



Volume 07 \_ Issue 01 \_ Jan 2016

# SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

A SAMENA Telecommunications Council Newsletter

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## 80. SAMENA ACTIVITY

SAMENA Council moderating smart city and connectivity - providing dense mobile access to support smart city applications @SCWS MENA conference on the 18 January 2016 in Dubai, UAE

# The future of satellite broadband and the need for innovative spectrum management solutions



Much more than the technology itself, the full potential of broadband requires spectrum resources, allocated in a harmonized way, and policy and regulatory support, ensured in perfect harmony with the needs of the business of communication infrastructure development. In the case of satellite services, this is even more important, given the inherent nature of the services and the resources required to guarantee a good bandwidth at a good price, and thus a good quality of service for the end-user.

Even though certainties with regard to the demand for high satellite bandwidth have still to be established in many sectors that could benefit from satellite broadband, satellite operators, in their undeniably important role in global communications, are doing very well in emphasizing on the importance of non-terrestrial connectivity as a reliable way to address specific needs - be it for the businesses or for the underserved populations. For the residential customers, or for potential customers in well-served urban areas, however, the ideal balance in peak demand and cost-effective service delivery has still to be achieved. To add, applications for the residential customer for the day-to-day use still have to emerge. This would truly set forth the demand for satellite connectivity.

Starting in 2010 when the first Geo satellite dedicated to delivering broadband was launched by Eutelsat, and when ka-band spot beam technology was implemented to ensure a 20 Mbps download speeds for areas where the spot beams provided coverage, we have come a long way in developing satellite broadband. Among many innovations introduced in satellite broadband, the technology for reusing frequencies has been developed and is now in commercial use.

These past developments indicate that the satellite services industry, with a special focus on the delivery of broadband services, has been on the path to advancement fairly in line with broadband advancements that have taken place on the terrestrial front. It is safe to say also that the future of satellite broadband services lies in being able to guarantee delay-free service with sufficient

coverage and at affordable price structures, such that fundamental needs of the society can be addressed effectively. From an implementation point of view, this signifies that Leo satellites, organized in constellations consisting of hundreds of micro units, are on their way to soon beaming the Internet from space.

When achieved, such micro-satellite based constellations will target businesses as well as impoverished areas, respectfully addressing high data throughput needs and fulfilling fundamental needs such as healthcare and education, both of which are now recognizably crucial to contributing toward economic growth and reducing poverty. It is this role in the development of the society, and in bringing about socio-economic change that will become crucial to placing satellite broadband as a reliable medium of connectivity. It is this essential advantage provided by satellite broadband that needs to be communicated, effectively.

For the Leo satellite broadband market to develop, spectrum resources have to be made available. This has a clear implication: a close coordination and understanding between regulatory bodies and the satellite operators have to be established, so that the interests of both terrestrial and satellite operators are kept in mind. Naturally, this would require advocacy efforts. Moreover, developing this Leo-based broadband market also entails high investments, and most of such investments are being directed toward the development of reliable switching and linking technologies, and toward dealing with the complexities that satellite-to-satellite communication brings about.

At SAMENA Council, we see a bright future for satellite operators and for their broadband service offerings. We are also proud to witness what some major regional satellite operators, operating in the MEA, Turkey, and the European regions have achieved.

Another realm of close communication and collaborative fronts is being constructed to advance broadband connectivity in the world and to achieve digital progress through integrated efforts.

Yours truly,



**Bocar A. BA**  
Chief Executive Officer  
**SAMENA Telecommunications Council**



**Prof. Dr. Ensar GÜL**  
General Manager  
Türksat A.Ş



Dr. Ensar Gül was born in 1960, in the Artvin town of Şavşat. He attended elementary and middle school in Şavşat, later graduating from Ankara's Science High School. Having received his Bachelor's degree in electrical engineering from Boğaziçi University in 1982, he went on to receive his Master's degree from Loughborough University of Technology's Electronic Engineering Department, and later obtaining his Doctorate's degree from Sussex University's School of Engineering, in England. In this university he worked on his post doctorate, later returning to Turkey in 1991, to serve his mandatory military service.

In October of that year he was appointed as Assistant Professor to Uludağ University's Engineering Department. In 1993 he became Associate Professor in the field of computer software. Professor Dr. Gül was responsible for Marmara University's Network Infrastructure between the years 1997-1998. Professor Dr. Gül served as an advisor to TÜBİTAK's (The Scientific and Technological Research Council of Turkey) Marmara Research Center for Information Technology Research Institute, between 1993 and 1997. After departing from Marmara University in 1998 he worked as an expert software engineer, software designer, senior researcher, chief software architect and also as general manager for many communication systems companies.

In 2009, Dr. Gül was appointed as Professor to Marmara University's Computer Engineering Department.

Between October 2010- October 2012, Professor Dr. Gül served as a member of ÖSYM's (Student Selection and Placement Center) Board of Directors, as well as, providing his expertise on the renewal of ÖSYM's data processing system and the development of measurement and evaluation software.

On September 12th 2011, Professor Dr. Gül became a member of TÜBİTAK's Science Board. On April 21st 2014 he was appointed as Türksat's General Manager.

Q. Please tell us the history of Turksat and your achievements in satellite communications.

A. Turksat A.S. was founded in 2004. However, the satellite communications activities in Turkey reaches back to 70's. The first two satellites, Turksat 1A and Turksat 1B was launched on January, 1994.

Turksat 1C was placed into orbit in 1996. After that in 2001 Turksat 2A, in 2008 Turksat 3A, in 2014 Turksat 4A, and finally in 2015 Turksat 4B were launched into space in order to meet communications needs of the market.

Turksat started a domestic satellite program, named as Turksat 6A. Turksat 6A will be manufactured in Turkey and will be launched in 2019.

Q. As a global satellite services player and a satellite manufacturer, how do you view the notion of integration of terrestrial and satellite communications and the specific role of satellite communications in Turkey's smart-country initiatives?

A. As part of the project carried out with Ministry of National Education, Internet access is provided through Turksat VSAT terminals for over 5000 schools in geographical regions lacking of terrestrial infrastructure. Thus, there is no school without connection and no student who hasn't been acquainted with Internet.

Q. What kinds of telecom operations are provided by Turksat in Turkey and the region, and core areas of services that Turksat is presently focusing on?

A. Turksat has three area of services: satellite, cable and IT.

Offering a great deal of communications services (i.e. voice, data, internet, TV, and radio broadcasting etc.) over its satellites in a wide geographical



area covering Europe, Africa, and a large part of Asia, Turksat provides solutions to the customers in a wide scope. Turksat supplies the TV broadcasting services with around 600 TV channels. TV broadcasting provides 85% of Turksat revenues. Turksat also provides VSAT data communication through the Turksat satellites. Turksat 4B is the first high throughput satellite at KA band started to service, recently.

Turksat provides cable TV broadcasting services (digital TV, broadband Internet, and telephony) for its domestic subscribers through its cable infrastructure, in Turkey.

Finally, Turksat operates e-Government gateway of Turkish Government and provides IT services, project management, software development to government institutions.

Q. What new broadband service initiatives have you launched within the region?

A. Turksat carries broadband Internet service via VSAT terminals to its corporate clients in Azerbaijan, Afghanistan, Turkmenistan, Uzbekistan, Georgia, Crimea, Tajikistan, and Kazakhstan.

Satellite internet access provided through Ka-Band designed for high data speed with its spot beam unit can offer downstream data speeds up to 50 Mbps.

Q. What types of cross-stakeholder collaborative initiatives would enable the adoption of Industry friendly policies and ensure a sustainable digital future for you and your peers in the satellite industry?

A. Projects like satellite capacity leasing and joint satellites could be collaborative initiatives promoted by satellite operators running limited coverage areas. Turksat aims to grow via partnerships with existing operators and new countries which are willing to start their first satellite projects.

Q. What are some of the major business areas that satellite operators of the SAMENA region need to consider when it comes to expansion strategy and competition?

A. SAMENA region countries shall be able to come together and create partnerships. High throughput satellites will serve communication needs of wide rural areas. TV broadcasting allows tightening links between close cultures of SAMENA region.



Q. How has Turksat historically dealt with competition, and what role have national ICT policies played in allowing you to innovate?

A. 42° East is "hot spot" orbital position of Turksat for TV broadcasting. Turksat aims to bring SAMENA TV's to this orbital position.

Q. You have launched Turksat 4B on your own orbital location on October 16th, last year. How is its coverage area? What new services will be provided through Turksat 4B?

A. Turksat 4B was successfully launched into space on the 17th of October 2015 at Baikonur Cosmodrome in Kazakhstan. The new satellite offers Ku-, Ka- and C band frequencies. Turksat 4B will offer broadcasting services, such as SNG and data communication. Turksat 4B covers Europe, Middle East, Asia and Turkey.

Turksat 4B, Ka-Band will be used mainly for data transmission. The satellite carries a payload of Ka-Band multi-spot coverages. This coverage includes Turkey, Azerbaijan, Philistine, Israel, Lebanon, Jordan, Iraq, Germany, Austria, Czech Republic, Hungary, Slovakia, Pakistan, Kirgizstan, Afghanistan, and Turkmenistan.

The satellite will provide a communication capacity of of 3 Gbps. Ka-Band will offer low-priced and high-speed internet access. It will provide up to 10 Mbps downlink and 50 Mbps uplink speed to VSAT terminals.

Q. What major contributions has Turksat made to the satellite industry at large? When do you plan to launch your domestic communications satellite?

A. Turksat initiated a domestic communication satellite project, Turksat 6A. Satellite will be manufactured by local companies, will be owned and operated by Turksat. Turksat 6A, is already



scheduled to be launched into space by the end of 2019.

Q. What are your views on spectrum allocation and how can both satellite and terrestrial operators work together to mitigate spectrum issues through collaboration, with the support of an advocacy body such as SAMENA Council?

A. Turkey is an active member of international regulation organizations such as ITU, CEPT, ATU. SAMENA members can work together and create a common strategy for their benefits.

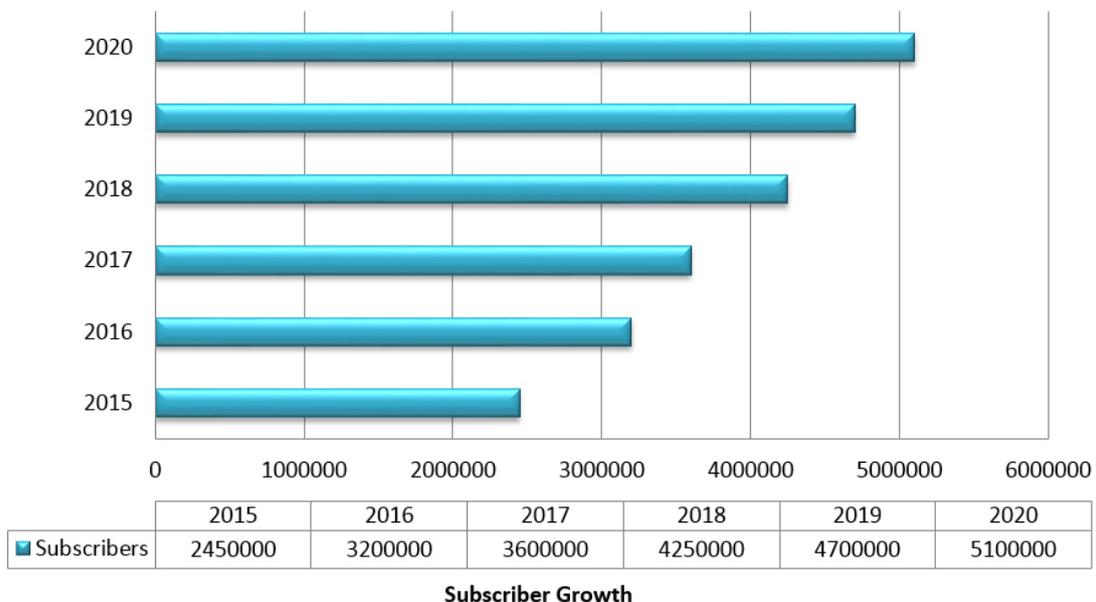
Q. How do you view your role in realizing smart cities with sustainable infrastructure, and your ICT developmental role in 2016 and beyond?

A. With the progress in IP based technologies, it is possible to see all objects connected to Internet in the near future. Remote controlled houses and cities are designed with certain applications like Internet of Things and/or Smart City. We know how crucial fiber infrastructures are to achieve that. We are planning to expand the cable and fiber Internet network, which is presently active in 23 cities, all over the country as a medium term goal. Satellite is a complimentary communication media where cable is not feasible.



## ▼ THE FUTURE OF SATELLITE BROADBAND

**Global Baseline Satellite Broadband Subscribers**



**Data Source:** Based on the findings and analysis of Northern Sky Research (NSR)

**Research Note:**

True satellite broadband growth could be realized with the launch of Low-Earth-Orbit satellites. NSR has predicted consumer broadband subscribers may actually reach beyond 6.5 million beyond 2020 and well into 2023. These are the growth patterns expected of GEO-based satellite broadband. The numbers could be much higher if LEO-based high throughput satellite systems were launched; some of which are already planned for launch. With more robust service delivery provided by LEO satellites, and thus with the presence of more bandwidth and better promise of quality of service available, the demand for satellite broadband will increase.



## MEMBERS NEWS



### Microsoft announces arrival of Windows 10 in Jordan

Heralding the arrival of the most secure and flexible version of Windows on January 31, 2016, Microsoft Jordan officially announced the arrival of Windows 10 in the Kingdom. During the daylong launch event, hosted at Four Seasons Hotel Amman, customers, retailers, distributors, media representatives and social media influencers were invited to learn more about the amazing new features, personalized experience and cross-device compatibility that Windows 10 has to offer. Windows 10 is designed to be familiar, innovative, productive and secure. Available through free download and installed on new devices, Windows 10 presents a number of original features, beginning with Windows Hello, which allows users to log in securely using fingerprint or facial recognition and to be greeted with a smile. Microsoft Edge, Windows' new browser, allows people to quickly browse, read, mark up and share the Web, while Cortana, the personal digital assistant, makes it easy to quickly find the right information at the right time. While exploring innovative

new ground, Windows 10 also manages to remain familiar. With the return and enhancement of the Start menu, users can quickly reach their most frequently used apps, PC settings and customized Live Tiles. Windows 10 also comes with a number of exceptional built-in apps, including Photos; Maps; Microsoft's new music app, Groove; and Movies & TV. In addition, the New Windows Store provides for a more streamlined download process, allowing users to find and install the apps they need with efficiency. The most secure version of Windows ever built always-enabled updates and enhanced security features help to keep users protected against viruses, malware, and phishing attacks. Throughout the launch event, visitors were briefed on the key features and benefits of the latest Windows offering in a series of presentations, illustrating how Windows 10 not only fits seamlessly into users' lives, but enhances them through intuitive, cross-device usage. Showcasing its potential productivity and mobility, speakers explained how Windows 10 enables users to stay active at home or in the office, with access to their documents by phone, tablet or laptop. They also highlighted the incredible business benefits of the platform, which delivers reliable up-to-date solutions that provide room for expansion and development, as well as exciting multi-tasking capabilities, such as the Action Center, Task View and multiple desktops. Guests were also able

## MEMBERS UPDATES

to witness firsthand the speed and ease of use associated with Windows 10 by visiting workstations equipped with the latest Windows 10-enabled laptops, tablets and phones. Introducing powerful and versatile hardware to unlock new Windows 10 experiences, Microsoft Jordan has recently launched the Lumia 950 and 950 XL in Jordan, providing for an optimal, innovative mobile experience. "Running in 192 countries and on almost 200 million devices worldwide, Windows 10 has gained an incredible amount of momentum across the globe. This event provided us in Jordan with an excellent opportunity to ride this wave, spreading knowledge on what sets Windows 10 apart and encouraging its adoption locally," said Microsoft Jordan Country Manager, Hussein Malhas. "Windows 10 provides the perfect companion for the Lumia 950 and 950 XL, which were designed specifically to offer maximum mobility, productivity and flexibility. When combined with the groundbreaking Continuum, we have created a system that seamlessly allows our users to achieve more, improving and simplifying their lives by providing them with the customizable tools they need to thrive."



## Türk Telekom brand now encompasses Avea, TTNet operations; marks convergence

Türk Telekom has announced the merging of its respective mobile and ISP brands Avea and TTNet under the unified Türk Telekom brand name, logo and website. The new logo is already in use, as is the single converged website grouping all fixed line, broadband, mobile and pay-TV service divisions, while the group also said it would operate a unified call centre and single-brand retail outlets. Although dispensing with independent branding, Avea and TTNet will remain distinct legal entities as wholly owned subsidiaries of Türk Telekom. In August 2015 Türk Telekom became the sole owner of Avea, following the transfer of a 10% stake from Is Bankasi, whilst

the Turkish telco already held 99.9% of TTNet shares.



## Etisalat Group sets industry record for Global Mobile Awards

Etisalat Group, the leading telecommunications operator in Middle East, Africa and Asia, has set a new benchmark for the industry by being shortlisted in eleven categories in this year's Global Mobile Awards ('The Glomos'). The range of nominations reflects the leading role Etisalat is playing in the global telecommunications industry and rewards the Group's focus on innovation. Nominations include: Best Mobile Cloud Service or App; Best Mobile Innovation for Emerging Markets; and Best Mobile Innovation for Health. While delivering for customers' is also recognized in the short listing for: Mobile Connect Award for Authentication & Identity; Best Use of Mobile for Best Mobile Payment Solution. Etisalat Group achieved this impressive record despite a record number of applicants for this year's awards. "Congratulations to all of the nominees for the 2016 Glomo Awards," said Michael O'Hara, Chief Marketing Officer, GSMA. "With more than 930 entries this year – a new record – the competition is greater than ever, reflecting the tremendous diversity and pace of innovation across the mobile world." This year's nominees were announced last week with the winners to be announced at Mobile World Congress, which takes place on 22-25 February in Barcelona.



## Omantel voted Best Telecom Brand

Omantel, the Sultanate's leading provider of integrated telecommunication services has once again been voted the best telecoms service operator in an annual independent brand survey conducted

by the prestigious 'Business Today' magazine. Omantel was selected as the most favored brand within the majority of categories in the annual survey, reinforcing the company's leading position across different customer segments. Published in the January 2016 edition of 'Business Today', the 'Best Brands' survey canvassed more than 1,000 respondents who were drawn from a cross section of Oman's business community and general public, including high profile Company Chairmen, CEOs and General Managers. The survey sought their opinion on the best telecommunications service provider, with results giving Omantel the clear lead as the number one telecom brand in the Sultanate, preferred in both the popular choice and management choice categories. Commenting on the 'Best Brand' ranking for Omantel in the Sultanate, Omantel CEO, Talal Al Mamari noted, "We thank all of our customers for the trust they place in us, voting Omantel as the best and most preferred telecom brand in Oman. More than 3 million customers in Oman choose us for a reason. The confidence they place in us to deliver reliable and relevant services across the Sultanate is something we take very seriously, and indeed, our continued growth is strong evidence of our customers' trust in our products and services." He added, "We are very proud to once again to receive this recognition from the Sultanate's top business executives and the general public who participated in this independent annual brand survey. Oman is one of most digitally connected countries in the region; however our position as 'Best Brand' reminds us to not sit on our laurels, and to boldly innovate and invest for the future growth of Omantel and the nation. "The 'Best Brand' recognition also highlighted the strong preference from the business community to select Omantel as their telecommunications provider of choice, signaling high levels of trust given by Oman's top corporate in the oil & gas, banking, industrial and insurance sectors. Commenting on the survey results, Todd Dick, VP of Corporate Business noted, "Customer satisfaction is our number one priority and it is the team spirit and dedication of our staff that makes it possible for us to deliver the very best telecommunications experience for every one of our customers in Oman." He added, "At Omantel, we have, and

will continue to invest greatly in the expansion and modernization of our nationwide network to offer customers the widest choice of tailored telecom solutions, the most extensive network reach, and the best customer service experience. Access to mobile and broadband services are a key enabler for economic diversification in Oman, providing a foundation for businesses to grow and prosper and providing the right environment for SME's to get their new businesses up and running, regardless of where they are located across the country". In 2015, Omantel was also voted as the 'Most Trusted Brand' in the telecom sector in the Sultanate as per the annual brand survey conducted by OER magazine in conjunction with the Arab Research Bureau and maintained its ranking as the Most Valuable brand in Oman since 2010 according to Brand Finance annual survey in cooperation with Gulf Marketing Review magazine. Omantel also garnered a number of other prestigious regional and international awards in 2015. Investing in the future of the nation, Omantel connects even the most remote communities of



## Zain reveals new thought-leadership report, linking innovation to overcoming regional challenges

Zain Group, a leading mobile telecom innovator in eight markets across the Middle East and Africa, announces the publication of its latest thought-leadership report entitled, 'bringing the Future Closer with Innovation: Pursuing Innovation as a Means to Overcome Challenges in the MENA Region'. The report sets about illustrating the indispensable role of innovation in achieving sustainable development and transitioning towards a knowledge-based economy, from a regional perspective. The report was revealed and discussed at the annual World Economic Forum held in Davos, Switzerland January 20-23, 2016, where Zain Group CEO, Scott Gegenheimer; Emre Gurkan, Group Chief Strategy and Business Development Officer; and the Group's Head of Corporate Sustainability, Jennifer Suleiman, conveyed the findings of the report liaising with leading political and economic personalities from across the globe.

