar continues to make a valuable contribution to the national economy and we are now seeing a mature market develop. Service providers are adapting well to this macro change by diversifying their businesses and becoming more efficient. This is positive for consumers as the impact of competition in the mobile market has reduced prices and increased the range and quality of services that are available, said His Excellency Mohammed Ali Al-Mannai, President of CRA. "CRA is pleased to see service providers investing part of revenues for future growth, innovation and demand. These developments are in-line with the CRA's mission to foster a sustainable marketplace and improve consumers experience. CRA is now working expediently to avail the benefits of competition for all consumers in the fixed line market," he added.

Mobile Market

Qatar has one of the highest penetration rates in the whole MENA Region of 176% behind only the UAE and Bahrain. However, the overall mobile penetration decline by 8% from 2015 can be attributed to a changing population mix, deactivated SIM cards as well as SIM cancellations because of noncompliance with the registration process. The service provider's ARPU ('average revenue per user') in Qatar remains the highest in the Ooredoo and Vodafone Group. Compared to Q4 2015 Ooredoo's ARPU increased slightly, whereas Vodafone's has slightly decreased. Overall, the Qatari market remains highly dependent on 'pre-paid' consumers, which account for 83% of the subscriptions.

Fixed Line Markets and Internet

Fixed line network development in Qatar is dominated by Ooredoo, and 99% of Qatar's households are in areas covered by a fiber optic network. Ooredoo's market share remains stable with around 97%. According to Qatar's ICT Landscape 2015: Households and Individuals (MoTC) 86% of the households have fixed wired broadband network. With a nationwide fiber

optic network consumers can enjoy a high service speed. 90% of the consumers are on packages of 10 Mbps and above (up from 72% at the end of 2014). The number of "double play" consumers (i.e., subscribing to voice and broadband services) increased by almost 10% in 2016 while the number of 'triple

play' consumers (i.e. subscribing to voice, broadband and IP-TV services) increased by almost 20% in the same period. These figures indicate consumers are becoming more sophisticated in their services consumption. This evolution will, in the medium term, help to increase the service providers' revenues.

(April 5, 2017) cra.gov.qa



The Communication and Information Technology Commission (CITC) announced that it has controlled 900,000 internet links and blocked 68 percent of them. About 92 percent of the blocked links had pornographic content, with at least 1,300 links being harmful to children. The CITC is now working on a Parental Control System that allows parents to control the content that their children access. (April 18, 2017) telecompaper.com

In order to provide a developed ICT services with high quality, to improve the experience of ICT users in line with the latest developments in this vital sector, and to promote fair competition and to protect the public interest and the interests of users and investors, CITC has published a Public Consultation

document on the updated Quality of Service Framework and invites all members of the public, including individuals, public organizations and commercial entities (together, the "Participants") to participate in this process. In order to provide structure to the process, the consultation includes a series of questions. Participants are invited to provide their views also answers to these questions along with any related comments. CITC encourages Participants to support their comments with relevant data, analysis, benchmarking studies and information. CITC is under no obligation to adopt the comments of any Participant. All comments must be received by CITC no later than June 4, 2017.

(April 6, 2017) citc.gov.sa

Saudi Arabia



The National Telecommunication Corporation (NTC) has awarded Canar Telecommunication Company (Canar) a 2.3GHz spectrum license to enable the fixed line operator to roll out a time division duplex LTE (TD-LTE) network. In an announcement on its website, Canar said it would launch 4G data services for residential and SME customers using the new frequencies in the near future. In August 2016 Emirates Telecommunications Corporation (Etisalat) completed the sale of its 92.3% stake in

Canar to the Bank of Khartoum for AED349.6 million (USD95.2 million). Earlier that year, the UAE telecoms firm had signed a share purchase agreement with Kuwait-based Zain Group for its Canar stake, but one month later Etisalat revealed that the Bank of Khartoum, which already held a 3.7% stake in the Sudanese telco, had exercised its right of first refusal regarding the sale to Zain Group. (April 4, 2017) telegeography.com

Sudan



Data released by Turkish Telecommunications Authority BTK shows that 4.5G attracted great interest since it was introduced on April 1, 2016 and was used by 51.6 million subscribers at the end of the year. The authority said this is an important achievement considering that the total number of mobile subscribers is 75 million. Active 4.5G subscriptions

reached 19.2 million at the end of 2016. The number of mobile broadband subscribers eventually reached 51.7 million, of whom 32.8 million are 4.5G. BTK said that the country's total 4.5G investments reached TRY 1.561 billion.

(April 5, 2017) telecompaper.com

Turkey



Telecommunications Regulatory Authority (TRA) has signed an agreement with the Department of Economic Development of Dubai (DED) to enhance cooperation and coordination efforts for joint national indicators of the Network Readiness Index

(NRI). The cooperation aims at implementing national agenda objectives to achieve a sustainable environment and integrated infrastructure. (April 17, 2017) telecompaper.com

United Arab Emirates

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



Australia

Vodafone Hutchison Australia and fixed-line provider TPG Internet secured blocks of 700MHz spectrum auctioned by Australian regulator ACMA, which raised a total of AUD1.5 billion (\$824 million). The result means TPG will now have enough spectrum to build-out its own mobile network and become the country's fourth mobile operator. Although primarily known for its fixed operation in the country, which counts more than 2 million customers, TPG also operates a Vodafone-hosted MVNO with a base of 500,000. In December 2016, TPG secured a license to launch mobile services in Singapore. In a statement to investors made shortly after the results of the auction were announced, TPG said it would invest AUD1.9 billion to launch a mobile network across Australia – a figure which included the cost of the spectrum. TPG executive chairman and CEO David Teoh said: "We are delighted to now have the ability to maximize for our shareholders the value of the infrastructure that has been built with their investment over many years." "That is because the same fiber network infrastructure that is today the core of our fixed retail telecommunications business, and which is used to deliver leading value services to our corporate and wholesale customers across the country, will now also be the cornerstone of our national mobile network." The company plans an incremental rollout of its mobile operation over the next two to three years, with trials scheduled for 2018. The auction for Australia's last blocks of 700MHz spectrum, which were unsold after the regulator's 2013 sale, raised 75 per cent more than the ACMA reserve price. TPG paid AUD1.26 billion for two blocks of 10MHz, and Vodafone Hutchison contributed AUD285 million for two blocks of 5MHz. Market leader Telstra was barred from participating in the auction as ACMA was

concerned a winning bid would increase the operator's dominance. According to GSMA Intelligence figures, at the end of Q4 2016 Telstra led the market with 16.1 million connections, excluding M2M, with Opus second on 9.6 million, and Vodafone Hutchison third with 5.6 million. (April 12, 2017) mobileworldlive.com

The Australian Competition and Consumer Commission (ACCC) has welcomed an announcement by the Federal Government, which has said it will fund a new broadband performance monitoring programme 'to provide Australian consumers with accurate and independent information about broadband speeds'. According to the ACCC, the programme will perform remote testing of around 4,000 households to determine typical speeds for services offered over the National Broadband Network (NBN) at various times throughout the day. In addition, a small number of households connected to alternative, 'NBN-like' networks and legacy networks will also be recruited, to allow the programme to provide a broader view of the state of broadband performance in Australia. It will cost around AUD7 million (USD5.3 million) to deliver the programme over a four-year period. After appointing a qualified testing provider, the regulator has said it expects to commence the monitoring scheme in May 2017, with comparative information for consumers expected to be provided in the second half of the year. ACCC chairman Rod Sims said of the plans: 'The programme will ... allow the ACCC to determine if issues are being caused by the performance of the NBN, or by ISPs not buying sufficient capacity. It will also provide ISPs with independent performance information from which to draw when making speed claims.'