Importantly the report emphasized the role of innovation in enabling the MENA region to overcome prevalent socioeconomic deficits and promote overall human development. It addresses the question: "How can stakeholders in the region come together to further society's innovative capacity as a means to driving sustainable, inclusive growth while promoting human development?" Commenting on the release of the report, Scott Gegenheimer said, "Given the high-profile nature of our business,

and the profound impact it is able to have on people's lives across the region, we feel it is our responsibility to publish information that offers insights into how innovation and technology in general can drastically improve living standards." Gegenheimer continued, "As with any region in the world, MENA faces specific challenges that we can overcome collectively through our desire of a more enabling environment. From Zain's perspective, our ties to the region run deep, and we look forward to continuing to render support and inspiration that results in positive outcome to people's lives even beyond our own customer base." The challenges faced by the region include: high unemployment (particularly amongst youth); insufficient economic growth; undiversified economies; ongoing socio-economic exclusion and inequality; high rates of displacement due to conflict; an innovation deficit; and high vulnerability to climate change, to name only some. Jennifer Suleiman commented, "Corporate social responsibility and sustainability initiatives represent an integral part of Zain Group's strategy and are taken very seriously at all levels of the organization. Our thought-leadership efforts are an opportunity for us to review the factors that can aid socio-economic development from a technological standpoint, and also gives us a chance to draw attention to our own efforts given our position as a leading regional innovator." Bringing the Future Closer with Innovation: Pursuing Innovation as a Means to Overcome Regional Challenges in the MENA Region showcases Zain's innovation by providing case studies undertaken by the company including: The Zain Innovation Center (ZINC) in Jordan dedicated for the purpose of building and empowering a more vibrant entrepreneurial ecosystem in Jordan; The Zain Great Idea challenge in Kuwait that aims to generate and incubate fresh new ideas in the country; The Taaleb E-Learning Project in Kuwait, an online education portal that links students, parents and teachers through a digital platform to improve communication between the parties and make educational process more effective that has seen over 650,000 register; The Smart Schools Project in Jordan highlighting the long-term benefits of familiarizing young students with the application of



the Sultanate to each other and with the rest of the world. Omantel is the Sultanate's first and leading integrated telecommunications services provider, enabling the digital society to flourish, allowing new ways of doing business and delivering a world of information, news and entertainment. Today, Omantel boldly innovates to deliver the highest levels of customer satisfaction, the broadest and most reliable nationwide network while investing for Oman's future development.

modern technology and exposing them to the tangible benefits that can be produced through ICT. Zain's support of the MIT Enterprise Forum Pan-Arab Startup Competition to enable and assist aspiring entrepreneurs from across the region convert their startup concepts into viable businesses; The Light a Candle App in Lebanon aimed at enabling people to easily donate money towards assisting children with cancer that saw over 770,000 people donate. The Family Reconnection Project that was launched in Jordan and South Sudan as part of an effort to reconnect displaced people that were separated from their loved ones due to conflict. The strategic collaboration with neXgen Group, a leading regional smart city advisory and consulting services provider, for the purpose of deploying smart city solutions across the region Zain's strategic partnership with Uber across the region that provides Zain customers preferential treatment when using the Uber platform, with Uber drivers benefitting from preferred telecommunication services. The partnership was recognized by the global research company, Ovum, as the most innovative service for November 2015 due to the vast opportunities for mutual gain that it provides. Zain believes that by developing the innovative capacity of the region through a multi-stakeholder approach, the MENA can overcome these challenges and achieve sustainable growth solutions



## Microsoft to donate \$1 billion worth of cloud services

Microsoft Philanthropies will donate \$1 billion in Microsoft cloud services to nonprofits and university researchers over the next three years, according to its president Brad Smith. With support from Microsoft Research and Microsoft Business Development, the move it intended to support 70,000 nonprofits. "While the cloud marketplace is reaching a rapidly growing number of customers around the world, it is not yet benefiting everyone," Smith said in a blog post. "If we're going to realize Microsoft's

mission of empowering every person and organization on the planet to achieve more, we need to reach those that the market is not yet reaching," he added. Smith said corporate philanthropy needs to be reinvented for the next decade to ensure help for people and organizations the cloud is not yet serving. "This will require extensive efforts on a global basis that reflect varied needs around the world, oftentimes in ways that bring companies, NGOs and governments together in new public-private partnerships," he said. Microsoft launched three concrete initiatives -- through that are designed to ensure that cloud services are easily accessible to nonprofit organizations, faculty researchers in universities and people who currently lack affordable broadband access. First, the software giant will build on its longstanding global software donation programs to create a "comprehensive and industry-leading" donations program to provide cloud services to nonprofit organizations worldwide. Second, the company will "significantly expand" its Microsoft Azure for Research program, which grants free Azure storage and computing resources to help faculty accelerate their research. And third, Microsoft will pursue new initiatives that bring together Microsoft Business Development and Microsoft Philanthropies to combine investments in innovative new technologies for last-mile connectivity access with donated access to our cloud services.



## Orange Business Services deliver managed services to 20,000 users in over 300 sites worldwide

Orange Business Services has extended its existing deal with Japan Tobacco International as the Camel owner looks to introduce more digital ways of working. The new five-year, \$120 million (€110m) contract extension takes the two companies through until the end of 2021. As part of the contract, OBS will deliver a wide range of managed services to 20,000 users in over 300 sites

worldwide. These include network services, application acceleration, performance management, remote access, voice traffic, Microsoft Skype for Business and contact centre services. Switzerland-based JTI, which owns brands including Camel, Benson & Hedges and Silk Cut, has been an Orange customer since 1995. The new contract builds on a 2014 deal that saw OBS deploy and manage a unified communications solution for JTI. OBS saw revenues rise 0.5 percent in the third quarter, mainly thanks to growth in security and cloud services. Guilain Rogg, Vice President, IT Global Technical Center at JTI, said digital transformation was "key" for the company. According to a report by research house IDC earlier this month, CIOs are struggling to introduce innovative strategies and services as they battle with operational issues. Anne-Sophie Lotgering, Senior Vice President, Europe, Russia and CIS at Orange Business Services, said: "JTI is a longstanding customer, with whom we have more than just a provider relationship. I am very pleased and happy about the continuation of our trusted partnership, especially since JTI is always at the leading edge with its IT solutions."



## Microsoft joins SAMENA Council as a member

SAMENA Council has announced that Microsoft has joined its membership as a global enabler of digital transformation, innovation, accessibility, and as a cross-market stakeholder. As one of the world's most innovative companies in the world, Microsoft has now become a highly diversified company, focusing beyond the operating-system market and into cloud, IOT, IP-based communications services, video gaming, digital services, and is also a personal computing hardware maker. As one of the planet's foremost enablers of digital development for both businesses and citizens of the digital society, in a mobile first, cloud first world, Microsoft empowers people and organizations to achieve more through its cloud, productivity technologies, and innovation in

personal computing. Dr. Ashraf Abdelwahab, Director of Corporate & Legal Affairs for Gulf & Egypt, stated that "Our company has a global commitment of helping enterprises and citizens of the world realize their full potential. It is this belief and our corporate desire to contribute toward the world's digital progress that we have decided to join SAMENA Council's community of technology companies and telecommunications service providers. Microsoft is a leader in accessibility innovation and we have much to say on ICT integration in this region's business and socio-economic transformation, to help bring about required shifts in ICT policy framing." Mr. Bocar BA, CEO of SAMENA Council said that "SAMENA Council's community of stakeholders in the digital space would not be complete without Microsoft. Like SAMENA Council, Microsoft believes in open dialogue and active participation on a wide array of critical issues and challenges, understanding which is not only important for our industry's future but also for the ultimate stakeholders - the consumers and our future generations. We are truly delighted by this pledge of industry involvement from Microsoft, and strongly feel that this association between SAMENA Council and Microsoft would serve to further both organization's missions." As a major player in the global digital space, Microsoft will be able to leverage the Council's regional and international reach as well as stakeholder relationship-building platforms and activities to its strategic advantage for conducting its business activities within the SAMENA region. Both organization anticipate collaborating on various ICT policy imperatives and in drawing industry-wide attention on critical business as well as accessibility fronts that are in line with both organization's visions of the future.



## Omantel sukuk attracts strong response from local, regional investors

A large number of Omani and

international investors have expressed strong interest in the debut sukuk issuance of Oman Telecommunications Co (Omantel). The book-building process for the sukuk, via private placement, is currently in progress, Oman's largest telecom operator said in a press release on Wednesday. The proposed RO50 million issuance is the country's first multi-denominated sukuk, offered in both Omani rials and US dollars. Bankers have been holding one-on-one meetings with key investors, and said that the issuance is gathering pace amongst both Omani and international investors. "We are excited about the response that the sukuk is generating in the local and regional markets, and the response as expected has been very positive. We are positive that this will help create a favorable investment climate, and enhance liquidity in the domestic market by attracting fresh foreign capital," said Talal bin Said al Mamari, CEO of Omantel. "The sukuk will help investors by providing an instrument to diversify their portfolio. It is also important to note that the sukuk is denominated in multiple-currencies, both in Omani rials and US dollars," he added. Moody's Investors Service has assigned a provisional A3 (stable) rating to the sukuk. The sukuk will have a tenor of five years and mature in 2021. The minimum subscription amount for the issue is RO100,000 or US\$260,000. The profit rate on the sukuk will be set through a uniform price auction and will be finalized upon closing of the subscription period.



## PCCW Global partners with Aqua Comms

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, today announces its cooperation with Aqua Comms Limited, a provider of scalable, subsea capacity-based network solutions, to deliver transatlantic capacity on Aqua Comms' America Europe Connect (AEConnect) subsea fiber optic cable system, which will enable PCCW Global to obtain additional route diversity. With more than 52 Tbps of available capacity, the AEConnect system utilizes

innovative optical technologies, including the latest technology of 130 x 100 Gbps per fiber pair. Mr. Greg Varisco, Chief Operations Officer of Aqua Comms, said, "Aqua Comms is pleased that PCCW Global has selected AEConnect, our next-generation fiber optic cable system, to provide low latency and high capacity connectivity for its transatlantic backbone network between its New York and London Points of Presence. Offering diversity between two of its major international hubs, this highly secure and technologically advanced transatlantic system is also future-proofed against increased capacity requirements, a demand that only AEConnect, and not legacy systems, could satisfy." Mr. Jordick Wong, Senior Vice President, Product and Vendor Management, PCCW Global, said, "Aqua Comms' AEConnect provides additional capacity, reliability, and security which PCCW Global integrates into its global network thereby delivering new low latency connectivity between New York and London. We are confident that the AEConnect cable system provides the upward scalability and performance necessary to satisfy our business objectives." AEConnect, one of the first subsea cables constructed between New York City and London in nearly 15 years, was specifically designed to meet the exponential surge in bandwidth demand from carriers, global data centers, cloud-based networks, financial services companies and content providers. The cable transverses the minimum length of shallow water along the continental shelf on both sides of the Atlantic and avoids major fishing grounds and shipping anchorage areas that are known to expose subsea cables to damage. Additional armoring and deeper burial were also obtained to further mitigate potential vulnerability. In addition to its highly secure routing, AEConnect delivers one of the lowest latency crossings of the Atlantic, projected at a speed of 53.9 milliseconds. TeleGeography forecasts growth in data traffic across the Atlantic between now and 2021 will be 41% CAGR. A major advance upon systems built at the turn of the 21st century, it is designed as a coherent optimized system, and will therefore benefit the most from the improvements that coherent technology offers, today and into the future.



## Ufone – Meezan Bank unveil TVC for world's first Islamic Branchless banking service

Ufone, renowned for its innovative and out-of-the-box products and advertisements in collaboration with Meezan Bank, Pakistan's first and largest Islamic bank, have unveiled the TVC for Meezan-Upaisa, World's first Islamic Branchless Banking service. With the launch of Meezan-UPaisa, the customers in Pakistan for the first time would now be able to send and receive money, pay utility bills and do mobile top ups through Islamic banking from Meezan-Upaisa agents located in more than 100 cities across Pakistan.



## Qualcomm announces chipset joint venture in China

Chipset maker Qualcomm today announced its joint venture in China to develop and sell chipset in the local market. Qualcomm will hold 45 percent stake, while Guizhou provincial government will have the balance 55 percent stake in Guizhou Huaxintong Semi-Conductor Technology which will have a registered capital of \$280 million. As part of the deal, Qualcomm will license its server chip technology and provide R&D processes to the joint venture to support the commercial viability. The joint venture will focus on the development and sale of advanced server chipset technology in China, the second largest country in the world for server technology sales. The joint venture is part of the strategy of Qualcomm to make an investment in China. Earlier, Qualcomm faced more than \$1 billion penalty due to its business practices. Derek Aberle, president of Qualcomm, said: "We are not only providing investment capital, but we also are licensing our server technology to the joint venture

and assisting with R&D process and implementation expertise; this underscores our commitment as a strategic partner in China." Qualcomm said Guian New Area in Guizhou is an important base for the development of the big data industry and will include a green datacenter cluster of more than 2.5 million servers for companies including China Telecom, China Unicom and China Mobile.



## Orange expands in Africa with Cellcom acquisition

France's Orange has agreed to buy Cellcom Liberia from privately held Cellcom Telecommunications Ltd. for an undisclosed sum as part of its expansion strategy in West Africa. The takeover will, according to Orange, give it ownership of the largest of Liberia's four mobile operators and enlarge its footprint in the Francophone region. Cellcom Liberia has 1.3 million mobile customers and a market share of about 45%, just ahead of LonestarCell MTN. An Orange spokesperson said that Cellcom is "a very dynamic player with good growth potential" in a market that is still developing. Although many African markets now offer little opportunity for subscriber growth, mobile penetration in Liberia (which is home to some 4.3 million people) is still just 66% -- a much lower rate than in neighboring countries, according to Orange. Orange already maintains networks in the neighboring markets of Côte d'Ivoire, Guinea-Bissau, Guinea Conakry, Mali and Senegal and says the acquisition will be executed by its Côte d'Ivoire subsidiary, pending regulatory approval. The French operator's other markets in West and Central Africa includes Cameroon, the Central African Republic, the Democratic Republic of the Congo (DRC) and Niger. Orange has previously outlined plans of increasing sales across its African and Middle Eastern markets by 20% between now and 2018 and reckons it can achieve an even higher rate of EBITDA growth through efficiency measures. Those could include the sharing of network resources between different markets: Last year, Orange said it would monitor networks in a

number of West and Central African markets from facilities in Abidjan (Côte d'Ivoire) and Dakar (Senegal) in future. In a statement, Orange said it would contribute marketing expertise and technical capability in Liberia but that Cellcom's founders and employees would remain involved in the business.



## Tata Docomo offers subscribers customized experiences via Syniverse

Syniverse announced it is working with Tata Docomo, one of India's leading telecom service providers, to enable subscribers to manage their mobile expenses. Through this collaboration, Tata Docomo is accessing a Syniverse solution that uses intelligent policy capabilities to allow subscribers to gain control of their data usage through prepaid data passes, volume-based data caps and high-usage alerts. "Customer centricity and innovation are at the heart of every service that we offer to our subscribers. Our collaboration with Syniverse is the first of its kind in India's telecom market to empower our customers to manage their experiences and costs," said Gurinder Singh Sandhu, Head Marketing, Mobility, Tata Teleservices Ltd. The collaboration with Tata Docomo leverages elements of Syniverse's intelligent policy portfolio, which helps operators to drive overall profitability for the retail, wholesale and quality aspects of their businesses. Collectively, the full portfolio uses real-time data to gain an instantaneous view of individual subscribers to enable operators to deliver personalized experiences and competitive pricing plans for each subscriber. "In the face of ever-increasing competition, mobile operators are focused on increasing revenues and retaining subscribers," said Sanjay Kasturia, Syniverse's Vice President and Managing Director of Sales for India. "Through our intelligent policy products, we have developed a comprehensive approach to help operators differentiate their businesses." Syniverse's collaboration with Tata Docomo and its parent company, Tata Teleservices Ltd., builds

on the growing need for operators across the globe to gain visibility into their networks, increase control of network performance and, in turn, enhance the subscriber experience.



## Qualcomm announces innovations for automotive segment

Qualcomm unveiled latest innovations for the automotive segment powered by Qualcomm Snapdragon processors. The company also announced a number of industry collaborations to expand the reach of the products to new devices. Snapdragon 820 Automotive processors, one of the recent launches, offer a scalable next-generation infotainment, graphics and multimedia platform with machine intelligence and a version with integrated LTE-Advanced connectivity. Automotive samples of the 820A family are expected to be available in Q1 2016. The version with integrated X12 LTE modem is designed to support continuous in-car and cellular connectivity, featuring the leading 4G LTE Advanced Pro that can support up to 600 Mbps download/150Mbps upload speeds, stream HD movies into the car, serve as a Wi-Fi hotspot supporting 802.11ac 2x2 MIMO, connect multiple mobile devices inside the car, and support 802.11p DSRC for V2X (Vehicle to Vehicle/Infrastructure/ Pedestrian) communications. It also offers local connectivity via Bluetooth. Qualcomm announced collaboration with Aisin AW to develop the modular infotainment solution utilizing the Snapdragon 820A. The chipmaker also announced partnership with QNX Software Systems, a subsidiary of Blackberry and provider of software platforms for in-car electronics; LG Electronics; Mitsubishi Electric; Visteon Technology Office; Neusoft Corporation; and ADAS Vision. Qualcomm Technologies has also expanded its automotive technology portfolio by offering highly integrated solutions in the areas of telematics and connectivity, as well as high definition graphics and multimedia for rich infotainment systems, machine intelligence and sensor fusion for advanced driver assistance systems

(ADAS), GNSS location technologies, V2X (Vehicle to Vehicle/Infrastructure/ Pedestrian) communications for improved safety and driver convenience, and wireless charging for electric vehicles. The recent acquisition of Cambridge Silicon Radio Limited (CSR) has brought additional technology assets to Qualcomm Technologies' automotive portfolio, including leading Bluetooth®, Wi-Fi®, audio, and GNSS location technology solutions.



## PTCL & Linkdotnet to Deploy WLL in 1900 MHz & 3.5 GHz in AJ&K and GB

Pakistan Telecommunication Authority (PTA) auctioned spectrum on December 29, 2015 for Wireless Local Loop (WLL) Services to PTCL and LinkDotNet for Azad Jammu & Kashmir (AJ&K) and Gilgit-Baltistan (GB) regions and successfully generated Rs. 108.48 million in total. The auction allotted WLL spectrum to PTCL for all offered regions which include Mirpur, Muzaffarabad and Gilgit Baltistan, while LinkDotNet got spectrum for Mirpur region in 3.5MHz band. It is also important to note that only PTCL and LinkDotNet had applied for WLL spectrum auction. All lots were auctioned at base price, while 2 lots in 3.5MHz for Mirpur region were auctioned to both PTCL and LinkDotNet for Rs. 10 million each; its base price was Rs. 7.97 Million.



## Expresso Telecom Group joins SAMENA Council as a member

SAMENA Council has announced that Expresso Telecom, a part of Sudatel Telecom Group, one of Africa's leading telecommunications and information services brands, has joined its community of telecom operators,

technology providers, digital services companies, and other leading players within the digital space. Expresso Telecom commercially operates in Senegal, Mauritania, Ghana, and Guinea, offering products as well as fixed line and mobile services that meet the needs of the businesses and citizens of Africa. Upon becoming a member of SAMENA Council, Eng. Tarig Hamza Zainelabdin, CEO of Sudatel Group stated, "We believe that building strong partnership with key stakeholders and playing an active role in an ICT community are key to achieving long-term business sustainability. We want to develop mutually beneficial relationships with technology providers, other telecom players who have the experience that is aligned with our own vision, and we want to develop better understanding with government bodies." Commenting on this partnership, Mr. Tarig Hamza Rahamtalla, Managing Director of Expresso, said "By joining SAMENA Council, we hope to enrich our awareness of industry matters and make our brand more visible, to be able to realize our objectives of achieving competitive edge as well as long-term financial profitability for our investors." Bocar BA, CEO of SAMENA Council congratulated Expresso Telecom Group and said, "Mr. Tarig Rahamtalla's commitment to building a sustainable business in all of Expresso Telecom's market operations is precisely what telecom operator leaderships require, today. SAMENA Council not only understands business sustainability issues and the importance of incentivizing investment, we also are well-aware of the need for all industry players to come together and take unified positions on key issues that affect our business. Much can be achieved together when all industry players are united under a leading regional private-sector platform that is SAMENA Council. We are excited to see Mr. Rahamtalla in our cross-regional telecoms and ICT community." As one of the newest and leading African telecommunications brands, Expresso Telecom will be able to leverage the Council's regional and international reach as well as stakeholder relationship-building platforms and activities, which are designed to keep dialogue open to help encourage business friendly policy framing and investment in digital infrastructure development, and to enable partnership development among the stakeholders.