(April 7, 2017) telegeography.com



Azerbaijan

In 2016 the National Television and Radio Council (NTRC) issued licenses to 14 companies delivering television programming over the Internet, the head of NTRC legal and international affairs department, Nemat Javadov, told. He noted that NTRC is interested in the development of IPTV (Internet Protocol Television) which is a new sphere of broadcasting. Javadov added that the Council is receiving appeals regarding licenses for IPTV. "Under the decision of the chairman, the Council holds meeting after receiving appeals from three or four companies. Council members pass a decision on issuance of the

licenses," he added. The department head said the list of documents needed for licenses over IPTV has been diminished. "By submitting five or six documents, IP televisions are given a license. Whoever wants to engage in IP television activities must request it from the National Television and Radio Council," he said. Javadov added that the license costs AZN 1,500 and are given permanently. Earlier, the NTRC said that some companies including Garakhan LLC, Metronet LLC, Bakikhanov LLC and Aytaj LLC engage in IP television activities illegally.

(April 19, 2017) en.apa.az



Canada

The Canadian Radio-television and Telecommunications Commission (CRTC) issued its latest judgement upholding the principles of net neutrality, ruling that cableco/mobile operator Videotron must desist from offering unlimited online music streaming from Spotify, Google Music and other selected providers to its wireless customers without it counting against their data allowances (a practice known as zero-rating) by 19 July. Quebec-based Videotron argued that the decision would prevent it – as a 'new entrant' – from differentiating its services

from established mobile operators. The CRTC's ruling added that all data delivered online should be treated equally by internet service providers, although the regulator did not issue a blanket ban on zero-rating, and will continue to examine operators' online content promotions and packages on a case-by-case basis. The CRTC had previously ordered Bell Canada and Videotron to cease offering mobile TV packages which fell foul of its net neutrality guidelines. (April 21, 2017) reuters.com



China

China's RAN and packet core infrastructure market is expected to show a CAGR of -34% in 2016-2021, predicted IHS Markit this week, as the country's mobile operators complete their huge LTE deployments. The research firm said 2G/3G/LTE infrastructure spending came in at \$12 billion (€11.26 billion) in 2016, down 9% on 2015. "LTE revenue declined to about \$10 billion (-4% year-over-year) in 2016, sustained by flat eNodeB rollouts, and leaving combined 2G and 3G revenue at less than \$2 billion," IHS Markit said. The company said the network-sharing joint venture between China Mobile, China Unicom and China Telecom drove a 16% decline in LTE infrastructure spending. IHS Markit anticipates a double-digit decline in the mobile network market in 2017. China's telcos have been rapidly rolling out 4G coverage over the last few years. Market leader China Mobile deployed 400,000 4G base stations last year, bringing its total to 1.51 million. Its 4G network covers a population of more than 1.3 billion. According to IHS Markit, large-scale coverage rollouts are now coming to an end in China. It said the country boasted 1.3

billion subscribers at the end of last year, 58% of whom have LTE connections, up from 32% in 2015. (April 18, 2017) totaltele.com

Chinese consumers' uptake of 4G services showed no sign of decelerating in the first two months of 2017, as the big three Operators added 45 million 4G connections to take their total to 807 million. Market leader China Mobile added 24 million 4G users in January and February taking its total to 559 million, while China Unicom picked up 11 million (total of 116 million) and China Telecom signed up 10 million 4G subs (132 million). The country's 4G penetration stood at nearly 61 per cent. The three Chinese state-owned operators' revenue increased 4.6 per cent to CNY149.2 billion (\$21.7 billion) in the first two months of 2017, C114.net reported. Total voice minutes fell 4.8 per cent in the January-February period, and SMS volume dropped 3.4 per cent. China accounted for 40 per cent of some 2 billion global 4G connections at end-March, according to GSMA Intelligence.

(April 5, 2017) mobileworldlive.com



Columbia

The Ministry of Information Technology and Communications (Ministerio de Tecnologías de la Información y las Comunicaciones, MinTIC) published Resolution 585 of 2017 on March 24, inviting interested parties to express their interest in its planned auction of frequencies in the 700MHz and 1900MHz bands. The auction will primarily comprise

sub-1GHz 'low band' spectrum in the 703MHz-748MHz and 758MHz-803MHz bands, alongside a supplementary 2x 2.5MHz block of 1900MHz spectrum, made up of frequencies in the 1865MHz-1867.5MHz/1945MHz-1947.5MHz bands.

(March 28, 2017) telegeography.com



Costa Rica

The Superintendency of Telecommunications (Sutel) has further delayed its auction of spectrum in the 1800MHz and 1900MHz/2100MHz bands without stating a reason for the postponement. The regulator has pushed back the deadline for the submission of technical offers to May 11, having previously delayed the process from February 13 to March 30 for 'administrative' reasons before pushing the date back to 20 April. Sutel is auctioning 2x20MHz in the 1800MHz band and a 2x15MHz block in the

1900MHz/2100MHz band with the aims of improving service quality and avoiding concentration of spectrum resources. As such, state-owned incumbent Kolbi is understood to be barred from participating in the auction due to the extent of its existing spectrum holdings, whilst a potential new entrant in the form of Millicom International Cellular (MIC)-backed cableco Tigo Star has reportedly expressed an interest in bidding for the spectrum.

(April 20, 2017) telegeography.com



Cote d'Ivoire

The Regulatory Authority for Telecommunications in Cote d'Ivoire (ARTCI) has opened a tender to find a company to run its mobile number portability (MNP) system. The regulator is looking to implement MNP by the end of 2017 and has told local cellcos Orange, MTN and Moov to prepare their back-office systems

in anticipation of its launch. The ARTCI is hoping that the introduction of MNP will encourage operators to improve their quality of service (QoS) in an effort to dissuade customers from switching their network provider.

(April 7, 2017) [telegeography.com](#)



Greece

The government's privatization agency TAIPED has begun the search for an adviser to assist with the sale of a 5% stake in national telecoms operator OTE Group, which provides fixed and mobile services under the Cosmote brand. The government has agreed to halve its 10% interest in OTE Group as part of the conditions of Greece's international bailout. The

group is currently 40%-owned by Deutsche Telekom (DT) of Germany, and there has been speculation that DT could buy the state's shares to increase its own interest to 45%. Alongside its domestic interests, OTE Group is also active in Romania and Albania.

(April 7, 2017) [telegeography.com](#)



Guyana

The Ministry of Public Telecommunications has weighed-in on a long-standing dispute between fixed line monopolist Guyana Telephone and Telegraph (GTT) and mobile operator Digicel Guyana over allegations that the latter has been carrying out illegal international transmission of voice and data traffic via a link with Suriname. GTT, which also holds a monopoly on international voice and data transmission, has accused Digicel of 'illegal, unlicensed' cross-border communications, claiming that such activity has cost the company between USD40 million and USD50 million whilst state coffers have been denied an estimated USD30 million through unpaid fees. GTT has called for a full probe into Digicel's alleged illegal operations, its license and the possible impact on Guyana's economy. The request has backfired somewhat, however, with the Ministry of Public Telecommunications highlighting possible quality of service (QoS) problems the nation could face if it is

forced to rely solely on GTT's international links. In a statement, the ministry invited GTT to submit proof that the company has sufficient network capacity to serve Guyana's needs if Digicel's link with Suriname is cut off. The ministry added that it was not 'in any way eager to condone' Digicel's alleged infractions, but noted that it must find a resolution that will be in the best interest of the people of Guyana. Consequently, the government's decision would depend on 'whether GTT has sufficient data capacity to meet the needs of the market and the degree of congestion on its network.' The ministry went on to explain: 'While the government is committed to ensuring that applicable license terms and conditions are honored, we must similarly ensure that relevant obligations in the licenses that provide for adequate service are met, and also that the needs of the people are met.'

(March 27, 2017) [Demerara Waves](#)



Iceland

The telecoms watchdog the Post and Telecom Administration (PTA) has launched an auction for LTE-suitable frequencies in the 700MHz, 800MHz, 2100MHz and 2600MHz bands. All interested parties were invited to submit their applications by May 2, with the auction set to be held on May 22.

The regulator is selling off twelve blocks of technology-neutral spectrum as follows:

- Block A (with 15-year validity): 2×10MHz (713MHz-723MHz/768MHz-778MHz), with a minimum bid of ISK35.0 million (USD305,000)
- Block B (15 years): 2×10MHz (723MHz-733MHz/778MHz-788MHz), ISK35.0 million
- Block C2 (15 years): 2×5MHz (832MHz-837MHz/791MHz-796MHz), ISK35.0 million
- Block D2 (15 years): 2×5MHz (837MHz-842MHz/796MHz-801MHz), ISK35.0 million

- Block E (five years): 2×5MHz (1935MHz-1940MHz/2125MHz-2130MHz), ISK5.5 million
- Block F (five years): 2×5MHz (1970MHz-1975MHz/2160MHz-2165MHz), ISK5.5 million
- Block G (five years): 2×5MHz (1975MHz-1980MHz/2165MHz-2170MHz), ISK5.5 million
- Block H (ten years): 2×20MHz (2500MHz-2520MHz/2620MHz-2640MHz), ISK10.0 million
- Block I (ten years): 2×20MHz (2520MHz-2540MHz/2640MHz-2660MHz), ISK10.0 million
- Block J (ten years): 2×10MHz (2540MHz-2550MHz/2670MHz-2680MHz), ISK5.0 million
- Block K (ten years): 2×10MHz (2550MHz-2560MHz/2670MHz-2680MHz), ISK5.0 million
- Block L (ten years): 2×10MHz (2560MHz-2570MHz/2680MHz-2690MHz), ISK5.0 million.

Blocks A, B, C2 and D2 will come with a number of

rollout obligations. Successful bidders with previously assigned frequencies in those bands will be required to offer mobile broadband services with download speeds of 10Mbps to 95% of the Icelandic population by the end of 2018, while downlink of 50Mbps must be offered to 99% of the population by December 2022.

New entrants, meanwhile, must offer downlink of 10Mbps to 60% of population by September 1, 2018, while download speeds of 50Mbps must be available to 99% of population by end-2023.

(April 13, 2017) telegeography.com



India

India's Department of Telecommunications (DoT) has set the ball rolling for the country's next spectrum auction, which will include frequencies compatible with 2G, 4G and potential 5G technologies. The DoT has written to the Telecom Regulatory Authority of India (TRAI), asking the agency to set reserve price and determine band size and quantum of spectrum for the sale of frequencies in the 700MHz, 800MHz, 1800MHz, 2300MHz, 2500MHz and 3400MHz-3600MHz ranges. Whilst the DoT hopes to make 3400MHz-3600MHz airwaves available for 5G services, the official noted that some of the spectrum in the band is currently being used by the country's space programme. During India's last spectrum auction – held in October last year – cellcos paid out a total of INR658 billion (USD9.9 billion) for 964.8MHz of spectrum, though this represented less than half of the 2,300MHz of spectrum that was put up for sale. Indeed, despite the tender featuring frequencies in the sought-after 700MHz range for the first time, none of the participating bidders entered an offer for spectrum in the band, citing the high reserve prices: the frequencies carried a floor price of INR574 billion for 2x5MHz of pan-India spectrum.

(April 21, 2017) The Economic Times

The Telecom Regulatory Authority of India (TRAI) has launched a pilot project in Deoghar in Jharkhand as a proof of concept for a common duct policy. The policy aims to reduce operational costs, eliminate Right of Way (RoW) issues and cut down on the disruption caused by the frequent digging up of roads for fiber installation. The Hindu quotes TRAI chairman RS Sharma as saying: 'We are talking about a common duct for all. Any service provider who enters a city digs up the city ... [Instead] we can make a common duct, and whichever entity wants to offer services can use that duct to pass their fiber.' Once the pilot in Deoghar has been completed, the TRAI will 'come to a conclusion on whether such a proposal is replicable in other larger and smaller cities,' Mr. Sharma added. The official went on to say that the success of the tower sharing policy had proved that common shared infrastructure is effective, dispelling the 'myth' that service providers needed to own their entire network.

(April 19, 2017) telegeography.com

Indian government has seen a steep decline in license fees and spectrum usage charges in the first three quarters of the current financial year (ending March 31, 2017) Telecom Minister Manoj Sinha told the

Rajya Sabha – the upper house of India's parliament – in response to questions regarding the health of the sector. Mr. Sinha said that license fee collections fell to INR34.5 billion (USD531 million) in the October-December period (fiscal Q3) from INR39.8 billion in the first quarter, whilst spectrum usage charges dropped by 22% to INR15.5 billion over the same period. The official attributed the fall in government in revenue to the tariff war sparked by the free promotional offers introduced by newcomer Reliance Jio Infocomm (Jio) in September 2016. When asked about the rules governing such promotions, Mr. Sinha explained that the offers are limited to a 90-day duration, adding that the Telecom Regulatory Authority of India (TRAI) floated a consultation paper on the principals of tariff assessment in February this year, and may choose to alter the guidelines after reviewing the responses. On a more positive note, the minister informed the government that there had been a reduction in dropped calls after the nation's cellcos installed a combined total of 325,000 new base stations between July 2015 and February 2017. The matter was a bone of contention between regulators and operators in late 2015/early 2016, with authorities attempting – unsuccessfully – to impose automatic financial penalties on providers for dropping calls. Regarding the ongoing process of consolidation in the market, meanwhile, Mr. Sinha explained that the mergers of Bharti Airtel and Telenor India, Idea Cellular and Vodafone India, and Reliance Communications (RCOM), its subsidiary Reliance Telecom (RTL) and Aircel, were all under consideration and had yet to be approved by the National Company Law Tribunal. However, he remained confident that there would be sufficient competition in the market post-consolidation, as there are expected to be six operators left in each of India's regional telecoms operating circles. (March 30, 2017) The Economic Times