## REGIONAL NEWS

### REGIONAL UPDATES

#### Top opportunities in African telecoms for 2016

The telecom industry forms vital vertebrae in the economic backbone of Africa's economic growth, buttressing all aspects of the business, social and political environment. Unprecedented growth in the last several years has elevated penetration rates and performance. Yet, averaging around 75 percent penetration across the continent and lacking 3G coverage beyond urban areas, telecom is only encroaching on its full potential. Much remains untapped. All the statistics from previous years make it easy to predict big growth for telecoms in 2016. Foreign investors already demonstrate a penchant to back this sector. Look at Liquid Telecom's \$150-million capital raised in early 2015 to extend its fiber network on the continent, particularly in East Africa where it lays fiber-optic cable to connect Burundi and the Democratic Republic of Congo. It's already credited with an East Africa fiber ring that connects Kenya, Tanzania and Uganda. Or check out Smile Telecoms' \$365 million raised in late 2015 with an eye focused on the Democratic Republic of Congo. Founded in South Africa and incorporated in Mauritius, Smile Telecoms owns and operates mobile wireless 4G LTE broadband networks in Nigeria, Tanzania and Uganda, and plans to launch its broadband network in DRC

early in 2016. Liquid Telecom provides data, voice and IP, supplying fiber optic, satellite and international carrier services to African mobile network operators, ISPs and businesses. It also provides payment solutions to financial institutions and retailers. The Mauritius-based company has offices in Botswana, DRC, Kenya, Lesotho, Nigeria, Rwanda, South Africa, Uganda and Zambia, Zimbabwe and the UK. Three trends will prevail in 2016: digitalization aka broadband, public participation, and mobile payment expansion. Digitalization arrives as public and private actors buy in together on the belief that connectivity boosts revenue (and profitability) across sectors from agriculture to oil. Public participation is ever-so-present until foreign investors gear back up from a slowdown in investment in 2015. But don't let public participation discount private interest. And mobile payments will persist as a vital component to Africa's financial system.

#### **Democratic Republic of the Congo (DRC)**

DRC is in for a big telecom boom. Liquid Telecom and Smile Telecoms capital raises (and apportioned dollars to the DRC) suggest that the country will see nearly \$500 million in investment. Analysts predict that the DRC telecom sector will grow almost 10 percent during the next five years. Based on that, the sector could

generate approximately \$3 billion in revenue in 2020, pushing it ahead of neighboring comparables in Sudan and Tanzania — both countries with higher incomes. Mobile data is expected to account for \$450-to-600 million of that revenue. All those numbers cannot be read in a vacuum. DRC currently has a mobile penetration rate of 68 percent — lower than African average — with a 100-percent-plus rate predicted by 2020. How is this possible? Liquid Telecom and Smile Telecoms stories tell us how: invest in infrastructure and bid on the long run. If you are not prepared to spend on Africa's fourth most populated country, then you will miss out. Capital will have to be patient. DRC is an early stage emerging-market country with an election planned in 2016, but the revenue potential cannot be ignored.

### Ethiopia

Yes, I know that Ethio Telecom, Ethiopia's state-owned telecoms provider, continues to veto any opening of the telecom industry to foreign operators. But it is just wrong to leave this country off the list for telecom in 2016. Africa's second most populous country has more than 60 million subscribers, according to Ethio Telecom CEO Andualem Admassie. That's expected to grow to about 80 million by 2020. Foreign investors are eager to play a role with their own internal data suggesting 10 percent as an easily achievable growth figure, implying 100 million subscribers by 2020 as a reasonable figure. The comparable statistic would be the DRC. But the difference maker here may be the Ethiopian government's unmatched commitment to infrastructure investment on the continent in recent times. Public transportation and power may steal the conversation. But the country can be appreciated for its strong fixed-line system (gaining a new momentum in some countries) and its previous partnerships with foreign operators — China's Huawei and ZTE as well as Sweden's Ericsson. Expect one of those three to play a partnership role in a technology upgrade project, as planned by Ethio Telecom for 2016. Debate also rages on if more towers are needed, with Ethio Telecom holding firm that there are currently enough towers constructed in the country.

### Cote d'Ivoire

Cote d'Ivoire generally falls under the radar for the telecom sector. That story has changed since Ivorian Minister and Cabinet Director of Post and ICT André Augustin Apete announced that the country will invest \$165 million to deploy an additional 5,000 kilometers of fiber optic cables across the country in early 2016. The additional cable will complement the 1,400 kilometers in the northwestern part of the country and the 662 kilometers in Bouna (inaugurated in December 2015). That equates to 7,000 kilometers of fiber optic infrastructure in a few years. The country's investment in the cable network follows other big investments in infrastructure since the end of the 2011 political violence. The vast spending effort has propelled economic growth to around 9 percent on average. A rise in mobile banking and a digital boost to the economy should buoy that figure. A bump in foreign investment would be a great addition to the mix, as one has to wonder how long the government can continue to self-finance this growth.

### Nigeria

With nearly 180 million people, Nigeria would make the top three if yours truly could stop salivating over Ethiopia (which we should all do until government says it wants to open the sector). The economy is still heavily dependent on oil, which has caused trouble as the price plunges below \$30 globally. That being said, Nigeria is looking to telecom, particularly the IT aspect and subsequent digitalization of the economy, to create new economic growth opportunities. With broadband in mind (targeting 30 percent for 2018 from the current 10 percent), the Nigerian Communications Commission is ready to offer more licenses and is seeking more foreign investment — two clear messages coming out of the 2015 International Telecoms Union (ITU) Telecom World conference in Budapest, Hungary in October.

## GCC adopts UAE's cyber experience and methods

The Gulf Cooperation Council's 11th GCC CERTS Committee has adopted

the UAE experience in combating cyber blackmailing at a meeting attended by the General Authority for Regulating Telecommunication Sector (TRA), represented by its subsidiary, the UAE Computer Emergency Response Team (aeCERT), held last week in Riyadh. The meeting was chaired by Sulaiman Abdelrahman Al Samhan, Digital Forensics Supervisor, Communications and Information Technology Commission, CITC, of Saudi Arabia. The UAE was represented by Adel Al Muhairi, TRA's aeCERT Director, and Ghaith Al Mazaina, TRA's aeCERT Business Affairs Manager. The UAE delegation highlighted its experiences in combating cyber blackmailing and shed light on the campaign that was launched by TRA in cooperation with Al Ameen Service by Dubai Police with the aim of raising awareness of cyber security threats. The committee decided to adopt UAE's experience so all member states benefit from it. Hamad Obaid Al Mansoori, UAE TRA Director-General, said, "We are delighted to have our experience adopted by the committee as this reflects the UAE's success in combating cyber blackmailing and it highlights its effective contribution to protecting the infrastructure of this vital sector at a local and regional level. Cyber security has become an integral part of our societies' safety, and especially in light of the rapid developments in the ICT sector. Accordingly, the TRA is always keen to cooperate with all concerned parties to develop innovative solutions and mechanisms that safeguard the sector optimally." "We believe that knowledge and awareness are the shield that protect our users from being exploited by cyber-criminals. Driven by this belief, we collaborated with Al Ameen service to spread awareness about cyber security threats. We are committed to making the internet safer for UAE users, therefore, our tireless efforts include supporting and enabling all initiatives that are launched with the aim of providing a safe electronic environment," he added Adel Al Muhairi said, "The meeting entailed discussing various significant topics that served one purpose, which is, enhancing information security standards and practices and providing a safe environment for internet users across the region." Ghaith Al Mazaina said, "The Cyber Blackmailing campaign is one of the successful campaigns that were welcomed by Emirati society as it contained numerous awareness

messages. It has been widely publicized by different radio and TV channels, in addition to social media channels. We value our strong ties with our brothers in the GCC, and that is why we were keen to share with them our experience to raise awareness and ensure that the region benefits from this experience." The meeting's agenda entailed discussing the GCC CERTS Committee working mechanism and tasks, activating the GCC Information Security Strategy, setting the cooperation framework between GCC CERTS and the regional and international centers, in addition to activating the emergency response training simulation, benefitting from the fiber-optic infrastructure in the e-linking project, and collaborating with the United States in the field of cyber security.

### Pakistan operators condemn new SIM, handset tax

Three Pakistan operators have united in urging the government to drop its proposal to impose sales tax on SIM cards and handsets and called the device tax "irrational, illogical, arbitrary and incoherent". Mobilink, Telenor and Warid said the Federal Board of Revenue's (FBR) procedure for imposing the sales tax is unconstitutional and almost impossible to implement, ProPakistani reported. The new tax would increase the number of handsets with fake IMEI numbers as people take steps to avoid the tax, which would lead to tracking issues for law enforcement agencies, the companies said. The three operators, which together have a 64 per cent share of the country's mobile connections, submitted a detailed response to FBR, which has proposed introducing a tax on the import and supply of SIM cards. The country already taxes the import and supply of handsets. The operators said that complying with the new taxes would be expensive and that the new tax regime will not solve the problem of the handset tax being avoided. ProPakistani quoted a joint representative as saying: "The only solution for the government is to crack down on smuggling and charge sales tax at the import and supply stage." The reaction

comes less than three weeks after the Ministry of Information Technology proposed a tax relief package for the telecoms sector, which struggled last year with declining revenue after the government raised taxes. A committee, set up by the IT minister to study the impact of the higher taxes on operators, found that the higher tax burden slowed revenue growth and hampered the government's effort to hold a 3G/4G spectrum auction. Operators have repeatedly said they are not interested given their current financial status. Operators' revenue in Q3 fell 12 per cent to PKR102 billion (\$98 million) from the previous quarter. Operators are also facing low margins and have long complained to the government about high taxes, low return on investments and weak economic growth.

### STC's 2015 net profit down 14.8% to US\$2.48bn

Saudi Telecom Company (STC) has published its financial results for the twelve months ended 31 December 2015, reporting a 14.82% decrease in net profit to SAR9.335 billion (USD2.48 billion) from SAR10.959 billion reported in 2014. The company attributed the negative result mainly to a SAR2.823 billion rise in cost of services and a SAR1.883 billion increase in operating expenses in the year, despite the 7.77% year-on-year growth in gross profit to SAR30.343 billion. In the period under review, STC reported revenues of SAR50.837 million, a 10.93% increase y-o-y, while EBITDA reached SAR19.370 billion, up 3.80% from SAR18.661 billion. STC Group's CEO Khaled Biyari commented: 'The 11% increase in consolidated revenue and the 3.8% increase in EBITDA for the twelve-month period compared to last year confirm that STC's strategy is working well. The decline in net profit for the twelve months is mainly attributed to STC continued investments in programs that will have positive outcomes in the near future, such as the early retirement program and the disposal of old assets ... With regards to international operations, the twelve-month period witnessed revenue growth of 8% in the controlled international subsidiaries compared to last year and this is attributed mainly to the continued growth in the subsidiaries' customer bases and market shares.'

### Saudi's Mobily swings to Q4 profit

Mobily, an affiliate of the United Arab Emirates' Etisalat, made a net profit of 11 million riyals (\$2.93 million) in the three months to Dec. 31. This compares with a loss of 2.11 billion riyals in the same period a year earlier, according to a bourse statement. An analyst at Osool & Bakheet Investment Co forecast Mobily, which competes with Saudi Telecom Co and Zain Saudi, would make a quarterly profit of 125.1 million riyals. The company said it signed an agreement with creditors on Dec. 29 to waive covenant breaches in relation to several debt facilities worth 12.1 billion riyals. It continues to discuss agreeing a similar waiver with other creditors, the firm added.

### Telecom operators voice against taxation procedures in Pakistan

Mobilink, Telenor and Warid have said that the Federal Board of Revenue's procedure for imposition of sales tax on SIM cards and handsets, is unconstitutional and practically almost impossible to implement in the manner laid down by the board. These companies said that the scheme of taxation of handsets as set out by the FBR is irrational, illogical, arbitrary and incoherent. The new sales tax regime will lead to an increase in handsets with dummy IMEI numbers in addition to an increase in overwriting of IMEI numbers with the object of avoiding the tax, said the companies. Telenor, Mobilink and Warid had made detailed submissions on the practical issues in relation to the implementation of the tax imposed by way of the Ninth Schedule read with Section 3B of the Sales Tax Act, 1990. The present submissions aim to cover some of the fundamental legal issues in the implementation of the tax under the Ninth Schedule while recapping some of the practical problems that make it impossible to get the tax regime implemented. The Ninth Schedule taxes two items i.e. SIM cards and handsets. Before the introduction of the Ninth Schedule by way of the Finance Act, 2014, only the import and supply of handsets was being taxed but there was no special taxes on the import and supply of SIM cards. The CMOs' current technical and human resources are not capable of implementing the tax regime and they will have to incur costs running

into hundreds of millions of dollars in capital expenditure in addition to huge operational costs on account of human resources for complying with, the tax regime. The new regime sought to be implemented will not solve the Government's problem at all. It will lead to an increase in handsets with dummy IMEI numbers in addition to an increase in overwriting of IMEI numbers with the object of avoiding the tax. Not only will the entire purpose of this new regime stand defeated, but it will also lead to tracking issues for law enforcement agencies if IMEI numbers are forged. The only solution for the Government is to crack down on smuggling and charge sales tax at the import and supply stage, joint representation said.

## Zain KSA completes phase one of Project Reload investment

Telecom network operator Zain Saudi Arabia (Zain KSA) today said it completed the phase one of Project Reload investment. Project Reload is Zain KSA's SAR 4.5 billion network upgrade and expansion plan. Zain KSA significantly enhanced the customer experience – focusing on the quality, speed and coverage of 4G LTE data network. Zain KSA also opened, or refreshed, 91 Zain branded points of sale in 2015. Hassan Kabbani, chief executive officer of Zain KSA said: "Our customers become much more active members of the digital society in Saudi Arabia. Customers are consuming an ever increasing amount of our data services. Our strategy to offer mobile video streaming services in Saudi Arabia appears to be resonating well with consumers." Zain KSA said revenues grew 9 percent to reach SAR 6,741 million in 2015 and 7 percent quarter on quarter to SAR 1,672 million in Q4 2015. Net losses of Zain KSA for the year narrowed by 23 percent to SAR 971 million, down from SAR 1,269 million during 2014, with Q4 net losses dropping by 5 percent drop to SAR 291 million, down from SAR 306 million during Q4 2014.

## Batelco receives non-binding offers for Umniah

Bahrain Telecommunications Company (Batelco) has received a number of non-binding offers for its Jordanian wireless arm, Umniah, from 'potential interested parties' the group announced in a bourse filing. Batelco revealed in October last year that it was considering options for Umniah and launched a private sale process for the celco shortly afterwards. The group and its advisers will now evaluate the offers, although no timeframe for the assessment process was given, nor were the identity of the bidders revealed.

## State Bank of Pakistan points out heavy taxation as cause of low broadband internet adoption

Earlier this month, the World Bank ranked Pakistan as having the fourth highest offline population in the world after India, China and Indonesia. The State Bank of Pakistan (SBP) has now pointed out its main reason as heavy taxation for low internet broadband use through mobile and different



technologies. According to State Bank of Pakistan quarterly report, Pakistan presents a huge market of about 130 million people that need broadband services. Currently, there are 24.7 million, including 21.65 mobile broadband users. "Despite being among top 10 countries of the world in terms of number of mobile users, share of broadband and mobile users in Pakistan is still low," SBP stated in its report with its independent analysis on mobile phone sector and taxation over its mobile broadband services. Mobile sector is heavily taxed in Pakistan, impacting devices, usage

and SIM cards. Following are the key taxes that directly impact consumers and providers of mobile industry in Pakistan:

19.5% GST mobile services.

14% withholding tax on mobile services.

Custom duty of Rs 250 on mobile handsets.

On Broadband Internet Services, the tax rate is 19.5% in Punjab for more than 2 mbps speed. It was removed by Punjab government after fierce campaign by digital publishers along with cellular operators.

In Sindh, the tax is 18% if broadband bill exceeds Rs 1500.

10% duty on import of equipment used for voice reception, switching and routing of data etc.

Corporate tax of 32%.

The report did not mention 19.5 percent GST on broadband and 3G/4G services in KPK. SBP reiterated in its report that data services and mobile internet have been exempted from taxes all over the world because of their benefits to masses and effects on social developments and economic growth. The report also mentioned that studies show that increased internet usage contributes positively to country's economic growth quoting World Bank analysis that indicated that for every 10 percent increase in the

penetration of broadband services, there is an increase in economic growth of 1.3 percentage points, which was proved in 120 countries. SBP believes heavy taxation on mobile services in Pakistan does not bode well for economic growth in the country. This shows large untapped potential in the broadband segment. Other issues such as quality of services, complex price structure, and high charges of devices result in lower mobile and broadband usage. From the perspective of mobile operators, high cost of entry, costlier devices, poor fixed line infrastructure, and taxation

on imported equipment hinder the new investment necessary for the expansion of such services to the unserved areas of the country, SBP report mentioned. The analysis is not different from what digital publishers and media have explained to policymakers repeatedly in the past six months. Now, the same has been highlighted by a highly competent and independent organization of the country.

## Mena M&A market reached \$56.2 billion in 2015

Middle Eastern investment banking fees reached \$636.4 million during full year 2015, 16 percent less than the value recorded during full year 2014 and the lowest annual period for investment banking fees in the region since 2012, according to estimates from Thomson Reuters / Freeman Consulting. Nadim Najjar, Managing Director, Mena, Thomson Reuters, said: "The value of announced M&A transactions with any Middle Eastern involvement reached \$56.2 billion during full year 2015, 13 percent more than the value registered during the same period in 2014 and marking the best annual period since 2008." "Middle Eastern equity and equity-related issuance totaled \$5.7 billion during the full year 2015, a 50 percent decline from full year 2014 and the slowest annual period for equity capital markets issuance in the region in two years. Middle Eastern debt issuance reached \$6.2 billion during the fourth quarter of 2015, a significant increase compared to the value raised during the previous quarter," he added. In respect to investment banking fees, fees from completed M&A transactions totaled \$213.1 million during full year 2015, a 4 percent increase compared to a year ago and the only investment banking product in the region to see a year-over-year gain. M&A fees accounted for 33 percent of the overall Middle Eastern investment banking fee pool, the highest annual share since fee records began in 2000. Equity capital markets underwriting declined 33 percent compared to last year, while syndicated lending fees totaled \$278.6 million, down 16 per

cent from 2014. Fees from debt capital markets underwriting declined 33 percent year-on-year to \$59.1 million. HSBC earned the most investment banking fees in the Middle East during full year 2015, a total of \$62.9 million for a 9.9 percent share of the total fee pool and up 2.1 percent share points compared to a year ago. HSBC also topped the completed M&A fee rankings, while Nomura was first for DCM underwriting. EFG Hermes took the top spot for ECM underwriting fees in the region with 15.5 percent share. Mitsubishi UFJ Financial Group took the top spot in the Middle Eastern syndicated loans fee ranking with \$18.2 million in fees for 6.5 percent of the market. As for M&A deals, Outbound M&A drove activity, up 34 percent from 2014 to reach \$35.2 billion, the highest annual total since 2008. Overseas acquisitions from the United Arab Emirates accounted for 46 percent of Middle Eastern outbound M&A activity, while acquisitions by companies based in Qatar and Saudi Arabia accounted for 36 percent and 10 percent, respectively. Domestic and inter-Middle Eastern M&A decreased 16 percent year-on-year to \$11.3 billion. Inbound M&A also saw a marked increase, up 29 percent to \$5.4 billion. Healthcare was the most active sector, accounting for 24 percent of Middle Eastern involvement M&A. The largest deal with Middle Eastern involvement during the year was the \$11.1 billion acquisition of South Africa-based Mediclinic International by Al Noor Hospitals Group PLC. Morgan Stanley topped the full year 2015 announced any Middle Eastern involvement M&A league table with \$18.4 billion in advisory credit. In respect to Equity Capital Markets, Eleven initial public offerings raised \$2.6 billion and accounted for 45 percent of full year activity in the region. Follow-on and convertible offerings accounted for 17 percent and 38 percent, respectively. Aabar Investments PJSC raised \$2.2 billion from a convertible offering in March, the largest equity offering in the region during the year. HSBC took

first place in the full year 2015 Middle Eastern ECM ranking with 16.5 percent market share. As for Debt Capital Markets, Middle Eastern debt issuance reached \$6.2 billion during the fourth quarter of 2015, a significant increase compared to the value raised during the previous quarter. Despite the quarterly increase, full year bond issuance in the region decreased 19 percent from last year to \$30.2 billion during full year 2015, marking the lowest annual total since 2011. The United Arab Emirates was the most active nation accounting for 60 percent of activity, followed by Bahrain with 9 percent. International Islamic debt issuance declined 23 percent year-on-year to reach \$28.9 billion during full year 2015. Nomura took the top spot in the Middle Eastern bond ranking during 2015 with a 27 percent share of the market.

## Pakistan has Huge Potential to Manufacture Smartphones

The increasing population of Pakistan clearly indicates that the country has great potential for smartphone penetration. Also the 3G/4G services has accessed to the far flung regions



like Gilgit-Baltistan (GB) recently. Smartphone shipment in Pakistan has massively increased by 214% on yearly basis during the first 3 months of 2015 compared to 2014, according to International Data Corporation (IDC) report.

## Ooredoo signs USD177m financing deals

Ooredoo Oman has signed three new financing agreements with local and international banks worth USD177 million. The firm, which is

majority owned by Qatar-based telecoms group Ooredoo, said that the new funding will be used 'for general corporate purposes and will underpin continued investment in the company's network and ongoing enhancement of services for the company's growing business and consumer customers.' Ooredoo has spent more than OMR124 million (USD321 million) on the modernization of its network over the last three years, resulting in population coverage increasing to approximately 99%. Commenting on the agreement, Ooredoo's chief financial officer Jorgen Latte said: 'There has been huge interest from both local and foreign banks in our new facility. With our clear vision and strategy, Ooredoo attracts many banks who want to participate and support our strategic ambitions.'