India's mobile operators face a hefty bill over the next 12 months in order to comply with a recent government order to verify the identity of their customers, according to local press reports that put the total bill at in excess of €140 million. India's longest established operators will be hardest hit, while recent market entrant Reliance Jio Infocomm is unlikely to feel the pinch since most of its customers were added after the country introduced its Aadhaar biometric identification system last summer, the Economic Times reported late last week. The Department of Telecommunications (DoT) on Thursday instructed

Indian telcos to advise their customers through print and electronic advertising as well as SMS that they will be required to take part in a re-verification exercise, the paper said. The DoT's instruction comes in the wake of a Supreme Court order in early February that requires mobile users to be re-verified under the Aadhaar scheme. Aadhaar, which works by issuing an identity card with a 12-digit code to Indian citizens, came into force in July last year. In short, the re-verification process will see customers contacted by SMS to ensure that each SIM is in the hands of the person it is registered to, and will mean that only mobile users with Aadhaar cards will be able to possess a mobile number. Since the process will affect the majority of India's mobile customers – there were 1.13 billion of them at the end of last year, according to the Telecom Regulatory Authority of India (TRAI) – it will be a costly affair. According

to industry body the Cellular Operators Association of India (COAI), it could cost upwards of 10 billion rupees (€141 million), factoring in training, hardware acquisition and set-up costs, according to the paper. The bill will be shouldered by those with the largest and longest-established customer bases. The TRAI's year-end numbers show that Bharti Airtel remains India's biggest mobile operators with 265.85 million customers and a 23.6% share of the market, while Vodafone comes in second with 204.69 million/18.2% and Idea Cellular in third with 190.52 million/16.9%. Market disruptor Reliance Jio Infocomm, which had amassed 72.16 million customers and a 6.4% market share by end-2016, will be largely unaffected, the Economic Times noted, since most of its customers were signed up under the Aadhaar scheme. The telcos have until February 6, 2018 to comply with the court order. (March 27, 2017) totaltele.com



ITU

ITU has established a new Focus Group to research data processing and management in the context of smart cities. The group is open to participation by any interested party, leading a consultation process to identify the aspects of data management to benefit from ITU standardization. The integration of information and communication technologies (ICTs)

into city systems will map these systems in the virtual world, improving our understanding of how complex city ecosystems behave. Efficient data management will yield new insight into where public and private-sector innovation could spur environmentally sustainable growth in our cities.

(March 30, 2017) ITU



Kenya

According to the Communications Authority of Kenya (CA), the East African nation ended 2016 with a total of 38.98 million mobile subscribers, an increase of 3.4% from 37.71 million twelve months earlier. Safaricom accounted for the majority of total wireless customers (27.74 million) at end-December 2016, followed by Airtel Kenya with 6.85 million and Telkom Kenya with 2.89 million. The market's two MVNOs, Finserve Africa (Equitel) and Sema Mobile, accounted for 1.49 million and 270 customers, respectively. Mobile data subscriptions rose from 23.79 million at the end of 2015 to 26.52 million twelve months later, with growth attributed to the increased affordability of smartphones and data bundles offered by service

providers. Safaricom accounted for 67.5% of total mobile data subscriptions, followed by Airtel with 19.7%, Telkom with 7.1% and Finserve Africa (Equitel) with 5.6%. The CA reported 158,185 fixed internet subscribers at 31 December 2016 (an increase of 17.1% from 135,107 a year earlier), including 86,139 cable modem internet users, 39,255 fiber-optic connections, 29,724 fixed-wireless data accesses, 2,483 DSL users and 584 satellite customers. Kenya ended the period under review with a total of 72,801 fixed line and fixed-wireless telephony lines in service, a decrease of 14.8% from 85,496 at the end of 2015.

(April 5, 2017) telegeography.com



Kyrgyzstan

The parliament has passed legislation mandating the launch of mobile number portability (MNP) on April 1, 2018. The amendments to the Law on Telecommunications & Postal Services were adopted at their third reading on March 30, 2017. Technical and regulatory delays meant that a previous target of launching MNP in January 2016 was scrapped, whilst operators had lobbied for relaxing the launch timetable due to the necessary capital investments on their part. Report also writes that on April 15 Kyrgyzstan

will start a one-month countdown to the shutdown of analogue TV (which will free up additional spectrum for mobile broadband services). TV channels will air prime-time warnings for viewers to obtain new digital TV receivers/antennas, with a countdown showing the time left until the proposed cut-off date in May. The digital TV transition programme began in June 2016 and has reached 95% of the population to date, costing an estimated KGS100 million (USD1.46 million). (April 11, 2017) digital.report.com



Mali

The Minister of the Digital Economy and Communication, has reportedly received authorization from the government to begin the process of awarding the country's fourth mobile network operator (MNO) license. The state approved the award of a new concession on March 24, during a cabinet meeting chaired by Prime Minister. It is understood that the government is keen to enhance competition in the mobile sector, especially as the recipient of the country's third MNO concession – Alpha Telecom Mali – has yet to launch a commercial service. In September 2012 Alpha Telecom Mali, a

joint venture between Monaco Telecom and local holding company Planor Afrique, submitted a bid of XOF55 billion (around USD106 million at that date) to secure its concession, comfortably surpassing offers from India's Bharti Airtel (XOF19.7 billion) and Vietnamese military-backed venture Viettel Corporation (XOF10.9 billion). Since then, however, it has made little progress in bringing a service to market, with financial matters – including delays in paying for its concession – having proved to be one of a number of stumbling blocks on its road to market.

(April 3, 2017) Agence Ecofin



Malta

The Malta Communications Authority (MCA) has cancelled the auction process for the award of spectrum in the 800MHz band. The regulator says that all three candidates in the bidding process – incumbent operators Vodafone Malta, GO and Melita – withdrew their applications concurrently. The MCA has not given a reason for the operators' change of heart. The MCA was looking to award 60MHz of

spectrum in the 800MHz 'digital dividend' band (791MHz-821MHz paired with 832MHz-862MHz), suitable for 4G LTE services. Vodafone and GO have already introduced LTE technology using 1800MHz and 2600MHz frequencies, while Melita has still to announce plans for a commercial 4G launch.