## Egypt's net invested capital rises to 11.4% in FY2014/2015

Egypt's net invested capital increased to 924.7 billion Egyptian pounds in fiscal year 2014/2015 from 830.3 billion EGP in FY 2013/2014, with an increase of 11.4 percent, the Central Agency for Public Mobilization and Statistics (CAPMAS) announced. The report attributed this hike to the increase of investments in sectors of manufacturing, oil, mining, transport, communication, housing, and construction. Regarding the financial investments value, the report stated that it rose to 534.2 billion EGP in FY2014/2015 from 462.6 billion EGP in the previous year, recording an increase of 15.5 percent.

## Omantel's debut sukuk opens for subscription

Oman Telecommunications (Omantel), the Sultanate's incumbent telecoms operator, has opened for subscription its debut OMR50 million (US\$129.4 million) sukuk issue, writes the Times of Oman. The Islamic bond, which will have a lifespan of five years, is offered on private placement to Omani and international investors, who will be able to subscribe in both US dollars and Omani rials. The minimum subscription amount is OMR100,000/US\$260,000 and the profit rate will be set through a uniform price auction to be finalized upon closing of the subscription

period, which is planned for 26 January. Omantel has mandated Standard Chartered Bank as sole structuring advisor, while HSBC, National Bank of Oman and Standard Chartered Bank have been hired as joint placement agents for the issue.

## 2015 Substantiates to be a Hard Year for the Development of Telecom Sector in Pakistan

During 2015 the telecom sector witnessed many milestones, but still it substantiated to be a little hard with respect to legislation, revenues, taxation and investment. There is an extensive list of happenings from Biometric Verification System (BVS) till merger of two operators Mobilink and Warid. The summary of important events during 2015 that exhibited that it was a bit hard for Telecom Sector to develop are discussed below. Re-verification of SIMs through BVS was made an essential part of National Action Plan (NAP) to limit identity theft and to assure that no unregistered SIM was being used in the country. Due to this reason total number of active SIMs dropped down from 139 million to 111.5 million. This move lowered the revenue of CMOs. According to figures till end of November 2015, the number for active SIMs has mounted again to 124.4 million, while total number of broadband subscribers reached 24.8 million. PTA claimed noteworthy decline in grey trafficking, besides decrease in voice call rates for Pakistanis abroad, after withdrawal of International Clearing House (ICH) policy. According to the government international incoming traffic raised to 1.6 billion minutes per month, up from mere 370 million minutes per month during ICH. The government is still trying to completely eradicate the grey traffic to evade any unlawful usage of telephony services. The Telecom Policy 2015 proved to be a milestone for future growth and development of ICT and specifically telecom sector. The vision enunciated in the policy is accessibility of universal, reasonable and quality telecommunication services provided through open, competitive and well managed markets. It is anticipated that competition framework will make telecom market more proficient in terms of quality of service and choice

of services offered to the consumers. The increase in taxes affected telecom industry. The revenue for the auction of 3G/4G spectrum was revised to Rs 65 billion for 2015-16. To evaluate market demand for auction of left over 3G and 4G licenses, PTA hired a consultancy firm for this purpose. In the same way FBR decided to conduct forensic audit of cellular companies to inspect tax collection and financial statements submitted by them. According to PTA, yearly cellular mobile revenue during 2013-14 was Rs 322.7 billion which is 70% of the total telecom revenues. The telecom contribution to national exchequer, profits and investment also recorded decline during 2014-15. Mobilink and Warid announced to merge their operations in Pakistan at the end of 2015, and as a result, after required endorsements a merged company with almost 45 million customers will arise. The government and policymakers need to re-consider and re-organize their primacies, so that a more welcoming environment can be made that can invite FDI and subsidize to national progress.

## Ooredoo launches mobile financial services in Iraq

Ooredoo announced the launch of mobile financial services at its Iraqi operation, bringing the number of markets in which it offers mobile money to four. The Qatar-based telecoms group said its Asiaccell unit in Iraq started offering mobile money services from AsiaHawala in December. AsiaHawala is an Iraq-based diversified financial services company. It was founded by Iraqi Kurdish telecom professional Zring Faruk in 2014 and is the first mobile money service provider to launch in Iraq. It is licensed by the Central Bank of Iraq. The service enables Asiaccell customers to carry out transactions such as money transfers and bill payments. It is available at 1,600 locations across Iraq, Ooredoo said. As a result of the launch, Ooredoo now offers mobile financial services in four markets, the other three being its home market of Qatar, Indonesia, and Tunisia. "Ooredoo is deploying a full range of innovative solutions to extend the range of mobile financial services across our footprint, and we're very proud that Asiaccell has launched the first mobile money service licensed by the Central Bank of Iraq," said Ooredoo's group CEO Saud Bin Nasser Al Thani, in a statement.

## Bahrain mobile prices fall by 55% in 2010-2015 - study

Mobile prices fell by up to 55 percent and fixed broadband prices fell by up to 85 percent between 2010 and 2015 in Bahrain, according to the latest retail price benchmark study performed by Strategy Analytics for the Telecommunications Regulatory Authority (TRA) and the Arab Regulators Group (AREGNET). The price of residential ADSL broadband with speeds up to 10 Mbps went lower to BHD 20 in 2015 from BHD 80 in 2010, and the data allowance increased to 150 GB from 50 GB. The study showed that residential customers in Bahrain are starting to enjoy the benefits of ultra-fast broadband, or broadband with download speeds above 100 Mbps. In general, the prices of telecom services in Bahrain continued to compare well with other GCC and Arab countries. Bahrain also improved during 2015 against developed countries that are members of the Organisation of Economic Co-operation and Development (OECD), comparing well particularly for fixed broadband and mobile broadband prices, which are lower in Bahrain than the OECD average. The findings are supported by a separate report published recently, at the end of November, by the International Telecommunications Union (ITU) titled Measuring the Information Society Report. The report found that Bahrain made the most progress in the ITU's ICT Development Index (IDI) value between 2010 and 2015 among the 167 economies covered. The ITU also found that the fixed broadband services have become very affordable in Bahrain, where the fixed-broadband basket represents less than 2 percent of GNI.

## Zain Kuwait trials 4.5G technology

Zain Kuwait has achieved download speeds of 1Gbps in a trial of a 4.5G technology over its LTE mobile broadband network, in cooperation with equipment vendor Huawei. Eaman

Al Roudhan, Zain Kuwait's CEO, said: 'Earlier this year, we teamed up with Huawei to trial and implement 4.5G services on our network in Kuwait, and we were pleased with the successful results we accomplished today. With the implantation of further tests in the near future, we will be better prepared to launch 4.5G technology commercially within the next three years as soon as compatible devices are available in the market.' Through its strategic partnership with Huawei, Zain is also planning to provide voice-over-LTE (VoLTE) and machine-to-machine (M2M) services, going forward. According to TeleGeography's GlobalComms Database, Zain Kuwait commercially launched its LTE network in November 2012; the 4G network currently covers 100% of the population.

## Saudi ICT spending to top \$35 billion in 2016

ICT (information and communications technology) spending in Saudi Arabia will reach \$35.9 billion in 2016 as organizations across the Kingdom have started to embrace digital transformation initiatives in an effort to optimize costs and improve their business process efficiencies. "The Saudi ICT market is highly competitive, and only the most progressive service providers with strong capabilities around emerging technologies will continue to grow," said Abdulaziz Al-Helayil, IDC's regional director for Saudi Arabia, Kuwait, and Bahrain. "In a bid to optimize their costs and increase their levels of operational efficiency, organizations are increasingly investing in transformative business initiatives, using technology to support this transition. While 3rd Platform technologies such as mobility, cloud, Big Data analytics, and social business are finding increasing traction in Saudi Arabia, macroeconomic factors such as low oil prices and regional instability are expected to slow the strong growth rates that the Kingdom's ICT market has become accustomed to over the last few years. As such, we have adjusted our ICT market forecast for 2016 down from \$36.7 billion to \$35.9 billion, which represents a more modest-than-usual growth rate of 3.8% year on year." IDC explained that IT security is becoming a key component of digital transformation strategies in Saudi Arabia, with a growing

number of organizations looking to implement various advanced and predictive IT security solutions such as multifactor authentication and access management, real-time policy enforcement, and analytics-based monitoring. IDC predicts that spending on IT security software in Saudi Arabia will grow 12% year on year in 2016 to total \$96 million, with the evolving cyberthreat landscape and the proliferation of 3rd Platform technologies fueling concerns around data privacy and driving demand for security services. Cloud services are also playing a vital role in Saudi Arabia's digital transformation journey, with IDC explaining that more than a third of Saudi organizations have already invested in cloud services. According to IDC's FutureScape Predictions, the public cloud market in Saudi Arabia will grow 44.5% year on year in 2016 to total \$63 million as an increasing number of end-user organizations migrate non-core workloads such as productivity and team collaboration, sales and marketing, and human capital management to the cloud. "Skills shortages and the growing complexity of operating and maintaining IT infrastructure are both encouraging business leaders to consider remotely delivered services such as cloud as a viable cost-effective alternative," Hamza Naqshbandi, senior research manager for IT services at IDC Middle East, Africa, and Turkey. "The improved availability of commercial datacenter space - led mainly by telecom operators - has been encouraging the consumption of cloud services; however, IT security concerns and the changing threat landscape have considerably hampered what could have been an era of rapid growth for cloud services. As the largest IT market in the region, and still relatively unsaturated when it comes to cloud services, Saudi Arabia represents a considerable revenue opportunity for local, regional, and global service providers, as a growing number of end users will turn to cloud services to optimize their IT operations, both from a cost and efficiency perspective."



## REGULATORY NEWS

### REGULATORY UPDATES

#### Pakistan's State Bank complains high taxes slow broadband growth

High taxes on Pakistan's telecoms industry has curbed uptake as well as usage of broadband services and left the country lagging behind its peers in the region, according to a report by the State Bank of Pakistan. Mobile broadband penetration increased from about 10 per cent to 18.5 per cent last year, according to GSMA Intelligence, while the country's internet penetration is only about 12 per cent, the report stated. Despite having a fairly high mobile penetration rate of 65 per cent, "the share of broadband mobile users in Pakistan is still low", the bank's report said, noting there is a large, untapped potential in the broadband segment. The quarterly report summarized the tax regime the industry faces: 19.5 per cent GST and 14 per cent withholding tax on mobile services; custom duty of PKR250 (\$2.35) on handset imports; 19.5 per cent tax on broadband internet services exceeding 2Mb/s in Punjab; 18 per cent tax on broadband bills over PKR1,500 in Sindh; 10 per cent duty on equipment imports used for voice reception, switching and routing of data; and a corporate tax of 32 per cent. The report, which covers the July-September period, pointed out that the country's tax rate (VAT or GST) for operators was the second highest

compared with Bangladesh, Egypt, India and Turkey. Pakistan also had the highest corporate tax rate for telecoms operators among the five countries. The bank noted that the government's new telecoms policy does not properly address the industry's concerns about high taxes, Express Tribune reported. The report reinforces the findings of a committee set up by the Ministry of Information Technology that showed that the high tax burden slowed revenue growth and hampered the government's effort to hold a 3G/4G spectrum auction. The committee proposed a tax relief package for the sector, which struggled last year with declining revenue after the government raised taxes and introduced a number of new levies. Three mobile operators — Mobilink, Telenor and Warid — earlier this week united in urging the government to drop a proposal to impose sales tax on SIM cards and handsets. The Federal Board of Revenue has proposed introducing a tax on the import and supply of SIM cards, ProPakistani reported. The country already taxes the import and supply of handsets. Despite the heavy burden, operators' data revenue expanded more than threefold over the last five years and now accounts for a quarter of total turnover, the Pakistan Telecommunication Authority said.

## Airtel nears 4G spectrum trading deal with Aircel – report

India's largest operator Bharti Airtel reportedly is close to finalizing a deal to buy 4G spectrum from smaller rival Aircel for about INR38 billion (\$357 million) to expand its 4G footprint as mobile newcomer Reliance Jio prepares to launch 4G service nationwide. The agreement to buy Aircel's 2.3GHz spectrum in eight service areas, where Airtel doesn't currently own airwaves in that band, would expand its 4G spectrum holdings from 15 to 18 regions, the Economic Times reported. A deal is expected by the end of Q1, sources told the newspaper. Competition in the country's 4G market has intensified with the pending entry of Jio, the only operator to own 4G spectrum across India (22 service areas). After multiple delays last year, Jio said it will officially launch 4G services by early March and also recently closed spectrum deals with Reliance Communications (RCom). Number four RCom and Jio finalized a spectrum sharing and trading alliance that will see RCom sell 800MHz spectrum in nine regions to Jio and both share bandwidth in the same band in 17 service areas. As part of the agreement, the two companies also plan to enable roaming between their networks within service areas. They already have long-term deals to share tower and fiber assets nationwide. RCom recently paid the Department of Telecom INR53.84 billion (\$805 million) to 'liberalize' its spectrum in the 800MHz band so it can trade and share the airwaves with Jio. In August Airtel acquired 100 per cent of Augere Wireless Broadband, which owned 20MHz of 2.3GHz spectrum in the Madhya Pradesh-Chhattisgarh region. While Jio has delayed its 4G launch, Airtel has aggressively pushed 4G across the country and said back in August it plans to expand its 4G service, available in 45 cities and towns, to 296 urban areas. But less than 700,000 of its 238 million mobile connections are 4G, according to GSMA Intelligence.

## French authorities to examine Orange-Bouygues Telecom deal

France's competition authority will be responsible for investigating any deal between Orange and Bouygues



Telecom, and not the European Commission, Reuters claimed. The newswire cited unnamed sources as saying that the European Commission will play no part in the approvals process if a takeover deal is struck by the telcos. One of the sources added that "there's no doubt" that any deal would come under French jurisdiction. Orange and Bouygues Telecom revealed they were holding merger talks earlier this month. Given that Orange is the biggest player in the French market, any deal would doubtless include the sale of assets, possibly including spectrum and customers. While it seems unlikely that the European Commission wouldn't interest itself in a deal that reduces the number of mobile network operators in the market to three from four, it is possible that the telcos could iron out all competition issues themselves, through the terms of the merger agreement, and thereby avoid interference from Brussels. It remains to be seen whether Reuters' sources are correct though.

## Cameroon operators hit with fraud claims

Three operators in Cameroon have come under fire from anti-corruption regulators for allegedly defrauding the state of \$289 million, according to Bloomberg. Market leader MTN, France's Orange and state-owned CamTel are accused of evading taxes, royalties and receiving illegal tax rebates in a report by the National Anti-Corruption Commission (Conac). According to the report, released by commission chairman Dieudonne Massi Gams, the ministries of finance and post and telecommunications colluded with the operators by providing illegal tax rebates. The issue dates back to activities between 2010

through to 2014, with the telecoms regulatory board also accused of failing to act on the alleged wrongdoings. Conac's Vice President, Garga Haman Adji, told Bloomberg the regulator expects that Cameroon president Paul Biya will order legal investigations over the matter to establish why "two ministries of his government can afford to grant rebates to the operators". MTN and Orange officials are reportedly studying the report. According to GSMA Intelligence, South Africa's MTN is estimated to have just under 10.5 million connections in the market as of Q4 2015. Its closest competitor is Orange with more than 8 million connections, while CamTel lags behind with 27,095 connections. Viettel's Nexttel is the country's third largest player with more than 3.6 million connections.

## EU Parliament makes recommendations on Digital Single Market

The European Parliament has adopted a number of recommendations on the EU's Digital Single Market strategy. The EP said in a statement that it plans to "co-legislate" with the European Commission on the DSM, which was first unveiled last year by the new EC. Most of the recommendations adopted by MEPs in a large majority (551 for, 88 against, 39 abstentions) are in line with the proposals already made the EC, such as putting an end to geo-blocking in order to increase access to digital services across EU countries and ensuring equivalent consumer protection for digital services whether purchased on- or offline. Other recommendations include improving cross-border parcel delivery in order to stimulate international e-commerce and removing barriers for small businesses to adopt new ICT such as

big data, cloud computing and the IoT. MEPs also called for a review of the ePrivacy directive in order to ensure it's consistent with the new EU data protection rules. This is something long called for by telecom operators, who have complained they are subject to double regulation under both the ePrivacy directive and the more general data protection rules. MEPs also want the EC to do more to address the emerging 'sharing economy' of services such as AirBnB and Uber, in order to ensure consistent consumer protection across EU countries amid diverging national policies to date. Other topics addressed in the resolution include copyright, telecoms, VAT rules, audiovisual media, e-skills, e-government, and employment rights. The parliament's resolution will feed into the DSM legislative proposals expected from the EC before the end of the year.

## EC urges mobile industry to hurry up on 5G

Gunther Oettinger, the European commissioner for the digital economy, called CEOs from Europe's leading operators and vendors to a meeting today about progress on 5G. Oettinger wrote to the CEOs of Europe's ten leading telecoms firms to say "Europe must be a leader in this area", according to the Financial Times. The letter adds that the EC chief wants to create "closer EU co-ordination to achieve a timely deployment of 5G" and to

scheduled in his diary for January 12. Among others, letters were sent to the CEOs of BT, Deutsche Telekom, Telecom Italia, Orange, Vodafone, Nokia and Ericsson. The European Commission has announced various initiatives designed to encourage 5G deployment and is reported to be worried about how economic rivals such as China, Japan and South Korea have given the technology a priority. For instance, China's Ministry of Industry and Information Technology (MIIT) this week announced a roadmap for testing 5G. However, the development of 5G is not just a matter of competition between countries and economic blocs, it's also about collaboration. The EC signed an agreement in September with China to make "5G a reality by 2020" and has similar agreements with South Korea and Japan.

## Singapore to restructure telco, media watchdogs

Singapore announced it will restructure its telecoms and media regulators in light of the convergence of the two sectors. Due to launch in the second half of 2016 the Info-communications Media Development Authority (IMDA) and the Government Technology Organization (GTO), will replace the Info-communications Development Authority (IDA) and the Media Development Authority. The IMDA will develop and regulate the converging telecoms and media sectors in the interests of consumers and enterprises, said a statement from Singapore's Ministry of Communications and Information (MCI). The government also plans to form the Personal Data Protection Commission, which will be part of the IMDA, and will take responsibility for maintaining public confidence in the way the private sector uses personal information. "The infocomm landscape has evolved over the years, and the pace will quicken with growing infocomm and media convergence. Our government agencies responsible for infocomm and media must ensure they are optimally structured, to help Singapore

benefit from and exploit opportunities in the new digital economy," said Chan Yeng Kit, chairman of the IDA. "It will pave the way for a more harmonized regulatory framework, and integrated approach to industry development," added MDA chairman Niam Chiang Meng. Meanwhile the GTO will lead Singapore's digital transformation efforts in the public sector, encouraging citizens to participate in the co-creation of digital public services. It will also help government agencies take advantage of new technology, such as robotics, artificial intelligence, the Internet of Things (IoT) and big data, among others. The restructuring is due to begin on April 1.

## ARCEP warns of competition issues in Orange/Bouygues deal

Sebastien Soriano, head of France's Regulatory Authority for Electronic Communications and Posts (Autorite de Regulation des Communications Electroniques et des Postes, ARCEP), has warned that reducing the number of operators in the market could be interpreted as 'regression in relation to the introduction of competition', Les Echos writes. Earlier this month French telecoms provider Orange and domestic conglomerate Bouygues entered into a confidentiality agreement, which marked the beginning of official negotiations in regards to Orange's acquisition of the latter's telecoms and media assets (excluding the FT1 channel); the deal is valuing Bouygues Telecom at roughly EUR10 billion (USD10.9 billion). In an interview with the domestic newspaper, Mr. Soriano said: 'If the [Orange/Bouygues Telecom] transaction goes ahead, it cannot result in strengthening Orange's position, especially in markets where it is the leader ... the incumbent [operator] is already very strong.' Mr. Soriano added that if French authorities are designated to oversee the transaction (instead of European competition regulators), ARCEP will give its 'expert advice' to the Competition Authority (Autorite de la Concurrence), while paying 'special attention to markets where competition is still limited, especially for corporate customers and in rural areas.' Further, the official highlighted that ARCEP – which has a 'direct veto power' on frequency



develop a "home market" in Europe for 5G-based products and services. Oettinger tweeted on 8 January about "several important meetings next week about 5G, Industry40 and broadband". The 5G meeting is

issues – could block the transfer of licenses between operators and even compel operators to return frequency authorizations to the state.

## Net neutrality: Regulator received only 21 counter comments to its consultation

Telecom regulator TRAI only received 21 comments from individuals and organizations countering 24 lakh submissions over its paper on differential pricing of data, a key aspect of Net neutrality. Telecom operators, including Airtel, Vodafone, Idea Cellular and Reliance Communications, through industry bodies, Cellular Operators Association of India (COAI) and Association of Unified Telecom Service of India (AUSPI), countered inputs opposing the idea of pricing the Internet services. "Price differentiation will allow TSPs to cater to specific consumer requirements, including facilitation of access to those segments that are currently unconnected or poorly connected. Price differentiation is a widely adopted business practice used in many industries," COAI and AUSPI said in their joint counter comments to TRAI. The Telecom Regulatory Authority of India invited public comments to firm up its views over services that lead to differential pricing of data and January 14 was the last date for submitting counter comments on the same. Internet Democracy Project (IDP), one of the stakeholders, countered the TSPs, saying telecom operators' comment on Internet-based calling services or VoIP to charge different rates for the Internet and the current debate should not be mixed up. Another entity, Internet Service Providers Association of India changed its stance slightly in counter comments, saying a blanket ban on non-discriminatory data differential tariff would have an adverse impact on the proliferation of Internet service and may affect tariff innovation. "In light of the above, we believe that data differential tariffs should be permitted subject to this condition that such differential tariff regime should meet the TRAI prescribed principles and TRAI continues to securitize each and every differential tariff plan," ISPAI said. While favoring differential pricing for data services, Facebook countered comments that have singled out the

Free Basics program as an example of a zero-rating plan that should be prohibited. It said commentators have falsely claimed that Facebook uses the data obtained from developers using the Free Basics program to enhance Facebook products and improve advertising.