(March 31, 2017) telegeography.com



Mauritius

The government in partnership with Mauritius Telecom (MT) has announced the launch of 350 new free public Wi-Fi spaces in 20 locations across the island, writes Defi Media. The rollout is a continuation of the 'Wi-Fi Mauritius' project and significant new locations for the project include Port Louis, Riviere des Anguilles, Beau Bassin, Rose Hill, Bambous, Flacq and Mapou. The Wi-Fi hotspots will allow users to access

connection speeds of 2Mbps, and commenting on the launch, MT CEO Sherry Singh said: 'We can connect 200 people simultaneously within a radius of 50 metres in 350 Wi-Fi zones. The amount of data that MT will provide on a daily basis has a huge cost. But we think it's worth it because we have to help the country develop.' (April 10, 2017) telegeography.com



Montenegro

Telecoms regulator the Agency for Electronic Communications and Postal Services (EKIP) has auctioned frequencies in the 3.5GHz band to be used for fixed wireless access (WiMAX) technology. Although the public consultation drew interest from

three Montenegrin operators – Crnogorski Telekom, m:tel and Telenor Montenegro – m:tel emerged as the only participant and bidder, paying EUR77,400 (USD82,290) for the five-year license.

(April 18, 2017) telegeography.com



Netherlands

KPN has given an update on its timetable for modernizing and replacing legacy PSTN/ISDN fixed telephony network platforms and services with all-IP architecture and solutions, citing changes in customer requirements and a fixed market which is largely transferring to internet-based (VoIP) calling. Noting that the number of users of traditional telephony (ISDN/PSTN) has greatly reduced in recent years, KPN is modernizing its PSTN services based on its national IP infrastructure, whilst allowing customers to continue to use single-line PSTN functionality. KPN

will begin migrating its first 13 pilot exchanges on May 10, 2017. Customers of KPN and KPN Wholesale utilizing the operator's digital single and multiple ISDN1/ISDN2 and multiple PSTN line products will be required to migrate to broadband-based telephony solutions. From September 1, 2019 the single and multiple ISDN1/ISDN2 and multiple PSTN line retail and wholesale products will no longer be available to customers. ISDN15/ISDN20/ISDN30 products will be supported by KPN until at least January 1, 2021.

(April 19, 2017) telegeography.com



Nigeria

MTN Group has paid an additional NGN30 billion towards the settlement of a NGN330 billion (USD1.0 billion) fine handed to its Nigerian unit for failing to disconnect around 5.1 million unregistered subscribers. The latest instalment follows the NGN80 billion payment made by the South African telecoms group last year; the fine is due to be paid in six instalments over three years, with the final NGN55 billion due on May 31, 2019. MTN Nigeria, the country's largest cellco by subscribers, was initially

fined a total of NGN1.04 trillion in October 2015 for failing to disconnect around 5.1 million incompletely registered subscribers. Although the total was cut to NGN780 billion in December, MTN launched legal action against the fine later that month, before withdrawing its lawsuit in February 2016 and later agreeing to pay the federal government a total of NGN330 billion over three years, as well as list its shares on the Nigeria Stock Exchange (NSE).

(April 3, 2017) reuters.com



Poland

The Office of Electronic Communications (UKE) has opened a consultation into the potential award of spectrum in the 450MHz band which was recently returned by Orange Polska. Orange opted not to renew its concession, which it had used to offer CDMA fixed-wireless services, when the government asked for PLN115.5 million (USD28 million) to extend

its license for a further 15 years. The license on offer will include 4.5MHz of paired spectrum between 452.5125MHz-457.0125MHz and 462.5125MHz-467.0125MHz. UKE says the frequencies can be used to provide additional capacity for 4G LTE networks. It has set a reserve price of PLN56.35 million for the spectrum. (April 20, 2017) telegeography.com



Singapore

The telecoms regulator Info-communications Media Development Authority (IMDA) has successfully concluded the first stage of the General Spectrum Auction (GSA), following on from the conclusion of its New Entrant Spectrum Auction (NESA) in December 2016 – which resulted in TPG Telecom securing rights to become the fourth operator. In this latest sale process – which raised a total of SGD1.14 billion (USD816.2 million) for the government – a total of 175MHz of spectrum was split among the nation's four telcos, including the newcomer. Singtel was the biggest hitter at the auction, bidding a total of SGD563.7 million to secure a total of 75MHz of spectrum. Meanwhile, the city-state's second largest player by subscribers, StarHub, also came in second in terms of bids, buying 60MHz of spectrum for SGD349.6 million. The nation's smallest cellco, M1, offered a total of SGD208 million for 30MHz, while Aussie-backed TPG Telecom spent SGD23.8 million for 10MHz of spectrum. The bandwidth on offer in the first stage GSA includes the lucrative 900MHz spectrum band; some of the auctioned frequencies included those re-farmed from the provisioning of 2G services. The spectrum rights in the 900MHz and 2500MHz bands will commence on July 1, 2017, while those in the 700MHz band will commence on January 1, 2018 at the earliest. (April 5, 2017) telegeography.com

Singapore will pull the plug on 2G mobile services on April 1, 2017, in a bid to free up bandwidth for 3G and 4G services that better meet the needs of consumers and businesses in the city-state. The move was first announced in 2015 by the Infocomm Media Development Authority (IMDA), which had approved the request by all three Singapore telcos – Singtel, StarHub and M1 – to switch off their 2G networks.

IMDA said it took into consideration the evolving technology landscape and migration of consumers to 3G and 4G technologies, which offer more features and higher data speeds. 2G mobile services were first introduced in Singapore in 1994. By shutting down 2G networks, scarce radio frequency spectrum can be reallocated to meet increasing demand for higher-speed mobile services. The IMDA, which had stopped registering 2G mobile equipment since September 2015, said it has allocated this spectrum to mobile operators. In a statement, the IMDA and telcos urged all remaining 2G mobile users to switch to 3G or 4G handsets as soon as possible to continue using their mobile plans. 2G users will also be able to retain their numbers and subscription plan on 3G and 4G networks at no additional cost and with no re-contract. As of December 2016, there were 132,300 users of 2G services – about 1.6% of all mobile subscribers – in Singapore. It is uncertain how many have moved over to 3G and 4G services to date, though Computer Weekly understands some businesses have not made the switch. With elderly users likely to be most affected by the 2G shutdown, IMDA has encouraged seniors to sign up for courses on how to use smartphones at senior-friendly IT learning hubs located across Singapore. The country's significant migrant worker population is another affected group. IMDA said it has partnered the local telcos to ensure a range of handset models is available to meet various customer needs, ranging from basic models costing below S\$50 (US\$36) to feature-rich smartphones. Handsets with simple features similar to 2G phones that current users are familiar with are also available. Singapore is not the only country in the Asia-Pacific region to switch off its 2G networks. Technology powerhouses Japan and

South Korea had retired 2G services nearly a decade ago, while Australia will shutter 2G services by 2017. Thailand is expected to follow suit by 2019. The reliance on 2G connections in machine-to-machine (M2M) communications, however, will keep the legacy technology alive in some markets – at least until LTE connectivity becomes more widely used in the M2M space. Pauline Trotter, practice leader at technology research firm Ovum, said: “Large carrier groups with

established M2M businesses will not seek to switch off 2G until 2020 – and for some, this will not be until 2025.” However, she noted that decision is not made for the sole purpose of providing legacy support. “2G M2M connections will continue to be added, because 2G still represents the most affordable and internationally available form of coverage.”