## South Africa's telecoms committee to debate regulation of OTT services

South Africa's Portfolio Committee on Telecommunications and Postal Services is planning to hold hearings to determine whether policy interventions are required to govern over-the-top (OTT) VoIP services – including Viber, WhatsApp and Skype – in the country, TechCentral reports. According to the committee, the hearing will consider the impact of OTT services on competition and whether there is a need for such providers to be defined as telecoms services providers or telecoms infrastructure providers; the committee will also debate whether such applications should be subject to licensing and regulatory obligations. While MTN South Africa, Vodacom and Telkom have all previously called for regulations governing OTT services, Cell C has warned that such legislation 'could be to the detriment of the industry and consumers at large'.

## BT, EE merger gets regulatory clearance from CMA

BT's proposed acquisition of UK mobile network operator EE has been given final clearance by the Competition and Markets Authority (CMA), the latter has announced, following a provisional decision to approve the merger of the two companies back in October 2015. In announcing its final ruling, the CMA noted that a 'range of concerns were raised by other operators and customers in the UK telecoms industry', while saying its assessment of the matter had been 'complex, detailed and rigorous'. Having considered responses to its provisional findings, as well as evidence gathered during the inquiry, the CMA inquiry group has argued that the merger of BT and EE (currently

a joint venture of Deutsche Telekom and Orange Group) is not expected to result in a substantial lessening of competition (SLC) in any of the UK's telecoms markets, including in relation to the supply of retail mobile, wholesale mobile, mobile backhaul, wholesale broadband and retail broadband services. As part of its investigation, the CMA inquiry group reportedly looked at how the tie-up would affect competition in a number of different areas of the telecoms sector, while also examining how the merger might affect competition for services to consumers which both companies currently provide. Specifically it was noted that consideration had been given to whether the tie-up might alter the merged company's incentives to continue to supply services to other communications providers on a wholesale basis. In total, the inquiry group considered ten areas of concern (or theories of harm) outlined in an issues statement published in July 2015, and the overall impact of the merger on the UK telecoms sector, with the group unanimous in its final report in finding no SLC in relation to any of the markets reviewed. Commenting on the development, John Wotton, Inquiry Chair, said: 'Since our provisional findings, we have taken extra time to consider responses in detail but the evidence does not show that this merger is likely to cause significant harm to competition or the interests of consumers ... We have heard wider concerns about the sector, including about Openreach and its regulation by Ofcom. Our job has been to examine the specific impact of this merger on competition and consumers and, where relevant, we've looked at how these issues might be affected by the merger. There is also an ongoing Ofcom review into the sector and its future regulation, where such concerns may have more relevance.'

## Court grants RCOM reprieve in spectrum usage case

The Kolkata High Court has given Reliance Communications (RCOM) permission to proceed with the liberalization of its 850MHz airwaves in 16 circles without submitting a bank guarantee for the one-time spectrum charge, the Economic Times reports. Under the rules governing the sharing or trading of airwaves in India, operators are first required to pay the

government the market-determined price for any spectrum which they did not purchase via auction, a process known as 'liberalizing' the spectrum. Earlier this week the Department of Telecommunications (DoT) set a price of INR69.53 billion (USD1.04 billion) for RCOM to liberalize its airwaves, including a market price of INR53.84 billion for the frequencies and a spectrum usage charge of INR15.69 billion. RCOM has questioned the legality of charging the latter, however, and the matter is pending in various courts. In the meantime, the Kolkata High Court has given RCOM the green light to forge ahead with the liberalization process whilst the question of spectrum usage fee is resolved. The decision will enable RCOM to go ahead with a rumored spectrum sale and sharing deal with Reliance Jio Infocomm (RJIL), expected to be announced next week.

## Kenyan Government intervenes in Netflix regulation row

An intervention in the regulatory row in Kenya over the recent introduction of Netflix's video streaming service has been made by ICT Cabinet Secretary Joe Mucheru. Discussions that will lead to the drafting of regulations for over-the-top (OTT) service providers, which will encourage their presence, have begun, reports The Daily Nation. The comments follow a difference of opinion by the Communications Authority of Kenya and the Kenya Films and Classification Board (KFCB). The KFCB says Netflix should apply for a local broadcasting license to ensure it is subject to Kenya's film classification system, while the Communications Authority says that as Netflix is an OTT content provider and does not control the transmission of its material, it is impossible to license it locally or regulate its content – unlike a cable TV company. "Netflix is an over-the-top service provider, and subscribers get its content through streaming. As such, the Communications Authority will not ask them to apply for a license," said Francis Wangusi, CEO Communications Authority of Kenya. "Should Netflix partner with local providers or avail its content on the digital broadcasting platform where its signals can easily be accessed, then it will be required to adhere to local broadcasting regulations." Diffusing the argument, ICT Cabinet

Secretary Joe Mucheru said: "We want the businesses of OTTs to actually be based here. There is a huge debate as to whether we will be billing or charging Netflix, and I think OTT should feel comfortable to invest in Kenya. "The government is responsible for regulation; policy will come from government, then it will be regulated, but this will take some time. Regulators have to wait," he is reported as saying in The Daily Nation.

## Reliance Comm asked to pay price for liberalizing 800 MHz spectrum

The Department of Telecommunications (DoT) has sought about Rs 5,600 crore from telecom network operator Reliance Communications for liberalizing 800 MHz spectrum in 16 mobile circles, PTI reported. DoT issued a notice on December 22 and asked the Anil Ambani promoted Reliance Communications to pay within a month. Reliance Communications applied for liberalizing its 800 MHz spectrum in 20 circles a few months back. Reliance Communications is yet to receive any notice for the remaining four circles, where market determined price is not available. The four circles are — Kerala, Karnataka, Rajasthan and Tamil Nadu. The DoT already sought telecom regulator TRAI's views on liberalization of spectrum in circles where market determined price is not available.

## Court backs CCT in 700MHz spectrum dispute

British Virgin Islands (BVI)-based Caribbean Cellular Telephone (CCT) has confirmed that the Eastern Caribbean Supreme Court has backed its legal case against the Telecoms Regulatory Commission (TRC) regarding the cellco's exclusion from last year's 'Spectrum Award 2015' process. Last October, TRC chief executive Guy Malone announced that only two of the country's three mobile operators – Digicel and LIME – had applied for 4G spectrum, prompting locally-owned CCT to take legal action. According to a report by BVI News, the company claimed that its application had been unfairly rejected by the TRC, resulting in it being prevented from bidding for

4G-suitable 700MHz spectrum. CCT CEO Averad Penn commented: 'We are very thankful for this decision and hope it paves the way for a fair and equitable spectrum award process that will allow us to expand our telecommunications services in the BVI'.

## Calls for new single EU telecoms regulator renewed by European Parliament committees

The Committee on Industry, Research and Energy and Committee on the Internal Market and Consumer Protection made the recommendation in a motion it has tabled for a new European Parliament resolution on the subject of the EU's work towards a digital single market. Resolutions that are voted through by the European Parliament are not binding but they often express the law making body's support for policies and willingness to adopt new legislation that the European Commission could put forward that reflects those plans. In their 'Towards a Digital Market Act' report the two committees said the Commission should put forward plans for a "single telecom regulator" in an effort to ensure telecoms regulations are applied uniformly across the EU, and also rejected the idea that competition rules need to be watered down to encourage investment in new telecoms infrastructure. The Commission is currently reviewing EU telecoms rules. It held a consultation exercise in the autumn last year and has said it intends to use the views it gathers to inform new "regulatory proposals" that it expects to publish this year. The report said: "The European Commission should ensure that the regulatory framework drives competition and thereby private investments in networks. It does not require the weakening of competition rules as there is little evidence of a link between consolidation of companies and an increase in investments. The revision of the telecommunication framework should aim at ensuring the rules are fit for the digital age and drive competition and innovation for over-the-top services and telecom operators, to the benefit of consumers." "Incentivizing private investments in networks also requires for the European Union to have a harmonized framework for spectrum allocation, to give legal certainty to

investors. The European Commission should urgently build momentum with member states to move forward with such proposal. Last but not least, the European Commission should propose a single telecom regulator to ensure a uniform application of rules," it said. The European Parliament committees said that the "role, capacity and decisions" of the existing Body of European Regulators of Electronic Communications (BEREC) should be strengthened "to achieve consistent application of the regulatory framework, ensure oversight in the development of the single market and resolve cross-border disputes" in the area of telecoms. In a speech in October 2015 EU commissioner for the digital single market Andrus Ansip said that telecoms networks that can deliver "top-class connections" across the whole of the EU "need to be built, quickly – and with the appropriate infrastructure". He said the telecoms regulations review would look to support the funding of those projects by companies. "Tackling the huge investment gap to fund the next-generation networks that Europe needs is a major long-term challenge," Ansip said. "The public purse cannot be expected to meet this shortfall. This is why the ongoing review of EU telecoms legislation will look closely at how to incentivize and leverage more private investment." The idea of a single regulator for the EU's telecoms market has been mooted before. In 2013 the European Commission published plans to reform a raft of telecoms rules which were aimed at establishing a single EU telecoms market. Those plans were eventually watered down with the eventual reforms being focused on curbing roaming charges and setting new net neutrality laws. Prior to the Commission's 2013 proposals being published the Commission's Directorate General for Competition (DG Comp) had expressed support for a "true pan-EU regulator" of telecoms. That suggestion did not, however, make it into the Commission's official proposals at the time. DG Comp had said that establishing such a regulator "would be the most effective solution to remove national divergences" in the way telecoms rules are applied.

## MoIT Proposes Relief Package for Telecom Sector in Form of Tax Rationalization

A relief package for the telecom sector, proposing major incentives in form of tax relaxation is on the cards, senior government officials confirmed to ProPakistani. State Minister for Information Technology, Anusha Rehman, had constituted a three member committee seeking its input for evaluation and proposals for rationalization of taxes on telecom sector. The committee was tasked to study the impact of taxes on telecom sector, revenues of telecom operators and user behavior after government increased taxes on telecom services. Consequently, the committee was also tasked to prepare a proposal with its recommendations for tax rationalization for the sector. The



committee was comprised of Chairman Pakistan Telecommunication Authority (PTA) Syed Ismail Shah, Member Telecom, IT Ministry, Mudassir Hussain and Member Legal, IT Ministry, Ms. Ameena Sohail. After intense study and workout, the committee has finalized a report and has submitted it to the IT Ministry. The committee mainly studied the tax ratio during 2012-13 and made a comparison of the industry growth during that time as compared to growth during 2013 till 2015 when new taxes were imposed. According to sources, IT Ministry will submit the report to Finance Ministry for formal approval and to seek relief for the telecom sector. The committee in its report pointed out that increased taxes are negatively impacting the sector. It has further pointed out that heavy taxes have badly affected the prospects of upcoming 3G/4G auction. According to sources, the committee

has recommended the rationalization of taxes for Telecom sector, but it is unclear that what tax ratio it has proposed to the government in its report. Access to broadband services in the country was 3 percent before the launch of 3G/4G services, which is now around 15 percent. According to an international study, a country can reap the benefits of internet access towards economy once the access to services crosses the mark of 20 percent. The committee raised the issue that federal government imposed 14% WTH on internet usage in July 2015 and then there were provincial governments charging up to 19.5% sales taxes on internet and other telecom services. Committee said that internet uptake is at early stages and such massive taxes are curtailing the growth and they must be withdrawn immediately. The committee further pointed out that telecom sector is on federal legislative list, however provincial

taxes on telecom services (GST) seems to be interfering and are unjustifiable. The committee has reportedly recommended their withdrawal. The three members committee has also reportedly proposed industry status for the industry. If the sector wins the industry status, its tax obligations in terms of customs duty, sales tax and income tax would significantly reduce. The government approved a new telecommunication policy last month with the objective to improve the sector's efficiency and service delivery but refused to give it the status of industry, which was desperately needed to get relief from heavy taxes. While MoIT has done a good job in preparing the proposal, it is yet to be seen how Ministry of Finance is going to respond to such recommendations and if any relief in form of taxes will be granted to telecom sector at all or not.

## Let Palestinians control their ICT resources

At least 140 Palestinians and 20 Israelis have been killed in the latest flare-up of violence that began on Oct. 1. While the world's attention is fixated on the crisis, Israel and the Palestinian Authority quietly signed a long-awaited agreement on Nov. 19 allowing Palestinian telecom companies to provide 3G mobile services in the occupied territories. It is unclear whether or how the intensified violence will affect this implementation, but it is urgent that Israel lift the many technological barriers that are still in place. Information and communication technology (ICT) is an important tool for the social,

control over its telecommunication infrastructure in the West Bank (excluding Jerusalem) and the Gaza Strip while ensuring that all incoming and outgoing communication to and from the Palestinian territories goes through an Israeli switch. In other words, Israel has retained complete control, constraining access to the electromagnetic spectrum and imports of equipment. The lack of 3G mobile services has cost Palestinian operators an estimated \$80 to \$100 million annually. Whereas Palestinian mobile operators have struggled with limited 2G technologies for years, in January Israel released 4G mobile broadband radio frequencies to six Israeli companies. Israel's restrictions are not limited to the Palestinian telecom network and the

military assault in 2014. Palestinian investors are further restricted by an onerous process to import ICT equipment, including approval from the Israeli Ministry of Communications for each shipment, up to 30-day waits and delays for products listed as dual-use items. The U.S. government and major American companies have made significant investments in recent years and remain key partners for ICT growth in the Palestinian territories. For example, from 2008 to 2012, Cisco invested \$15 million to boost the Palestinian ICT industry, drawing the interest of other American companies — including Google, Intel, Hewlett-Packard and Microsoft. Without full Palestinian control over the ICT infrastructure, any investment in the sector risks becoming a project to manage the occupation, rather than a catalyst for Palestinian economic growth. The ICT sector is a key engine of development. Israeli Prime Minister Benjamin Netanyahu regularly touts the vitality of his country's high-tech sector in positioning Israel as a major economic power and high-tech corridor. But in the occupied territories, the ICT industry serves as an example of the effect of Israel's military occupation and asymmetrical relationship with the territories under its occupation. One thing is certain: The Palestinian economy has already paid a high price trying to harness the country's economic resources. Israel must immediately lift its restrictions on Palestinians' communications infrastructure and allow them to utilize their resources to their full potential.



economic and political development of the occupied territories. There are an estimated 250 Palestinian ICT operators and approximately 10,000 qualified ICT workers. And at least 1,000 Palestinian students graduate in ICT-related vocations each year. In 2012 the ICT sector accounted for 5.6 percent of the Palestinian gross domestic product, helping drive some development despite the prolonged military occupation. But Israeli control of and restrictions on the sector have limited its potential for the beleaguered Palestinian economy. Since signing the Oslo Accord in 1993, Israel has maintained a tight grip over the ICT sector, to the detriment of the Palestinian economy. As part of the deal, Israel gave the Palestinian Authority limited

ICT industry. Israel has built 3G towers in its settlements across the West Bank and, in some cases, on privately owned Palestinian land, in violation of international law and previous agreements, which prohibit Israel from using the Palestinian spectrum for its economic benefit. By contrast, Palestinian operators are prohibited from building ICT towers and switches in most of the West Bank, including areas that are supposed to be under the control of the Palestinian Authority. As for Gaza, its telecom infrastructure is wholly dependent on Israel. The fiber optic cable that connects Gaza with the world goes through Israel. Gaza's telecom structure has thus become a space of control and surveillance, as reflected in the calls and text messages that the Israeli military sent to Palestinians in Gaza during its

## India close to freeing up 150 MHz of spectrum

DoT reportedly expects defense ministry to vacate 1700-MHz, 2-GHz bands in next three months. India is close to freeing up an extra 150 MHz of mobile spectrum, bringing to an end a saga that has dragged on for almost a decade. According to a Press Trust of India report this week, the Ministry of Defense is expected to complete phase one of vacating the frequencies, located in the 1700-MHz and 2-GHz bands, in the next three months, turning them over to the Department of Telecommunications (DoT). Phase one of the process covers spectrum in six-to-seven of India's telecom circles, the PTI report said. The DoT and the MoD have been discussing freeing up the

airwaves since 2007. In 2009, the two departments signed a memorandum of understanding (MoU) under which the defense ministry would vacate 150 MHz of the 300 MHz of 1700-MHz and 2-GHz spectrum belonging to it, while the DoT agreed to build a dedicated defense network. That network is still being rolled out. However, to avoid further delays to freeing up spectrum for mobile services, the government set out a spectrum harmonization plan, under which the defense ministry was allocated spectrum bands for exclusive use by the MoD. That allowed the defense ministry to push ahead with making the remaining frequencies available to the DoT. Once the process is complete, the spectrum will eventually be sold off to mobile operators.

## Philippines telecoms industry shows concerns over the current allocation of 700 MHz spectrum

According to an official statement released by Globe Telecom, there is unfair distribution of 700 MHz spectrum in the country. San Miguel Corporation currently holds 90 percent of the 700 MHz spectrum across the country. Major telcos in the Philippines are now approaching authorities to distribute the spectrum evenly among major players. Both the Philippine Long Distance Telephone Company (PLDT) and Globe Telecom have urged National Telecommunication Commission (NTC) to distribute the spectrum evenly among industry players. PLDT head of Regulatory Affairs Ray Espinosa recently said that the company would lobby directly with President Aquino on the issue, and that its external legal team was preparing to launch legal action against the NTC, San Miguel and any of its partners unless the spectrum was shared. The 700 MHz spectrum has been regarded crucial for the growth of mobile broadband. At the 2015 World Radiocommunication Conference (WRC-15) last November, ITU formally moved to allocate the 700 MHz band to the global mobile industry. ITU believes that utilization of the 694-790 MHz frequency for mobile broadband will go a long way in enabling the bridging of the digital divide worldwide. It will benefit handsets, supply chain, roaming, rural

coverage, and other aspects of mobile communications, according to ITU. Globe General Legal Counsel Atty. Froilan Castelo said that giving active and operating telecommunications companies access to the 700 MHz spectrum will allow the industry to provide broadband and data services at faster speeds and in a more cost-efficient manner. Castelo said that as early as 2005, Globe already wrote to the National Telecommunications Commission (NTC) requesting for an allocation and assignment of frequencies within the 700 Mhz and 800 Mhz bands for its broadband wireless network, but NTC did not act favorably on its request. The ITU's move on the 700 MHz spectrum is supported by the joined by the GSMA, which said that maximizing on the unused 700 megahertz (MHz) mobile frequency spectrum can potentially increase the impact of a country's gross domestic product (GDP) by tenfold, Globe said. The group's Mobile Economy Asia study also found that the full use of the spectrum has the potential to create an additional 2.1 million jobs for the Asia-Pacific region by 2020.

## The first Licensed Shared Access (LSA) pilot in France

The most technically extensive pilot worldwide of the recently devised spectrum sharing solution Licensed Shared Access (LSA) was launched in Paris today by French Digital Affairs Minister, Axelle Lemaire, at the office of the award-winning French start-up, RED Technologies. Under the pilot, spectrum allocated to the French Ministry of Defense in the 2.3-2.4 GHz band will be shared using Ericsson's radio access network. Pioneering technology from RED Technologies, Ericsson and Qualcomm Inc. underpin this pilot. The success of the French LSA pilot should lead to the release of high volumes of licensed spectrum in France within the next 24 months, further enabling market growth, competition and innovation. On a wider scale, the application of LSA to the 2.3-2.4 GHz band across Europe will release enough spectrum to enable innovative 5G services for all EU citizens. The combination of Ericsson's latest Carrier Aggregation technology with RED Technologies' leading spectrum assessment and management technologies is unique

to this pilot. These solutions, combined within a unique state-of-the art LSA user framework enabled by Qualcomm Technologies and applicable to 5G, are a powerful world first.

The roles of the project participants are as follows:

- Ericsson: Radio Access solution including new Carrier Aggregation technology and Radio Dot System, enabling innovative small cell deployments for high performance indoor voice and data coverage and capacity.
- RED Technologies: provided a dynamic spectrum management platform based on live radio environment maps and self-organizing networking engines.
- Qualcomm Technologies provided 4G devices powered by a Qualcomm®Snapdragon™ processor

The French regulatory authority ARCEP and the Ministry of Defense authorized the use of the 2.3-2.4 GHz band for the pilot. "This initiative touches the core of the French telecoms industry and has the potential to considerably enhance the consumer mobile experience in France as well as generate significant economic return. The participants involved are demonstrating commendable foresight and inventive strength," French Minister for Digital Affairs, Axelle Lemaire. "Spectrum availability is a core condition for flourishing technology adoption and innovation. This LSA pilot is therefore a vital step towards the realization of Europe's Digital Single Market," said Wassim Chourbaji, Vice-President of Government Affairs at Qualcomm Communications. "This collaboration will maintain French leadership in LSA. RED Technologies is proud to enable this and sees the pilot as an opportunity to keep on innovating in dynamic spectrum management," Michael Abitbol, Managing Director of RED Technologies. "Sufficient availability of licensed spectrum will be a key asset to allow the deployment of 5G services, with the expected capacity and QoS requirements. LSA is an agile technology approach to boost capacity. The combination of licensed and unlicensed bands is a key 5G technology development area" said Thomas Noren, Vice President, Head of Radio Product Management Ericsson.