(March 30, 2017) computerweekly.com



South Africa

South Africa's Competition Commission has decided to 'non-refer' (not to prosecute) a complaint lodged by Cell C in October 2013 against Vodacom and MTN for anti-competitive conduct, citing a lack of sufficient evidence to proceed. Cell C had alleged that Vodacom and MTN engaged in pricing strategies that made it cheaper to make on-net calls than off-net calls. In particular, Cell C complained that the price differentials applied by Vodacom and MTN prevented competition and further accused the two companies of excessive pricing, inducement and margin squeeze. Despite what it has termed a 'lengthy investigation' the Commission has found that it would be unlikely to succeed in a prosecution of the specific conduct subject to Cell C's complaint. Going forward, the Commission has conceded that there is a need to look broadly into the state of competition in the mobile telephony market in South Africa, specifically at the retail level, as the market is still dominated by two mobile market players, many years after the licensing of Cell C and Telkom Mobile. (April 20, 2017) telegeography.com

The South African government's direct and indirect shareholding in domestic network operator Telkom has reportedly dropped to below 50%. As of September 2016 (latest published data by the company), Telkom was majority-owned by the South African government, with 39.3% of its shares directly held by the Department of Telecommunications and Postal Services (DTPS), while state-owned asset manager the Public Investment Corporation (PIC) owned 11.6% of the shares. However, according to a public disclosure by the PIC on its proxy voting record, the company's shareholding in the telco dropped to 7.7185% by August 2016, down from 11.930% year-on-year, hinting that the government's combined voting stake in Telkom may have dropped to below the threshold for guaranteeing control of the company. Previously, the government had a 'golden share' in the operator, which entitled it to 'a reservation of certain rights in the control of Telkom', though it expired in 2011 (eight years after the telco was listed on the Johannesburg Stock Exchange [JSE]).

(March 27, 2017) TechCentral



Spain

The Communications Regulator CNMC has approved the deregulation of the country's market for mobile virtual network operators (MVNOs) first proposed back in July last year. In a statement, the regulator said the European Commission and Spain's industry and economic ministries had submitted no observations

on its proposal to eliminate the obligations imposed on network operators Telefonica, Vodafone and Orange to provide a “reasonable” access to their mobile infrastructure to the 30 or so MVNOs present in Spain, which have a joint market share of around 15 percent. (April 12, 2017) telecompaper.com



Sweden

The Swedish Post and Telecom Agency (Post & Telestyrelsen, PTS) has revealed that is taking steps to promote 5G development by enabling non-commercial large-scale 5G tests from 2017 onwards. The regulator will make available up to 200MHz of spectrum in the 3.4GHz-3.6MHz band and 1000MHz (24.25GHz-27.5GHz band) for 5G trials from 2017 until December 31, 2019. The PTS said that while

spectrum in the 3.4GHz-3.6GHz band is partly assigned to 98 Swedish municipalities, only a fraction of those currently utilize the frequencies; however, the regulator pointed out that it will impose geographic restrictions on the spectrum when reassigned for 5G tests (on a first-come first-served basis).

(April 4, 2017) telegeography.com



Thailand

Thailand's planned auction of spectrum for 5G services is likely to be pushed back to 2018 because of legal limitations in compensating a state enterprise for returning spectrum and the transition to new telecoms commissioners. The National Broadcasting and Telecommunications Commission (NBTC) said in December 2016 it would auction off 80MHz in the 2.6GHz band, which is owned but unused by state-owned public broadcaster MCOT, by June to prepare for the eventual rollout of 5G services in 2020. While MCOT indicated it will return 80MHz of the 190MHz of 2.6GHz spectrum it holds, it expects compensation. However, under the current telecoms act, the NBTC is not authorized to compensate a state agency for returning spectrum. An amended NBTC draft bill allowing MCOT to be compensated is expected to take effect in May. The Post quoted NBTC Commissioner Prawit Leesathapornwongsa as saying: "I strongly believe that the planned auction of 2.6GHz spectrum will not be able to take place in 2017 as scheduled, as the process of setting compensation for MCOT will take time." He said after the NBTC bill goes into effect,

new commissioners will take over in October and the transition could also cause delays. The NBTC draft bill doesn't identify how to calculate compensate for the spectrum. Prawit urged the NBTC to start the process for evaluating the value of the spectrum in order to prepare for the auction in 2018. A fortnight ago, he said a clear road map for spectrum auctions should be quickly implemented or it would discourage investments in the country's digital infrastructure. The view is shared by Thai mobile operators. Parada Theerathada, chief of corporate affairs at dtac, said in early March the country urgently needs a clear spectrum roadmap to prepare for the coming data deluge. He said an effective roadmap should include a timeline for spectrum bands to be made available, the amount of spectrum to be allocated and the duration of the mobile licenses. Without these, "spectrum in Thailand is sold in bits and pieces by a number of competing government organizations, with no long-term master plan", Parada said.

(April 3, 2017) The Bangkok Post



Uganda

The Ugandan government has announced a 30-day extension to its controversial SIM re-registration programme, after facing legal objections to its original seven-day deadline. The country's telecoms regulator, the Uganda Communications Commission (UCC), is requiring all mobile users to validate their

existing registered details using the new national ID card. The registration programme will now run until May 19, with opponents having launched legal action against the initial seven-day cut-off period, saying it would have left many legitimate users facing disconnection. (April 21, 2017) telegeography.com



Ukraine

The Supreme Economic Court of Ukraine has suspended the country's introduction of mobile number portability (MNP) until further notice, after upholding a complaint from Ukrainian IT company Dialink against the recent agreement signed between the Ukrainian State Centre of Radio Frequencies (UCRF) and the lead contractor chosen to implement the MNP database system, Kiev-based IT security solutions specialist SI Center. The latest judgement overrules previous court decisions, necessitating a new legal hearing on the matter. SI Center notes that it planned to finish the installation and configuration of the main equipment at its data center back-up site this month. The original MNP tender launched by the UCRF in September 2015 was ostensibly won by Dialink in January 2016, but the result was annulled after SI Center's appeal against the selection process was upheld by the Antimonopoly Committee of Ukraine (AMCU) two months later. SI Center won the re-run tender in April 2016. (April 18, 2017) BizLiga

Ukraine's State Property Fund (SPF) has proposed buying minority shares in nationwide fixed line provider Ukrtelecom, whilst the telco remains under threat of renationalization due to debts owed to

state banks by its parent company SCM, alongside alleged unfulfilled obligations of the operator's original privatization contract, which SCM inherited from Ukrtelecom's previous owners. The government, initially via the SPF, is now looking to become a minority shareholder in Ukrtelecom as a partial solution to the overdue debt repayment situation, and in return the SPF has proposed to cancel the terms of the original privatization contract. One highlighted condition of the contract which remains unfulfilled is an obligation for Ukrtelecom to build, and transfer to state control, a 'special communications' network for secure government departmental usage (expected to be ready in 2013, but postponed ever since). The contract terms were verified as remaining legal and binding in a February 2017 decision, and after SCM challenged the result the SPF re-examined the details and issued a follow-up ruling on 22 March that the decision stood. According to sources a likely outcome is that the government, represented by state banks, will receive a non-controlling stake of around 40% in Ukrtelecom in exchange for debt restructuring, giving SCM another few years to make repayments.