## UK Telecoms Regulator Adopts New Penalty Guidelines

OFCOM, the UK telecoms regulator has adopted new guidelines setting out how it proposes to determine penalties that it may impose for violations of sector specific regulation, including the Communications Act. In summary, the new guidelines:

Give OFCOM greater flexibility to (i) impose higher fines for serious violations and for larger companies and (ii) reduce fines for those companies that take concrete compliance steps.

Bring OFCOM penalty guidelines more in alignment with how it imposes penalties for EU/UK competition law violations.

Apply to both ongoing and future investigations.

All companies subject to OFCOM regulation in the UK are potentially exposed to a higher level of financial risk in the event of an investigation by OFCOM for alleged violations of their regulatory requirements. Companies should therefore take immediate steps to assess and reduce such potential exposure based on the factors contained in the new guidelines, summarized below.

### Background

Ofcom has powers to punish regulated telecommunications providers that violate their relevant regulatory requirements, including their authorization conditions. When determining the level of penalties, Ofcom must comply with certain statutory limits and must ensure that the penalties are appropriate and proportionate to the matter in respect of which they are imposed.

Ofcom also is required to publish the guidelines it proposes to follow in setting the amount of penalties. The previous version of such guidelines was adopted in 2011. Given the increasing number of enforcement cases and complaints over the years, Ofcom became concerned that relatively low fines was contributing to ongoing noncompliance and lack of deterrence. Therefore, in September 2015, Ofcom launched a consultation aimed at revising the 2011 guidelines, which resulted in the adoption of the new guidelines.

### How Ofcom will determine penalty amounts

The new guidelines have confirmed all of the changes proposed by Ofcom in its consultation document. The central objective of the new guidelines is to impose penalties that reflect the



seriousness of the infringement and that will act as an effective incentive to comply. In doing so, Ofcom will have regard to the following factors:

### The seriousness and duration of the violation

The degree of harm suffered by customers or competitors.

Any gain made as a result of the violation.

Whether appropriate steps have been taken to prevent the violation.

The extent to which the violation occurred deliberately or recklessly, such as whether senior management knew, or ought to have known, about the offending conduct.

Whether the violation continued, or steps were taken to end it, once it was uncovered.

Any steps taken for remedying the consequences of the violation.

Recidivism.

The extent to which the company has cooperated with Ofcom during the investigation.

Although Ofcom will consider all of these circumstances to determine the appropriate and proportionate amount of any penalty, the new guidelines state that Ofcom will adjust the penalty to take into account "the size and turnover" of the company under investigation; that is, Ofcom may impose a larger penalty on a larger company.

### Additional guidance from EU/UK competition law

The new guidelines fail to clarify the way in which Ofcom will apply the above factors when calculating a penalty for sector specific regulation violations. However, Ofcom explicitly

notes that those factors are "similar" to those it takes into account when setting a penalty under EU/UK competition law. Ofcom may use the same approach when calculating penalties for violations of sector specific regulation and competition law.

### Implications for businesses

The new guidelines are expected to result into higher fines for noncompliance with Ofcom regulatory requirements. At the same time, technologies are converging, regulations are fast-changing, and the lines between regulated and unregulated activities are increasingly blurred. The combination of these two factors – higher penalties and uncertainty as to the applicable regulatory requirements – creates increased enforcement risk for all regulated companies (particularly in the telecoms sector) caught in an Ofcom regulatory investigation. Therefore, appropriate concrete compliance steps should be taken to try to reduce any such risk exposure.



## ▼ A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

### REGULATORY UPDATES

#### Afghanistan



**Dr. Mohammad Najib Azizi**  
[Afghanistan  
Telecommunication  
Regulatory Authority (ATRA)]

Ministry of Communications and Information Technology (MCIT) signed a total of 10 agreements in the field of E-Governance cooperation with 9 ministries and also the Independent Administrative Reform and Civil Service Commission during a press conference which was held at the office of the president's special representative for good governance and reform. At the beginning of the Conference Mr. Ahmad Zia Masood welcomed the government high ranking official and spoke about the importance e-governance for fighting corruption. He emphasized "It is impossible to fight corruption without the use of ICT and e-governance. Turning to e-governance and use of modern technology is the only and last option to combat the corruption," He added. Mr. Masood said that currently we are witnessing that old administration cannot meet new requirements and, added that " By introduction of e-government initiatives such as today, corruption and bureaucratic steps-that causes disorder and fatigue will decrease,

and transparency and efficiency will increase in various government administrations." Mr. Abdulrazaq Vahidi minister of Communications and Information Technology (MCIT) speaking at the meeting stated: "By having these agreements signed, 70% of paper work in public administrations will be done through electronic means within coming two years." He then, added: "No one can deny the advantages and impacts of technology in one's life and day to day affairs of the governments. At this stage, we are only focusing on connecting electronic and management information system inside government agencies but for sure, we will expand this gradually to private sector as well." According to minister of MCIT, with the introduction of e-government, time management will be executed, opportunities and vulnerabilities are controllable, and costs will be reduced, the quality and speed of service delivery to the people will be improved, transparency and accountability will arise. Mr. Vahidi noted that current the MoUs signed elaborate responsibilities of MCIT and the receiver of the services. He added that based on MoUs, MCIT was responsible for providing technical consultations, standardizing technical systems of departments, providing advice

on simplifying administrative procedures, training and technical capacity building in the administrations, planning of information technology services, system management from data center and etc. It is noteworthy, in order to launch e-government program, MCIT has hired and introduced 10 information technology experts called as the Chief Information Officers (CIOs) in ministries of Finance, Foreign affairs, Interior Affairs, Information and Culture, Commerce and Industry, Agriculture and Livestock, Public Health and Independent Administrative Reform and Civil Service Commission) by co-finance of Development Program of the United States of America (USAID). (January 12, 2016) mcit.gov.af

## Algeria



**President: Mr. Toufik Bessai**  
[Regulatory Authority for Post & Telecommunication (ARPT)]

The Regulatory Authority for Post and Telecommunications (ARPT) has revealed the results of a tender for authorizing operators for the provision of universal telecoms services in the country. Out of the four companies that submitted bids for the concessions – Algeria Telecom (AT), Algeria Telecom Mobile (Mobilis), Ooredoo Algeria (Nedjma), and Optimum Telecom Algerie (OTA, Djezzy) – the regulator has approved three (AT, Mobilis and OTA), while Ooredoo's bid was deemed too expensive. The authorizations will allow the successful bidders to provide basic telecoms services (wireless or fixed) and internet access at affordable prices to underserved areas. Under the first stage of the Universal Telecommunications Service (UTS) program, a total of 97 communities in 28 wilayas (regions) in Southern Algeria (towns with population of between 500 and 2,000 people) and Northern Algeria (with population of between 1,000 and 2,000) will gain access to telecoms services. (January 26, 2016) telegeography.com

The Regulatory Authority for Post and Telecommunications (ARPT) has launched a tender for three 4G mobile broadband licenses. The regulator has invited all interested parties to submit their bids for participation in the auction from January 10 until January 13 by paying a DZD100,000 (US\$928) fee. ICT Minister Imane Houda Feraoun disclosed earlier this week that the successful bidders will be revealed on May 17. Going forward, the government will grant the licensees a period of three months to obtain the required equipment, with the launch of commercial 4G services expected to take place in the last quarter of 2016. Further, the minister added that under the license terms and conditions, the cellcos 'must provide a minimum coverage of 10% in the provinces of their choice in the first four years, and expand to the southern regions of the country within three years'. (January 7, 2016) telegeography.com

## Bahrain



**Chairman: Dr. Mohammed Al-Amer**  
[Telecommunication Regulatory Authority (TRA)]

The Telecommunications Regulatory Authority in Bahrain (TRA) organized an IPV6 training workshop in cooperation with RIPE Network Coordination Centre

(RIPE NCC), a Regional Internet Registry (RIR) providing global Internet resources and related services (IPv4, IPv6 and AS Number resources) to its members in Europe, the Middle East and parts of Central Asia.. A total of 30 private and governmental bodies in the sector participated in the workshop. In this context, Eng. Mohammed Abdulla Alnoaimi, TRA's Director of Technical and Operations said, "The implementation of IPv6 will contribute positively in accelerating the progress of our future plans that are aimed at expanding and extending our networks and interconnected services for the public and private sector in the kingdom of Bahrain. Due to the significant impact of this version, TRA is keen to communicate and cooperate with private and governmental bodies to adopt IPV6 in all their networks and services". Eng. Alnoaimi added "The core objective of the IPV6 training is to allow the participants to recognize the importance of adopting this latest internet protocol in their networks, build technical capacities to accommodate the applications and services, and ensure the transition to the latest version within the coming years. Upgrading to IPV6 is one of the initiatives launched by TRA with the aim of facilitating services provided by the government and empowering the kingdom of Bahrain to lead the region within the ICT sector". "We are enthusiastic about empowering the local community, which comes within our strategic partnership with the TRA Bahrain. This can translate into positive gains in terms of capacity and talent building. The training course provides the kingdom technical people with a unique opportunity to become experts in IPv6 and support real knowledge exchange for IPv6 deployment in Bahrain and the Middle East region," said Paul Rendek, Director of External Relations at the RIPE NCC. (January 27, 2016) tra.org.bh

Bahrain's Batelco has announced the deployment of the first LTE Air site in the region in collaboration with Ericsson. Ericsson AIR is a solution that merges two functions into an integrated device including all the units required to provide mobile coverage - Antenna-Integrated-Radio (AIR) solution. Batelco is implementing the solution in line with its aim to use smaller mobile base towers which are less noticeable, thereby enhancing the environment while also expanding coverage to more areas. In addition to large cells that dominate today, the new mobile towers also use fewer units and fewer interconnections compared to traditional towers. Batelco Bahrain CEO, Muna Al Hashemi has praised the solution which will enhance the quality of service and benefit customers greatly. "For mobile subscribers, the Air base stations, which are compatible with 2G, 3G and 4G networks, can improve coverage in environments that were difficult to reach with traditional mobile towers." (January 26, 2016) cellular-news.com

Huawei is growing rapidly in Bahrain and has gained significant market share in the Island nation, a top official stated. The official added that it aims to strengthen its position even more. Globally, the company made mammoth sales last year as it shipped over 100 million smartphones worldwide. The impressive performance has placed it third globally in market-share for smartphones. Speaking to DT News, Sandeep Saihgal, Vice President of Huawei Consumer Business Group said that the company is keen on expanding its sales in Bahrain. "We are doing well in Bahrain. We are gaining market share month over month. We have been

refocusing our partnerships in Bahrain and we have been refocusing with major retailers in the country. We have reassessed our distribution network. Bahrain is slightly smaller geographically, so we can make sure we reach everywhere," he said. He added, "2015 was a successful year for the Huawei Consumer Business Group here in the Middle East and we anticipate 2016 to be an even bigger one with immense growth in the region." He noted that with the launch of its latest flagship devices Mate 8 and M2 tablet, the company aims to further strengthen its market-share. "These-days most of the work is done on the smart phone; messaging, social media sending emails, presentations etc. The Mate 8 caters to these needs. It is for the people who are on the go. That's why we have battery that is bigger, it goes for a couple of days," he said. He said that despite the large 6-inch screen, the phone is not bulky, thanks to careful design. "Dimensions on the phone are not bulky at all. Dimension wise, its not bulkier than any other phones, it is slim. Dimension-wise, it is as any other phone of its kind, at the same time we give a perfect 6 inch display," he said. "The Mate 8 is the ultimate high-end smartphone designed for the professional, striking the perfect balance between high performance and long battery life. And when designing the M2, we equipped it with an impeccable sound system to take the user's experience to the next level. Both of these devices reflect Huawei's continued dedication to bringing the latest innovation and style to our consumers," he added.

(January 24, 2016) bahrainbiznews.com

VIVA is set to offer Unified Communications-as-a-Service (UCaaS), Video-as-a-service (VaaS) and Call Center-as-a-Service (CCaaS) based on Avaya technology, for enterprise customers. The new service is intended to enable businesses to access new communications capabilities in a flexible model, and to be able to scale up comms capacity on demand. Eng. Ulaiyan Al Wetaid, VIVA CEO said: "Businesses in Bahrain are looking towards adopting ICT in their daily operations to boost their productivity, growth and drive transformation. At VIVA, we recognize how this is an important enabler of innovation that embraces new technology to help new products, services and processes. Therefore, through our collaboration with Avaya, VIVA will be introducing first-of-its-kind unified communication solutions in the MENA region and Bahrain. With this, our business customers will be able to experience improved and streamlined access to their data through a consolidated process of IT systems and achieve their business outcomes, through high levels of services delivery." "Avaya solutions, hosted by VIVA Bahrain, will give businesses in Bahrain the flexibility and agility they require to benefit from the latest technology trends and prepare for digital transformation. Enterprises will be able to get access to Avaya's innovative technology solutions at prices that suit their needs, while benefiting from the reliability and expertise that industry leaders such as Avaya and VIVA Bahrain bring to the market place." said Nidal Abou Ltaif, Avaya president, Asia Pacific, Middle East, Africa and EU.

(January 13, 2016) bahrainbiznews.com

Zain Bahrain, the most innovative telecom operator in the Kingdom, reflects on the achievements the company has accomplished during the year 2015. "We are extremely thrilled with the developments and proud

of achievements accomplished as an organization in the year 2015," commented Zain Bahrain's General Manager, Mr. Mohammed Zainalabedin. "This year, we have focused our efforts to develop services and packages that better suit the needs of customers," he said. "Zain Bahrain strives to provide best in class customer experience to its customers, and we have launched a series of customer experience initiatives throughout the year to provide added convenience, empowerment and ease to our customers in their interactions with us," he added. "We have also focused our efforts this year in giving back and supporting the community and we will continue to partner the process of progress and change in the Kingdom of Bahrain. We see ourselves at Zain Bahrain as an important community partner, benefactor and a stakeholder in Bahrain's future prosperity," he further added. (January 3, 2016) bahrainbiznews.com

## Bangladesh



**Chairman: Mr. Sahjahan Mahmud**  
[Bangladesh Telecommunication Regulatory Commission (BTRC)]

Malaysia's Axiata Group and India's Bharti Airtel signed a definitive agreement to merge their respective mobile network operating subsidiaries in Bangladesh, Robi Axiata and Airtel Bangladesh. Post-merger, the combined entity operating under the Robi brand will serve roughly 40 million Bangladeshi customers, overtaking Banglalink as the country's second largest operator behind GrameenPhone. Under the agreement of undisclosed value, Axiata will take a 68.3% controlling stake in the combined entity, while Bharti will hold 25%, and the remaining 6.7% will be held by Robi's existing minority shareholder NTT DOCOMO of Japan. The proposed transaction is subject to approvals from the relevant authorities and is expected to complete in the first half of 2016, reducing Bangladesh's number of cellular competitors to five. A press release claims that the combined Robi and Airtel will 'deliver the widest mobile network coverage across Bangladesh,' whilst the merger will also result in a stronger position in the mobile internet segment, as well as creating a wider sales and distribution reach – supported by 'the largest network of customer service centres across the country'. Supun Weerasinghe, CEO of Robi Axiata, said: 'The highly competitive and crowded Bangladesh telecommunications sector solicits consolidation and we believe this merger will form greater economies of scale for both groups. Additionally, it will result in shared investment capacity ... to optimise strategies and deliver enhanced value to consumers, benefitting the industry at large.' One benefit flagged up by the merging parties is an increase in the number of Robi/Airtel customers who will take advantage of lower-rate on-net phone calls. At end-December 2015 third-ranked Robi Axiata had 28.317 million active 2G/3G mobile customers, compared to fourth-placed player Airtel Bangladesh's 10.710 million total, giving a combined user base of 39.027 million, which would put the merged cellco a significant margin ahead of VimpelCom-backed Banglalink with 32.865 million subscribers at the same date, although remaining a long way behind Telenor Group subsidiary GrameenPhone with 56.679 million active SIMs at the end of the year. The signing of the

Robi-Airtel merger agreement follows the September 2015 announcement that the pair had entered into exclusive discussions on combining their businesses in Bangladesh. (January 29, 2016) telegeography.com

Ericsson has signed a three year contract with Bangladesh's Robi Axiata to upgrade 2G GSM sites in the Chittagong and Comilla regions. In addition, Ericsson will deploy substantial number of 3G WCDMA sites in the same regions. Rajendra Pangrekar, Head of Ericsson Bangladesh, says: "Through our partnership with Robi, Ericsson strengthens our technology and service leadership in one of the world's fastest growing markets. We will support the delivery of unique experiences for people, business and society, thus shaping and accelerating our vision of a Networked Society in Bangladesh." Ericsson will roll out network hardware and software and provide integration services to deliver the upgrade of Robi's existing 2G/GSM network and expansion of the 3G/WCDMA network. This capacity expansion will help Robi to cater for more customers, enhance data speeds and improve app coverage; enabling consumers to enjoy improved smartphone experience such as faster web browsing and downloads. According to the latest edition of the South East Asia and Oceania regional Ericsson Mobility Report, Bangladesh is in the top 10 countries globally for mobile subscription growth; ranking 5th with a net addition of 4 million mobile subscriptions. The report shows there will be up to 20% smartphone subscription penetration by end of 2015 and this will double by 2018. In addition, data consumption has taken off since the introduction of 3G/WCDMA in 2013. This network transformation will ensure that Robi's network can continue to evolve -making it ready for next level technology like 4G/LTE and be able to deliver a new service to customers within a short lead time, following the issuing of licenses.

(January 28, 2016) cellular-news.com

Bangladesh's largest cellular operator GrameenPhone (GP) has revealed plans to upgrade all of its existing 10,000 base transceiver stations (BTS) nationwide to support 3G by June this year, TelecomAsia writes. GP currently claims 5,800 3G UMTS cell sites, and aims to upgrade another 1,700 BTS to 3G within the first quarter, CEO Rajeev Sethi said, adding: 'Currently, 65% of 57 million active GrameenPhone users are covered by 3G networks ... After June, customers can use the fastest available [mobile] data service anywhere in the country.' Sigve Brekke, CEO of GP's majority owner Telenor, says the Bangladeshi cellco's ambition is to make every active mobile user an internet user as well.

(January 7, 2016) telegeography.com

## Iran



**Chairman: Dr. Ali Asghar Amidian**

[Communication Regulatory Authority (CRA)]

Iran will take back a satellite seized by Italy due to the sanctions regime imposed over its peaceful nuclear program, Minister of Communications and Information Technology Mahmoud Vaezi said. "Italy seized the satellite for issues related to the sanctions regime and we are in the process of reclaiming it," Vaezi told reporters in Tehran. In relevant remarks last October, Head of the

Iranian Space Organization Mohsen Bahrami said talks were underway with Rome over the returning of the Mesbah satellite. "Because of the sanctions, the Mesbah satellite has been held under seizure by Italy for three years now, and (currently) we are engaged in talks to take it back," said the top space official. He said the satellite was designed and developed over 10 years ago in cooperation with an Italian company. However, the satellite, which was at the disposal of Italy for its final test, did not get the chance to be launched into space due to the sanctions. He said the satellite was originally supposed to be launched into space by Russians and then Indians, but "this did not happen because of the sanctions, and the Mesbah satellite has not been launched (into space) yet". Iran has, itself, taken long strides in recent years to develop its space industry and to build different types of satellites and explorers. In February 2015, Iran's domestically-made National Fajr (Dawn) Satellite was launched into orbit and started transmitting data to its stations on earth. Equipped with GPS navigation system, Fajr, weighing 52 kilos, is the fourth Iranian-made satellite which was put into orbit after three others between 2009 and 2012. After Iran launched its first locally-built satellite, Omid (Hope), in 2009, it put two other satellites including, Rasad (Observation), and Navid-e Elm-o Sanat (Harbinger of Science and Industry) into space.

(January 31, 2016) en.farsnews.com

## Iraq



**CEO: Dr. Burhan Shawi**

[Communication & Media Commission (CMC)]

Zain Group, a leading mobile telecom innovator in eight markets across the Middle East and Africa, announces the publication of its latest thought-leadership report entitled, 'Bringing the Future Closer with Innovation: Pursuing Innovation as a Means to Overcome Challenges in the MENA Region'. The report sets about illustrating the indispensable role of innovation in achieving sustainable development and transitioning towards a knowledge-based economy, from a regional perspective. The report was revealed and discussed at the annual World Economic Forum held in Davos, Switzerland 20-23 January, 2016, where Zain Group CEO, Scott Gegenheimer; Emre Gurkan, Group Chief Strategy and Business Development Officer; and the Group's Head of Corporate Sustainability, Jennifer Suleiman, conveyed the findings of the report liaising with leading political and economic personalities from across the globe. Importantly the report emphasized the role of innovation in enabling the MENA region to overcome prevalent socioeconomic deficits and promote overall human development. It addresses the question: 'How can stakeholders in the region come together to further society's innovative capacity as a means to driving sustainable, inclusive growth while promoting human development?' Commenting on the release of the report, Scott Gegenheimer said, 'Given the high-profile nature of our business, and the profound impact it is able to have on people's lives across the region, we feel it is our responsibility to publish information that offers insights into how innovation and technology in general can drastically improve living standards.' Gegenheimer continued, 'As with any region in the world, MENA faces

specific challenges that we can overcome collectively through our desire of a more enabling environment. From Zain's perspective, our ties to the region run deep, and we look forward to continuing to render support and inspiration that results in positive outcome to people's lives even beyond our own customer base.' The challenges faced by the region include: high unemployment (particularly amongst youth); insufficient economic growth; undiversified economies; ongoing socio-economic exclusion and inequality; high rates of displacement due to conflict; an innovation deficit; and high vulnerability to climate change, to name only some. Jennifer Suleiman commented, 'Corporate social responsibility and sustainability initiatives represent an integral part of Zain Group's strategy and are taken very seriously at all levels of the organization. Our thought-leadership efforts are an opportunity for us to review the factors that can aid socio-economic development from a technological standpoint, and also gives us a chance to draw attention to our own efforts given our position as a leading regional innovator.' Bringing the Future Closer with Innovation: Pursuing Innovation as a Means to Overcome Regional Challenges in the MENA Region showcases Zain's innovation by providing case studies undertaken by the company including its Zain Innovation Center in Jordan, which recently celebrated its one-year anniversary; the Zain Great Idea challenge to generate and incubate fresh new ideas; the Smart Schools Project in Jordan, Zain's support of the MIT Enterprise Forum Arab Startup Competition; the Taaleb E-Learning Project; and the Light a Candle App to name a few. Zain believes that by developing the innovative capacity of the region through a multi-stakeholder approach, MENA can overcome these challenges and achieve sustainable growth solutions.

(January 23, 2016) 4-traders.com

Qatar-based Ooredoo Group has announced the expansion of its mobile financial services to a fourth country, having launched 'AsiaHawala' at its Iraqi unit Asiaccell. In a press release, Ooredoo notes that AsiaHawala is the country's first mobile money service, enabling subscribers to transfer money, pay bills and top up airtime at 1,600 locations and is licensed by the Central Bank of Iraq. Ooredoo now offers mobile financial facilities in Qatar, Indonesia, Tunisia and Iraq. Ooredoo Group CEO Sheikh Saud Bin Nasser Al Thani commented: 'Ooredoo is deploying a full range of innovative solutions to extend the range of mobile financial services across our footprint, and we're very proud that Asiaccell has launched the first mobile money service licensed by the Central Bank of Iraq.'

(January 14, 2016) telegeography.com

## Jordan



**Chairman of the Board of Commissioners/  
CEO: Eng. Ghazi Al-Jobor**  
[Telecommunication Regulatory Commission  
(TRC)]

Coverage of third generation (3G) mobile services in Jordan stands at 98 percent, while 98 per cent of Jordanians have access to mobile phones at home, according to the World Bank's Digital Adoption Index (DAI). The index, which was compiled for its recently released "World Development Report 2016: Digital Dividends", measures the depth and breadth of adoption

of digital technologies in 171 countries. It indicated that 35 percent of Jordanians have Internet access at home, while average download speed in the country is 3,862 kilobits per second (kbps). The DAI is the composite of three sub-indices: business (based on the percentage of businesses with websites, the number of secure servers per million residents, download speed, and 3G coverage in the country), people (based on mobile access at home and Internet access at home), and government (based on core administrative systems, online public services, and digital identification). Jordan scored 0.55 on the DAI on a scale of 0 to 1, with 1 being the maximum. It recorded its highest score on the people sub-index, at 0.68, followed by government at 0.60 and business at 0.37. The Kingdom scored 0.52 for the availability of online public services. Jordan was ranked ahead of several other Arab countries, such as Lebanon, which had a DAI score of 0.50, and Iraq, which scored 0.46. While 94 per cent of homes in Lebanon have mobile phones and 57 per cent have Internet access, coverage of 3G services is lower than in Jordan at 61 per cent and download speed is 2,597kbps. In terms of availability of online public services, Lebanon scored 0.35. In Iraq, 3G coverage reached 89 per cent, while download speed is higher than in the Kingdom at 4,542kbps. The report showed that the proportion of the population with Internet access at home in Iraq stands at 43 per cent, while the ratio with mobile access at home is 99 per cent. The availability of online public services in Iraq is 0.20. The highest-ranking Arab country in the index was the UAE, which scored 0.77 overall, with 99 per cent of the population having mobile access at home and 87 per cent Internet access. Download speed is 17,226kbps in the UAE, while 73 per cent of businesses have websites and 3G coverage is 99 per cent, according to the report, which showed that availability of online public services in the UAE scored 0.88. Other Gulf Cooperation Council countries also performed strongly on the index, with Bahrain scoring 0.74, followed by Qatar at 0.69, Saudi Arabia at 0.66, Oman at 0.64, and Kuwait at 0.62.

(January 28, 2016) zawya.com

## Kuwait



**Chairman and CEO: Mr. Salim Alozainah**  
[Communication and Information Technology  
Regulatory Authority (CITRA)]

Kuwait has expressed support for formation of an international network staffed by voluntary engineers and technicians ready to act rapidly in catastrophes. Salem Al-Uthaina, Chairman of the Public Authority for Communications and Information Technology, declared support for two initiatives, launched by the International Telecommunication Union, during the "2nd Global Forum on Emergency Telecommunications (GET-2016)" themed "saving lives," He was speaking during conclusion session. The forum declared, on Wednesday, launching an initiative to set up a network of voluntary engineers and technicians, ready to help in catastrophes in a speedy manner. It also announced formation of an international fund for rapid response; tasked with securing communications in emergencies and chartering aircraft for speedy transfer of equipment to catastrophe stricken regions. Al-Uthaina, in his address to the session, said the deliberations during the three-day forum were distinguished with "a spirit of cooperation.

(January 29, 2016) arabtimesonline.com

Zain Kuwait has achieved download speeds of 1Gbps in a trial of a 4.5G technology over its LTE mobile broadband network, in cooperation with equipment vendor Huawei. Eaman Al Roudhan, Zain Kuwait's CEO, said: 'Earlier this year, we teamed up with Huawei to trial and implement 4.5G services on our network in Kuwait, and we were pleased with the successful results we accomplished today. With the implantation of further tests in the near future, we will be better prepared to launch 4.5G technology commercially within the next three years as soon as compatible devices are available in the market.' Through its strategic partnership with Huawei, Zain is also planning to provide voice-over-LTE (VoLTE) and machine-to-machine (M2M) services, going forward. According to TeleGeography's GlobalComms Database, Zain Kuwait commercially launched its LTE network in November 2012; the 4G network currently covers 100% of the population. (January 4, 2016) telegeography.com

## Lebanon



**Secretary of the Board: Mr. Amine Moukheiber**

[Telecommunication Regulatory Authority (TRA)]

The Ministry of Telecoms (MoT) has extended the management contracts for Lebanon's two state-owned cellcos Touch and Alfa for a further month from January 1, 2016, whilst it continues to examine its options following the recent failure of an international tender to award longer-term contracts. Minister Boutros Harb was quoted as saying: 'If the government fails to take action I may consider extending the contracts of the two mobile companies in case they succeeded in providing high-quality services under my direct supervision in this coming month.' The operators are managed by Kuwait's Zain and Egypt's Orascom. (January 7, 2016) The Daily Star

## Morocco



**Director General: M. Azzine El MoutassirBillah**

[Agence Nationale de Reglementation des Telecommunications (ANRT)]

All three Moroccan wireless providers have reportedly restricted the use of VoIP services through free applications – such as WhatsApp, Viber and Skype – when using the cellcos' 3G/4G networks. The free VoIP applications are functional when the voice calls are made through a Wi-Fi connection, though such VoIP calls are understood to also be restricted in the coming months. An unnamed source was cited as saying: 'All the operators have decided to block VoIP calls. Subscribers can no longer make VoIP calls over 3G and 4G. Over Wi-Fi, the blockage is in progress, so the service works intermittently. It should be completely blocked in the next two months.' Incumbent Maroc Telecom had been accused of blocking access to a number of VoIP operations in the country on several occasions. Most recently, in August 2014 the telco restricted access to Viber for a month. (January 7, 2016) Medias 24

## Nepal



**Chairman: Mr. Digambar Jha**

[Nepal Telecommunication Authority (NTR)]

Nepal's Ncell has warned that it is facing fuel shortages that could see some of its data centers shut down, affecting its telecoms networks. The company claims that it is no longer receiving sufficient supplies of diesel to power its generators from the Nepal Oil Corporation (NOC). Supplies built up in the past are now said to be close to being depleted. Ncell says it needs around 4,500 liters of diesel per day for each of its four data centers. "We now have fuel for only three days. After that we will have to shut down our services," Ncell CEO Erim Tayanlar told a meeting of Parliamentary Committee on Development. The company operates four data-centers, which support its telecoms network, and had been granted dedicated electricity supplies following last April's earthquake. However, those dedicated connections were removed from two data centers earlier this year, forcing the company to rely on local generators. The state-owned Nepal Telecom still has its dedicated power supplies. (January 21, 2016) cellular-news.com

## Oman



**Executive President: Dr. Hamed Al-Rawahi**

[Telecommunication Regulatory Authority (TRA)]

Oman's total number of fixed telephone lines including post- and pre-paid lines, public phones, WLL, and ISDN channels, registered a growth of 15.9 percent to 434,932 by the end of 2015 from 375,196 at the end of 2014. There was a 7.3 percent rise in the number of mobile subscribers (post- and pre-paid) to 6.65 million from 6.19 million in 2014, ONA reported. Among fixed lines, fixed prepaid (card fixed) telephones witnessed the highest growth at 69.4 percent taking the total to 56,021 while postpaid connections rose by nearly 12.9 percent to 325,083. WLL connections fell 2.2 percent to 1771 and ISDN channels decreased 0.6 percent to 45256 in 2015. Oman had a total of 6,801 public payphones last year, with no change in numbers compared with figures for 2014. Postpaid mobile subscriber base increased by 10.7 percent to 585,166, even as prepaid mobile connections grew by 7.0 percent to over 6.06 million. The number of internet subscribers surged by 31 percent to 236,004, primarily due to a 31.7 percent growth in the number of fixed broadband subscribers to 233,233. However, dial-up internet subscriptions fell by 10.1 percent to 2,771 from 2014. (January 25, 2016) world.einnews.com

Oman is among the most dynamic countries worldwide for change in ICT Development Index (IDI) value and ranking from 2010 to 2015, a study released recently by the International Telecommunications Union (ITU) has said. Measuring the Information Society Report 2015' shows that according to IDI of last year, Oman has shown great progress: Its ranking jumped from 68 in 2010 to 54 in 2015 (out of 167 countries). The actual IDI value jumped from 4.41 in 2010 to 6.33 in 2015. As a result, Oman is considered among the "most dynamic countries" worldwide, placed 11th, in changing the IDI value and ranking from 2010 to 2015. On the regional level, Oman has the sixth highest IDI value among the

Arab state countries. Bahrain has made the biggest change in Arab country rankings by jumping 21 places to 27, while UAE has jumped 17 places to 32, Saudi Arabia jumped 15 places to 41. Qatar jumped six places to rank 31, while Kuwait was the only one that fell one place to 46 from 45 earlier. The report identifies a group of 'most dynamic countries', which have recorded above-average improvements in their IDI rank over the past five years. These include (in order of greatest change in IDI ranking): Costa Rica, Bahrain, Lebanon, Ghana, Thailand, UAE, Saudi Arabia, Suriname, Kyrgyzstan, Belarus and Oman. IDI is measured by three dimensions – ICT access, ICT use and ICT skills. In regard to ICT access, there is a great progress in Oman, as the sultanate's ranking jumped from 68 in 2010 to 47 in 2015. As a result, Oman is considered the "second most dynamic country" worldwide as it was successful in changing the 'Access' sub-index between 2010 and 2015. Globally, Korea is ranked top in 2015 rankings, followed by Denmark, Iceland, UK and Sweden. Brahim Sanou, director of ITU's Telecommunication Development Bureau, which produces the report every year, said that ITU's work in gathering and publishing statistics allows it to monitor the real progress being made in ICT development worldwide. "Progress is encouraging in many areas but more needs to be done - especially in the world's poorest and remotest regions, where ICTs can arguably make the biggest difference, and help bring people everywhere out of extreme poverty," he said. The report is being published annually since 2009, and it features key ICT data and benchmarking tools to measure the information society, including the IDI. IDI 2015 captures the level of ICT developments in 167 economies and compares progress made since 2010. It also assesses IDI findings at the regional level and highlights countries that rank at the top of the index, and those that have improved their position in the overall rankings most dynamically since 2010. (January 10, 2016) [muscatdaily.com](http://muscatdaily.com)

## Pakistan



**Chairman: Dr. Syed Ismail Shah**  
[Pakistan Telecommunication Authority (PTA)]

BlackBerry said it will continue to operate in Pakistan after the government withdrew a shutdown order, following a dispute over access to user data. BlackBerry COO Marty Beard said in a blog post: "After productive discussions, the government of Pakistan has rescinded its shutdown order, and BlackBerry has decided to remain in the Pakistan market." BlackBerry argued that it is not in a position to provide the content of its customers' BlackBerry Enterprise Service (BES) traffic or access to its BES servers. The company said in late November it would exit Pakistan on December 30, citing concerns over user privacy. The Pakistan government in July ordered the country's mobile operators to shut down BlackBerry's secure messaging service by the end of November for "security reasons". A report from Privacy International in July said Pakistan's military intelligence agency, the Inter-Services Intelligence, was looking to expand its ability to intercept communications, Reuters reported. Back in 2010 its BES encrypted service faced possible bans in at least five countries, including India and Indonesia. (January 4, 2016) [mobileworldlive.com](http://mobileworldlive.com)

## Qatar



**President: Mr. Mohammed bin Ali Al Mannai**  
[Communications Regulatory Authority (CRA)]

The Communications Regulatory Authority (CRA) has disclosed the number of telecom consumer complaints and inquiries received for 2015 through its official channels - hotline 103, mobile app Arsel, and Twitter channel @CRAqatar. CRA's Consumer Affairs Department is working closely with both service providers – Ooredoo and Vodafone-Qatar – to finalize the unresolved complaints. In 2015, CRA received a total of 1,985 inquiries from telecom consumers and 1,135 consumer complaints. Of the 1,135 complaints, over 90% have been resolved, and less than 10% are still under investigation. "CRA is mandated by Emiri decree to manage a dispute resolution system that is transparent, fair, speedy and effective. These figures show that CRA is proactively managing disputes, with nearly 100 complaints received on average each month against both service providers. Resolving these complaints is a vital part of our role in protecting telecom consumers in Qatar," said Amel Salem Al-Hanawi, CRA's Consumer Affairs Manager, adding, "In the spirit of transparency, we will continue to share these figures with the consumers in Qatar." Common complaints received by CRA by consumers include disconnections, delays in service provisions, refunds, incorrect billing, slow internet, weak broadband services, services not activated or mistakenly disconnected, high roaming charges, double debiting, replenishment failures and failure to activate SIM cards. Specifically, 30% of the complaints received about Ooredoo's mobile services are related to billing issues and 20% are related to network coverage issues. 30% of Vodafone mobile services complaints are related to service disconnection issues and 20% are related to billing issues. From the data collected, 53% of Ooredoo fixed line complaints are related to delay in installation and activation while 32% of the fixed line complaints are related to fixed line disconnection issues. The Telecommunications Law and the licenses issued to service providers include provisions to protect consumers by placing obligations on the service providers to be honest and be fair in their dealings. Consumers with a complaint can freely approach the CRA if they first complain to their service provider and this complaint remains unresolved for 30 calendar days, or if they are dissatisfied with the resolution offered. The Consumer Affairs department within CRA is responsible to receive and investigate telecom consumer complaints by working with both consumers and service providers in a prompt and balanced way to find mutually acceptable solution. The Consumer Affairs department also responds to consumer inquiries about any issues they have regarding the services provided by their telecom service provider. Consumers can contact the CRA if they are first unable to resolve their disputes with their service provider within 30 days using a variety of communication channels: the 24/7 hotline number 103, email at [consumerservice@cra.gov.qa](mailto:consumerservice@cra.gov.qa), using the CRA's online complaint form via the website, by tweeting directly to the CRA @CRAqatar, or by visiting the CRA's headquarters at Al Nasr Tower B. 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 sector, postal services, and access to digital media. CRA uses its regulatory powers mandated by the Emiri decree to protect consumer rights, ensure competition, manage the resolution of disputes, and manage the electromagnetic spectrum. In all its activities, the CRA seeks to ensure the provision of advanced, innovative and reliable ICT and postal services across the state of Qatar. (January 19, 2016) [cra.gov.qa](http://cra.gov.qa)

Ooredoo Qatar and Nokia Networks have announced the launch of LTE Advanced (LTE A) three band carrier aggregation technology on the Ooredoo Supernet. Nokia technology enables the operator to provide higher data speeds of up to 375 Mbps to its customers. The launch followed software upgrade to aggregate two 20 MHz carriers in the 1800 MHz and 2600 MHz bands with one additional 10 MHz carrier in the 800 MHz band. Bernard Najm, Vice President and Head of Middle East and Africa, Nokia Networks, said: "We're happy to support Ooredoo Qatar in its mission to provide top-quality services to its customers. After we successfully demonstrated 600 Mbps CAT 11 speeds in October, we have now helped Ooredoo launch the three-band carrier aggregation technology to deliver higher data throughput with superior reliability."

(January 1, 2016) [cellular-news.com](http://cellular-news.com)

The Communications Regulatory Authority (CRA) grants authorizations for import of telecommunications and radio equipment to businesses in State of Qatar. As part of the Digital Government initiative, all applications related to such import authorizations will now be processed through the Qatar Government Portal – Hukoomi with effect from January 3, 2016. CRA authorization is necessary for sale of cellular phones and private mobile radio devices. The required approvals and relevant documents such as licenses and certificates are granted after careful evaluation of the applications received through Hukoomi portal here. CRA encourages all applicants to take the above decision into consideration while submitting future import authorization applications. To ensure a smooth transition, CRA will also accept submissions manually till end of February 2016. After the two months grace period is over, the applications will be exclusively processed digitally. For clarifications and more information, applicants may call Communications Regulatory Authority Hotline 103, visit the Government Contact Center at Al Nasr Tower B, or send an e-mail to [spectrumaffairs@cra.gov.qa](mailto:spectrumaffairs@cra.gov.qa). Through this decision, CRA intends to enhance the existing application process, and make it more convenient and practical for people of Qatar. Hukoomi is the centralized digital platform for residents to access public e-services offered by different Government entities. 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 sector, postal services, and access to digital media. CRA uses its regulatory powers mandated by the Emiri decree to protect consumer rights, ensure competition, manage the resolution of disputes, and manage the electromagnetic spectrum. In all its activities, the CRA seeks to ensure the provision of advanced, innovative and reliable ICT and postal services across the state of Qatar. (January 3, 2016) [cra.gov.qa](http://cra.gov.qa)

## Saudi Arabia



**Governor: Dr. Abdulaziz Salem Al Rwais**  
[Communication & Information Technology Commission (CITC)]

Ethiad Etisalat (Mobily), Saudi Arabia's second largest mobile operator by subscribers, has announced its financial results for the twelve months ended December 31, 2015, reporting a net loss of SAR1.093 billion (USD2.93 million), a 30.6% improvement on the net loss of SAR1.576 billion reported in 2014. According to a press release on the Saudi Stock Exchange's (Tadawul's) website, the improvement was mainly attributed to 'significant improvement in EBITDA which was slightly offset by an increase in Zakat expenses by SAR128 million and an increase in finance expenses by SAR92 million.' In the period under review group revenues also increased, by 3% year-on-year to SAR14.424 billion, up from SAR14.004 billion reported in 2014. EBITDA for 2015 amounted to SAR2.941 billion, a 30.9% rise on an annualized basis, when compared to the SAR2.246 billion in 2014. The group's net current liabilities amounted to SAR9.7 billion at end-December 2015 (SAR17.3 billion in December 2014), with Mobily claiming that this indicated its ability to meet its obligations. On 29 December 2015 the management of the company reached an agreement with lenders to waive the breach of covenant under several facilities totalling SAR12.1 billion, which led to the reclassification of the outstanding amount of these facilities from current liabilities to non-current liabilities.

(January 25, 2016) [telegeography.com](http://telegeography.com)

Saudi Arabian fixed line and broadband operator Ethiad Atheeb Telecom (GO Telecom) has published its financial results for the nine months ended 31 December 2015, announcing a net loss of SAR85.46 million (USD22.78 million), up from a net loss of SAR22.52 million reported in the corresponding period of 2014. The telco blamed the development on an increase in other income in 1Q14, which was due to the sale of property with a book value of SAR60.0 million, giving GO Telecom a gain of SAR94.0 million (SAR63.4 million reflected in that quarter, with the remainder deferred). The operator's revenues increased by 41.7% (or SAR72.5 million) year-on-year from SAR173.6 million to SAR246.1 million. GO Telecom highlighted that revenues generated by its business sector operations were up 43.3% y-o-y, while interconnection revenues increased 111.4%.