(April 3, 2017) BizLiga



United States

The Federal Communications Commission (FCC) voted to ease some regulations on the market that provides secure data lines to businesses. The proposal had drawn criticism from small business and consumer advocates, who said deregulating the market would hurt competition and drive up prices for the services. But FCC Chairman Ajit Pai, a Republican, argued that regulating prices in the market "threatens competition and investment." The measure passed on a 2-to-1 vote, with Democratic Commissioner Mignon Clyburn dissenting. Clyburn called it an "all-out assault" on the small businesses and other organizations that rely on the services. "This order is one of the worst I have seen in my more than eight years here at the commission," Clyburn said in scathing dissenting remarks. Democrats aren't the only ones expressing concerns about Pai's move. Republican members of the Arkansas Republican delegation urged the chairman to implement a transition period to allow small businesses to prepare for the possibility of rate hikes. And the European Union sent the FCC a letter outlining its concerns that the effort to deregulate the market could hurt both consumers and smaller competitors. (April 21, 2017) telegeography.com

The US telecom regulator approved Time Warner Inc's sale of broadcast station WPCH in Atlanta to Meredith Corp for \$70 million, a move designed to gain approval for Time Warner's planned merger with AT&T Inc. The approval will pave the way for speedy regulatory clearance of AT&T's proposed \$84.5-billion acquisition of US entertainment giant Time Warner. The US Federal Communications Commission (FCC) said that the application to transfer the license of WPCH was "granted, without elaborating further. FCC chairman Ajit Pai had earlier said that if AT&T's merger with Time Warner does not involve a broadcast license, then there would be no reason for his agency to step in. With the FCC out of the way, AT&T and Time Warner will have to satisfy the US Justice Department that their merger would not significantly reduce competition. In April 2016, US telecom giant AT&T struck a mega deal to buy multinational media and entertainment conglomerate Time Warner for \$85.4 billion in cash and stock, in what could be a highly-scrutinized acquisition. (See: AT&T confirms \$85.4-bn acquisition of Time Warner). The deal came less than three months after AT&T completed its \$49-billion acquisition of satellite TV provider DirecTV. New York-based Time Warner has a great portfolio of content creation and aggregation, and iconic brands across video programming and TV / film production. Time Warner's US and international cable networks include TNT, TBS, CNN, HBO, and Cartoon Network's Adult Swim, and has sports rights that include to National Basketball Association, NCAA Men's Championship Basketball Tournament, and Major League Baseball. It also owns the Warner Bros film studio, producer of the "Batman" and "Harry Potter" film franchises.

The company also owns a 10-per cent stake in video streaming site Hulu. Its film franchises include Harry Potter, DC Entertainment, and LEGO, while its TV series include The Big Bang Theory, The Voice, and Gotham. The company also owns a 10-per cent stake in video streaming site Hulu. Time Warner has been a takeover target since the past three years. In 2014, 21st Century Fox, controlled by media mogul Rupert Murdoch, withdrew its \$80-billion takeover offer after Time Warner rejected the proposal saying that it was worth more (Time Warner spurns Murdoch's \$80-bn offer). In 2015, US cable and internet provider, Comcast Corp withdrew its \$45.2-billion proposed acquisition of Time Warner's cable TV service unit, after the mega deal faced opposition from consumers and a possible veto from regulators (Comcast scraps merger agreement with Time Warner Cable). The unit was later acquired by Charter Communications for \$56 billion (Charter to acquire Time Warner Cable for \$56 bn). The AT&T-Time Warner deal will combine Time Warner's vast library of content with AT&T's pay TV subscriber base and TV, which is the world's largest, and mobile and broadband distribution. Dallas-based AT&T is the second-largest provider of mobile telephone services and the largest provider of fixed telephone services in the US. It also provides broadband subscription television services through its newly acquired DirecTV. It has TV customers in the US and 11 Latin American countries. AT&T is the world's largest telecommunications company by revenue, and the world's 17th-largest mobile telecom operator. The deal has already come under criticism from both the Republicans and the Democrats and various consumer groups since AT&T already has over 100 million subscribers across its wireless, broadband and DirecTV offerings. Lawmakers are concerned about the limitation of consumer choice since the deal will create a company that creates its own content and provides the means to deliver both its own offerings and that of its competitors. [webcache](http://webcache.com). (April 18, 2017) googleusercontent.com

The Federal Communications Commission announced the closing of the broadcast incentive auction, which created a first-of-its kind market for repurposing valuable broadcast airwaves for nationwide wireless mobile use. At \$19.8 billion in gross revenue for 70MHz of spectrum, the incentive auction is among the highest grossing auctions ever conducted by the FCC. The Commission now commences a 39-month transition period to move broadcast stations to new channel assignments. FCC Chairman Ajit Pai said, "The conclusion of the world's first incentive auction is a major milestone in the FCC's long history as steward of the nation's airwaves. Consumers are the real beneficiaries, as broadcasters invest new resources in programming and service, and additional wireless spectrum opens the way to greater competition and innovation in the mobile broadband marketplace."

Why an Incentive Auction? Today, there are more connected mobile devices than there are people living in the U.S., and about 70 percent of Americans use data-hungry smartphones. This increasing demand for wireless airwaves poses a major challenge to ensuring that America's networks have the capacity to support the critical economic, public safety, health care and other activities that rely on them. In order to meet this challenge, the FCC designed the broadcast incentive auction through close bipartisan collaboration with Congress as well as the broadcast and wireless industries. Authorized by Congress in 2012, the auction used market forces to align the use of broadcast spectrum with 21st century consumer demands for mobile video and broadband services. It preserves a robust broadcast TV industry while providing stations with revenues that they can invest into programming and services for their communities. And by making valuable "low-band" airwaves available for wireless mobile use, the incentive auction benefits consumers by easing congestion on

wireless networks, laying the groundwork for "fifth generation" (5G) wireless services and applications, and spurring economic growth. The auction began on March 29, 2016. More than \$10 billion will go to 175 winning broadcasters that elected to participate in the incentive auction and repurpose their airwaves for mobile use. Of the winners, 30 stations will receive money for agreeing to move to a lower channel and 133 others will relinquish their licenses and indicated their intent to remain on air through channel-sharing agreements with non-winning stations. The FCC also announced the new channel assignments, and effective dates of those assignments, for 957 non-winning stations that must change channels to clear the new wireless airwaves for use. The first group of stations to move channels is scheduled for November 30, 2018. Stations are required to provide 30 days' notice, and the FCC provides information for over-the-air viewers on how to "rescan" their receivers to find new channels. (April 17, 2017) telecomengine.com



Uruguay

The national telecoms operator Administracion Nacional de Telecomunicaciones (Antel) is aiming to complete the nationwide deployment of its fiber-to-the-home (FTTH) network within the next five years. The firm's President Andres Tolosa said that coverage of the high speed network currently reaches 70% of the country, but this will be expanded to 100% by 2022. The state-owned company plans to invest USD20 million in the fiber-optic rollout this year, with total spending on the FTTH network expected

to reach around USD800 million by the time it is completed. China's ZTE was selected in September 2011 to build Antel's national FTTH network and the first home was connected to the infrastructure one month later. Plans for residential users range in price from UYU320 (USD11.0) per month for the entry-level 30Mbps/4Mbps download/upload connection and 15GB of data to UYU2,040 per month for the top-end 150Mbps/12Mbps plan with 700GB of data.

(March 31, 2017) LaRed21



Zambia

Brian Mushimba, Zambia's Minister of Communications and Transport, has revealed that, working in partnership with the Zambia Information and Communications Technology Authority (ZICTA), the country has formulated a new licensing framework. The proposed framework has been designed to realign the nation's telecom sector, encourage investment, and create new jobs, while most notably it could serve as a pre-cursor to the introduction of a fourth mobile network operator (MNO). 'With this new framework in place, we shall see jobs created and the quality of service will improve and it will introduce competition and the low cost of communication that comes with it. We have cleaned up the licensing framework to unleash the potential of the industry mindful of the latest technological advancements in the sector.' Mr. Mushimba is cited as saying, noting that the new licensing regime will allow any operator of data services to acquire a permit for the delivery of VoIP-based connectivity, a move which he said means that any of the country's ISPs will be able to add voice to their existing product ranges. 'We see a very competitive market now moving forward with lots of

investment in the network expansion and backbones because a company can now take one license and based on their infrastructure, offer multiple products,' the minister added. While the Zambian authorities have long held off from issuing a new cellular concession, preferring instead to promote competition between the three existing operators – MTN Zambia, Airtel Zambia and Zamtel – it is understood that continued quality of service (QoS) issues and high prices have prompted something of a rethink. Indeed, Vodafone Zambia, which currently provides mobile broadband services over a TD-LTE network which it inaugurated in June 2016, could be the key beneficiary from the move. Just ahead of its launch, the ZICTA was keen to stress that it had not issued the company a MNO concession, confirming in early June 2016 that it was restricted to offering internet services only, as it only held a class network (wireless internet) license and a class service (internet) license. These concessions, it was noted, only allowed the operator to construct a data network and to provide data services to the public. Now, however, under the revised licensing regime Vodafone Zambia would be able to offer voice

over its LTE network, subject to acquiring a permit to offer VoIP. Unsurprisingly perhaps, Vodafone Zambia has welcomed the government's plan to modernize the country's telecoms sector by introducing the updated framework, with the Lusaka Times citing the operator's CEO Lars Stork as saying: 'We applaud Cabinet, particularly the Ministry of Transport and Communication under the leadership of Hon. Brian Mushimba, for this step. As Vodafone Zambia, we are excited about what this means for Zambian consumers who will soon have a multiplicity of communication options best suited to their needs. We are convinced that this decision will open the door for innovation, leading to excellence in service delivery.' (April 19, 2017) iTWeb Africa

A sale of Zambia Telecommunications Company (Zamtel) is reportedly no longer a condition of the USD1.3 billion loan which the country is seeking to support its economic recovery programme. The stipulation that the fixed line incumbent should be sold by the state had been made by the International Monetary Fund (IMF) after Zambia applied for the loan. However, a recent statement by IMF team leader Tsidi Tsikata was said to feature a list of conditions that the country will still have to fulfil to gain approval for the financial support, but the Zamtel sale was conspicuous by its absence. In separate but related news, ITWeb Africa also reports that Zamtel has

confirmed exceeding a 1.5 million subscriber target (believed to relate to its mobile voice operations), with a goal of passing the two million milestone by the end of this year. Acting Zamtel CEO Sydney Mupeta was cited as saying that the company's growth had come as a result of the financial support the company is receiving from its current owner, state-owned Industrial Development Corporation (IDC), as well as from the Ministry of Communications and Transport and the Ministry of Finance. According to Mupeta, the operator's success has also been attributed in part to the recent launch of its 'All Networks' tariff, which allows customers to call subscribers on other networks cheaply. With a view to supporting future growth and boosting accessibility in both rural and urban areas, Mupeta confirmed that Zamtel is looking to roll out new infrastructure, saying: 'To grow [our] data customer [base], in the last three years we rolled out an additional 543 3G sites and we have started rolling out 4G sites to enable Zamtel network ultra-high speed data services. This is in addition to many 2G and 3G sites that will be dotted across the country.' Zamtel is understood to have teamed up with Huawei to allow its 3G network to handle more traffic, and here, it has been confirmed that upgrade works have now been completed from Kitwe to Chililabombwe, while equipment for the rest of the country is still being manufactured by the Chinese vendor.

(March 30, 2017) ITWeb Africa



Zimbabwe

POTRAZ, the telecoms regulator, has released a new set of guidelines for promotions by mobile network operators and internet providers in Zimbabwe. The new guidelines are apparently meant to limit the damaging effects of price wars. POTRAZ has also set some guidelines on advertising to prevent mobile operators and internet providers from attacking each other in adverts. The new guidelines follow the POTRAZ chairman's announcement in February that the regulator was working on a new framework to govern promos, itself following a sudden suspension of all promos by MNOs in August 2016. There has been quite intense competition between the 3 mobile operators in Zimbabwe for a few years now as they fight to keep their customers. NetOne for example, has been suspected of running an unprofitable OneFusion promo. It's not just the mobile operators, fixed internet providers are engaged in fierce competition too, most notably TelOne (government owned) and ZOL (Econet owned). Recently for example ZOL announced new packages priced low enough the competition has had to start working out a cheaper offering. Another large internet provider, Dandemutande, has been consolidating presumably in preparation to shake the market with competitively great prices and products. Such competition is great for consumers of course.

POTRAZ is worried however that the players will, at worst, fight each other into the ground or, at best, that one or two players with deep pockets might price the competition out of business so they can enjoy the spoils all by themselves. The new guidelines also have provisions designed to protect customers from bad promos. Some key points of the new guidelines: Operators won't be allowed to run the same promo more than twice within twelve months. This is designed prevent the perpetual renewal of promos; POTRAZ will order the discontinuation of promos if it concludes that predatory pricing is at play; if customers complain enough; or if the promo results in a network congestion and other such bad stuff; In running adverts, operators "must not unfairly discredit, disparage or attack other products, services, advertisements or companies, or exaggerate the nature or importance of competitive differences." And also on adverts, operators not allowed to "imitate the slogans or illustrations of another advertiser in such a manner as to mislead the consumer." We don't know how much of this is different from whatever old guidelines that were being followed until now, so it's hard to have an opinion on that.

(April 12, 2017) techzim.co.zw



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