(January 25, 2016) [telegeography.com](http://telegeography.com)

Saudi Telecom Company (STC) has published its financial results for the twelve months ended 31 December 2015, reporting a 14.82% decrease in net profit to SAR9.335 billion (USD2.48 billion) from SAR10.959 billion reported in 2014. The company attributed the negative result mainly to a SAR2.823 billion rise in cost of services and a SAR1.883 billion increase in operating expenses in the year, despite the 7.77% year-on-year growth in gross profit to SAR30.343 billion. In the period under review, STC reported revenues of SAR50.837 million, a 10.93% increase y-o-y, while EBITDA reached SAR19.370 billion, up 3.80% from SAR18.661 billion. STC Group's CEO Khaled Biyari commented: 'The 11% increase in consolidated revenue and the 3.8% increase in EBITDA for the twelve-month period compared to last year confirm that STC's strategy is working well. The decline in net profit for the twelve months is mainly attributed

to STC continued investments in programs that will have positive outcomes in the near future, such as the early retirement program and the disposal of old assets ... With regards to international operations, the twelve-month period witnessed revenue growth of 8% in the controlled international subsidiaries compared to last year and this is attributed mainly to the continued growth in the subsidiaries' customer bases and market shares.' (January 21, 2016) [telegeography.com](http://telegeography.com)

## Sri Lanka



**Director General: Mr. P.B. Abeykoon**  
[Telecommunication Regulatory Commission (TRC)]

Sri Lanka's telecommunications regulator, Telecom Regulatory Commission (TRC) will introduce common floor rates for call charges effective February 0, 2016 to ensure a level field for all operators. The TRC has instructed the telecom operators to introduce a common rate for both on-net and off-net voice calls instead of the different rates being used now. A TRC official said the idea was to introduce a common floor rate for the telecom industry to create a level field for all operators enabling small operators to be competitive. Under the circular issued by TRC, Short Messages (SMS) will be increased from the current cents 10 to 20. For within network callers, the local voice call per minute billing basis will remain Rs. 1.50 while per second billing basis the rate will be increased from Rs. 1.50 to 1.80 per minute. For outside network callers, the local voice call per minute billing basis will decrease by 50 cents from current Rs. 2.00 to Rs. 1.50 per minute while the per second billing basis rate will be reduced from Rs. 2.50 to Rs. 1.80. (January 27, 2016) [colombopage.com](http://colombopage.com)

Fitch Ratings revised the outlook for Sri Lanka's telecoms sector to stable from negative as the government's new budget scrapped recurring taxes that could have diluted operators' EBITDA margin by an average of 6-7 per cent. Dialog Axiata's and Sri Lanka Telecom's (SLT) 2016 EBITDA margin should dilute by only 1-2 per cent following the new budget, due to changes in their revenue mix and lower revenue from profitable international gateway operations, the ratings agency said. The new budget doubled the government's share in the international levy to \$0.06 from \$0.03 per minute. Fitch said the operators' strategy to pass this increase to consumers could affect usage, as users will likely move to applications like Skype and Facebook. The firm estimates that international termination revenues contribute about 12 per cent of Dialog's and SLT's revenues. Fitch revised the sector's outlook to negative last March based on proposals to increase taxes that could lower profitability and raise operators' leverage. The original proposals called for a one-off 'super gains' tax of 25 per cent on profits, a tax of LKR250 million (\$1.8 million) on each operator and a one-off tax of LKR1 billion (\$7.5 million) on companies offering satellite direct-to-home (DTH) TV with more than 50,000 subscribers. The proposals would also have shifted the burden of a recurring telecoms levy (25 per cent on prepaid voice and 10 per cent on data revenue) to operators from consumers. Dialog and SLT, the country's two largest mobile players with 62 per cent of total connections, paid LKR1.02 billion and LKR2.04 billion, respectively, last year on one-off taxes

that were introduced in February. The one-off tax on satellite direct-to-home TV operators and the recurring tax on prepaid services have been scrapped. The 2016 budget also proposes to structurally separate operators' fiber, towers and spectrum assets to a special-purpose company to be regulated by the Information and Communication Technology Authority. The impact of such a structural separation is uncertain as the regulator hasn't disclosed details on the asset separation, Fitch said. The government's decision to impose a tax of LKR50,000 per tower is not likely to have a major impact on the credit profile of the two operators. The agency said that their credit profile will now remain intact.

(January 18, 2016) [mobileworldlive.com](http://mobileworldlive.com)

## Tunisia



**President: Mr. Hassoumi Zitoun**  
[National Telecommunication Commission (INTT)]

The Ministry of Communication Technologies and the Digital Economy (Mincom) has set a price of TND155 million (US\$76.58 million) for 4G licenses, Agence Ecofin said ICT Minister Noomane Fehri. Technical bids are expected to be submitted by Tunisia's trio of cellcos in February 2016, with the licenses to be awarded the following month. According to the official, commercial launches of the technology could take place as early as June 2016. (January 4, 2016) [Agence Ecofin](http://Agence Ecofin)

## Turkey



**Acting Chairman: Dr. Omer Fatih Sayan**  
[Information & Communication Technologies Authority (BTK)]

Turkey's former monopoly fixed line operator Turk Telekom has announced the merging of its respective mobile and ISP brands Avea and TNet under the unified Turk Telekom brand name, logo and website. The new logo is already in use, as is the single converged website grouping all fixed line, broadband, mobile and pay-TV service divisions, while the group also said it would operate a unified call centre and single-brand retail outlets. Although dispensing with independent branding, Avea and TNet will remain distinct legal entities as wholly owned subsidiaries of Turk Telekom. In August 2015 Turk Telekom became the sole owner of Avea, following the transfer of a 10% stake from Is Bankasi, whilst the Turkish telco already held 99.9% of TNet shares. (January 27, 2016) [telegeography.com](http://telegeography.com)

Aggregating 5 carriers in a demo carried out on Friday in its Istanbul headquarters, Turkcell reached mobile broadband speeds of 1.2Gbps on 4.5G. During the demo, Turkcell used 79.8 MHz of frequency consisting of 29.8 MHz (20 + 9.8) in 1800 MHz band, 30 MHz (20+10) in 2100 MHz band, and 20 MHz in 2600 MHz band - a configuration that includes the use of the spectrum Turkcell had acquired in 1800, 2100 and 2600 MHz bands in Turkey's spectrum auction held on August 26th. The demo was attended by members of the Turkish media and was carried out using the equipment developed by Huawei. "With the 4.5G auction, we had set the bar high in terms of offering the fastest mobile broadband internet. We had announced that we would not only

offer the country's fastest 4.5G upon roll-out on April 1st, but also go beyond that in order to match the current fiber experience on mobile." said Ilker Kuruoz, Turkcell's CTO. "With this speed demo, we are not only pushing the limits of 4.5G but also taking a major step towards 5G experience in terms of reaching speeds that exceed 1 Gbps." Turkcell will launch 4.5G in Turkey on April 1st with speeds of up to 375 Mbps aggregating 3 carriers. It had announced plans to support speeds of more than 1000 Mbps towards the end of 2016 on its network using the technology employed in the aforementioned demo. It is expected that smartphones that can support 5 Carrier Aggregation will be available around mid-2017 - which means that Turkcell customers, who currently enjoy Turkey's fastest 3G with 63.3 Mbps on supporting devices, will be able to use their mobile broadband up to 19 times faster in less than 2 years.

(January 1, 2016) cellular-news.com

## United Arab Emirates



**Director General: Mr. Hamad Obaid Al Mansoori**

[Telecommunication Regulatory Authority (TRA)]

Emirates Integrated Telecommunications Company (Du) is seen as the next candidate for an increase in its foreign ownership limit in the Middle East and North Africa (Mena) telecom space after etisalat increased its limit to 20 per cent in September 2015, according to investment bank Arqaam Capital. Arqaam said in a strategy note on Sunday that it expects the increase in liquidity of du shares as a result of lifting foreign ownership restrictions would be enough for it to qualify for the MSCI Emerging Markets Index after 12 months if it were to lift the foreign ownership for institutional investors. "We would expect du's MSCI inclusion to come no sooner than a year after the foreign ownership limit change due to its relatively lower liquidity as we estimate its annualised Traded Value Ratio (ATVR) in 2015 to have been only about 9 per cent, below the required 15 per cent," said Tibor Bokor, head of Technology, Media and Telecommunications research at Arqaam Capital. He, however, said that liquidity would need to increase by 67 per cent to an average daily trading volume (ADTV) of about \$1 million (Dh3.67 million) versus the current \$0.6 million. Arqaam expects the ADTV to increase to at least \$2-3 million per day based on the liquidity of similar sized stocks that allow foreign ownership. "In addition, MSCI criteria requires four consecutive three-month ATVRs greater than 15 per cent, implying that Du would need to wait another year to be able to meet this requirement," Bokor said. "In the future, we would not be surprised if a secondary public offering is made and the foreign ownership limit increases even further, but we would expect this to happen at more attractive valuations following MSCI inclusion." (January 31, 2016) gulfnews.com

The UAE's Telecommunications Regulatory Authority has granted a public satellite service license to Inmarsat, a pioneer in mobile satellite communications powering global connectivity for more than three decades. The license grants Inmarsat a permission to offer mobile satellite communication services to public and private sector users within the UAE, in the government, media, maritime and aviation sectors. Additionally, Inmarsat's services will also be available to support humanitarian and emergency relief efforts in the UAE. The agreement

granting the license was signed in a ceremony at the TRA's Abu Dhabi headquarters in the presence of Hamad Obaid Al Mansouri, Director-General of the TRA, and Inmarsat's Executive Vice President, Alison Horrocks. Al Mansouri said the UAE is on the threshold of an era of unsurpassed innovation at all levels and particularly the space field. "The importance of this license stems from its direct impact on the ICT sector and the rapid advancements in the UAE towards implementing smart cities. The license affirms our endeavors to elevate the telecommunications sector's competitiveness and position the UAE as a global ICT leader." He added that having Inmarsat operate in UAE will definitely open new frontiers for business, contribute to driving the sector to compete globally, and serve the TRA's strategy that aims at exploiting technology in saving lives and serving humanity. "These advancements also fall within the context of economic diversification and building a knowledge-based economy. The TRA's strategic plan entails many projects and initiatives that will play a major role in enhancing the quality of telecom services provided in the UAE," Al Mansouri added. Horrocks described the granting of a public satellite service license as a significant occasion for Inmarsat. "The United Arab Emirates has been a key hub for us for many years and we recognize the importance of the UAE and the whole GCC as a growth region for us," he said. Inmarsat was founded in 1979 by the International Maritime Organization under the auspices of the United Nations to help save lives at sea and, today, is the only authorized provider of the Global Maritime Distress and Safety System (GMDSS). Inmarsat has since evolved to provide global mobile broadband communication services to users on land, at sea and in the air.

(January 28, 2016) wam.ae

The Gulf Cooperation Council's 11th GCC CERTS Committee has adopted the UAE experience in combatting cyber blackmailing at a meeting which was attended by the General Authority for Regulating the Telecommunication Sector, TRA, represented by its subsidiary, the UAE Computer Emergency Response Team, aeCERT, held last week in Riyadh. The meeting was chaired by Sulaiman Abdelrahman Al Samhan, Digital Forensics Supervisor, Communications and Information Technology Commission, CITC, of Saudi Arabia. UAE was represented by Adel Al Muhairi, TRA's aeCERT Director, and Ghaith Al Mazaina, TRA's aeCERT Business Affairs Manager. The UAE delegation highlighted its experiences in combating cyber blackmailing and shed light on the campaign that was launched by TRA in cooperation with Al Ameen Service by Dubai Police with the aim of raising awareness of cyber security threats. The committee decided to adopt UAE's experience so all member states benefit from it. In this context, Hamad Obaid Al Mansoori, UAE TRA Director-General, said, "We are delighted to have our experience adopted by the committee as this reflects the UAE's success in combating cyber blackmailing and it highlights its effective contribution to protecting the infrastructure of this vital sector at a local and regional level. Cyber security has become an integral part of our societies' safety, and especially in light of the rapid developments in the ICT sector. Accordingly, the TRA is always keen to cooperate with all concerned parties to develop innovative solutions and mechanisms that safeguard the sector optimally." "We believe that knowledge

and awareness are the shield that protect our users from being exploited by cyber-criminals. Driven by this belief, we collaborated with Al Ameen service to spread awareness about cyber security threats. We are committed to making the internet safer for UAE users, therefore, our tireless efforts include supporting and enabling all initiatives that are launched with the aim of providing a safe electronic environment.” he added Adel Al Muhairi said, “The meeting entailed discussing various significant topics that served one purpose, which is, enhancing information security standards and practices and providing a safe environment for internet users across the region.” Ghaith Al Mazaina said “The Cyber Blackmailing campaign is one of the successful campaigns that was welcomed by Emirati society as it contained numerous awareness messages. It has been widely publicized by different radio and TV channels, in addition to Social media channels. We value our strong ties with our brothers in the GCC, and that is why we were keen to share with them our experience to raise awareness and ensure that the region benefits from this experience.” The meeting’s agenda entailed discussing the GCC CERTS Committee working mechanism and tasks, activating the GCC Information Security Strategy, setting the cooperation framework between GCC CERTS and the regional and international centers, in addition to activating the emergency response training simulation, benefitting from the fiber-optic infrastructure in the e-linking project, and collaborating with the United States in the field of cyber security. (January 27, 2016) wam.ae

Etisalat has more than 100 roaming partners for its 4G LTE networks across 55 countries. The telecom operator currently facilitates international mobile roaming services on 2G, 3G and 4G networks across 612 partner networks. In addition, etisalat’s roaming data network facilitates customers subscribed to etisalat’s mobile data packs to access internet on the country’s largest roaming data network of a total of 213 operators across 100 countries. The operator also recently launched a new access point for its mobile roaming customers to view and subscribe to the most preferred roaming voice or data plan while travelling. (January 24, 2016) gulfnews.com

Etisalat’s group chief executive, Ahmad Julfar, does not anticipate any increase in the royalties the telecoms operator pays to the UAE federal government. Amid the decline in hydrocarbon revenue because of falling oil prices over the past 18 months, analysts at EFG Hermes have said that risks to the company’s valuation include any future decision by the government “to alter the current royalty structure upwards, or even charge a different tax on services”. More than 60 per cent of the federal budget is funded by hydrocarbons sales. “For the royalties we pay to the government there is already a regime [in place] that is renewed every two years and I think it will remain as it is for the time being,” Mr. Julfar told The National on the sidelines of Ericsson’s Change-Makers Forum in Dubai. “We haven’t heard anything from the government yet, but that is our expectation.” During the past 12 months, Etisalat’s shares have gained more than 62 per cent, since it opened up its ownership to foreign investors and its stock was included in MSCI’s emerging markets benchmark index. EFG remains fairly bullish on the company’s stock outlook this year. The royalty paid to the UAE government was one of the factors Etisalat singled out as causing an 8.6 per cent

drop in the company’s profits for the third quarter of last year, together with forex losses in Morocco, Egypt and Pakistan. Mr. Julfar said that Etisalat was changing its operating model in an effort to increase efficiency across its operations. “We do a lot of sharing whether it is passive infrastructure or [in other areas], we’re doing more collaboration with telecom operators and internet players ... internet players that will help us to reduce the drop in margins,” he said. “But also because we’re big we operate in many countries we can capitalize on [economies of] scale to keep our profit margins intact,” he said. Etisalat’s UAE-based operations continued to grow in the third quarter of 2015, with revenue and profit increasing year on year by 5.7 and 6.6 per cent respectively. However, the group’s total revenues fell by 1 per cent during the period partly on “aggressive price competition in certain markets”. (January 10, 2016) thenational.ae



## REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

### REGULATORY UPDATES

#### Angola



The telecoms regulator INACOM has launched an awareness campaigns for users of telecom services (including mobile, fixed telephony and internet/data services) to update their identification details with their respective operators by February. The obligation was established in Joint Executive Decree No. 20/14 of 20 January that establishes a period from March 2015 to February 2016 for the process to be completed. Special teams will visit citizens at workplaces, schools, ministries, markets and places of entertainment, to assist them in updating their ID records. The campaign is being managed by an Interministerial Committee that consists of the Ministry of Interior, the Ministry of Commerce and the Ministry of Telecommunications and Information Technologies, and with the participation of operators Angola Telecom, Movitel and Unitel.

(December 23, 2015) telecompaper.com

#### Argentina



Ongoing plans in Argentina to merge the Federal Authority of Audiovisual Communication Services (Autoridad Federal de Servicios de Comunicación Audiovisual, AFSCA) and the Federal ICT Authority (Autoridad

Federal de Tecnologías de la Información y las Comunicaciones, AFTIC) into a new entity have become mired in confusion, after Luis Arias, a judge from La Plata, ordered the government to abstain from reforming AFSCA, arguing: '[The government] is prohibited to alter, modify, eliminate or suppress the functions and the existence of the AFSCA media watchdog through any action or rule that would represent a modification of the standards of Law No. 26,552'. On his first day in office in November last year, incoming President Mauricio Macri unveiled plans to create the National Entity for Communications (Ente Nacional de Comunicaciones, ENACOM), to assume control of AFSCA and AFTIC – both of which have been designated as autonomous organisations under the 2009 Media Law. ENACOM is to be headed by Miguel De Godoy, a former media aide to Macri. Despite the political, and indeed legal, opposition to the move, the formation of ENACOM continues to gather momentum, with the Buenos Aires Herald reporting that Decree 7/2016 has been included in this week's Official Gazette. The new decree outlines the rules for the selection of the entity's board of directors. (January 8, 2016) telegeography.com

## Bosnia and Herzegovina



The Communications Regulatory Agency (CRA) has been tasked with aligning the prices charged for mobile services by the nation's wireless operators with those charged by cellcos in other countries in the region. The Committee on Transport and Communications of the Parliamentary Assembly of Bosnia and Herzegovina has directed the watchdog to ensure relative price parity within 120 days. The call comes after a decision last June in which Bosnia's House of Representatives noted that Bosnian citizens were paying the highest prices for mobile services in the former Yugoslavia region; as such, the government then gave the CRA 90 days to bring Bosnian mobile prices in line with nearby countries, though this order was ultimately not implemented.

(January 14, 2016) telecompaper.com

## Botswana



The government of Botswana says there has been strong interest in the initial public offer (IPO) for shares in national fixed line operator Botswana Telecommunications Corporation Limited (BTCL). One week after the offer was opened; over 15,000 copies of the sale prospectus have been collected from BTCL outlets and branches of Barclays bank, while another 10,000 copies have been downloaded. The sale has already become the biggest IPO in Botswana's history, BizTech Africa reports. The offer period runs until March 4, with 44% of the telco's shares available to the general public and a further 5% stake reserved for company employees.

(January 19, 2016) BizTech Africa

The government of Botswana has finally launched the initial public offer (IPO) for shares in national fixed line operator Botswana Telecommunications Corporation Limited (BTCL), almost a decade after the idea was first tabled. The much-delayed privatization will see the state selling off 49% of the telco, with a 44% stake available to the general public and 5% reserved for BTCL employees. Those interested in buying shares can register their interest between 11 January and 4 March, with a listing expected to take place in April. Botswana's Minister of Transport and Communications, Tshenolo Mabeo, said the deal was 'a pinnacle moment in the history of BTCL and our local economy'. He went on to add: 'We are optimistic that investors from all walks of life, including the youth, women, small, medium and big entrepreneurs, will view this as an affordable opportunity to purchase shares, trade them later and use their profits to inject into their businesses.' (December 23, 2015) BizTechAfrica

## Brazil



Brazil ended November 2015 with 269.59 million active mobile telephony lines and a penetration rate of 131.5 percent, according to figures published by the National Telecommunications Agency (ANATEL). This represents a 1.53 percent drop on October and 3.87 percent less than in November 2014. This was the sixth consecutive month of fewer mobile users in Brazil, as many operators have tightened their credit policies and disconnected inactive or non-paying users. Of the total subscribers, 196.61 million were prepaid (72.93%) and 72.98 million postpaid (27.07%). Vivo (Telefonica Brasil) maintained the market lead with 79.49 million customers or 29.49 percent of the total (compared

to 29% in October). TIM Brasil was second with 69.3 million and 25.7 percent share (26.26%). Claro (America Movil group) was third with 67.37 million and 24.99 percent share (25.2%). Oi followed in fourth place with 49.2 million lines and 18.25 percent share. Nextel had 2.5 million customers and 0.93 percent market share (0.9%). In terms of access technology, 2G/GSM dropped from 77.0 million users in October to 76.26 million in November; 3G was also down from 159.4 million in October to 156.4 million in November; while 4G/LTE grew from 20.45 million in October to 22.58 million in November. (January 13, 2016) telecompaper.com

National Telecommunications Agency (ANATEL) has confirmed that it has received bids totaling BRL762.67 million (US\$190.33 million) in its multi-band spectrum auction, which comprised frequencies in the 1800MHz, 1900MHz and 2500MHz bands. Nextel Brasil made the highest financial commitment of all of the bidders, pledging BRL455 million for a block of 1800MHz spectrum covering Sao Paulo and Greater Sao Paulo. The company intends to use the spectrum to launch 4G LTE technology there. Telefonica Brasil (Vivo) was next in line, lodging bids totaling BRL185.45 million, with its acquired spectrum said to include 2500MHz frequencies in Sao Paulo and Rio de Janeiro. Claro paid BRL61.86 million for unspecified spectrum in Sao Paulo, Rio de Janeiro, Espirito Santo and Rio Grande do Sul, while TIM Participacoes (TIM Brasil) won licenses in Parana and Pernambuco, paying BRL56.50 million. Elsewhere, the likes of TPA Telecomunicacoes bid BRL2.46 million, Lig Telecomunicacoes (BRL1.05 million), Sercomtel (BRL241,000) and Clivo Participacoes (BRL120,001), all securing minor spectrum allowances. Sky Brasil Servicos (Sky Brazil) – the only other company that registered to participate in the auction – was conspicuous by its absence when the results were announced. Finally, ANATEL confirmed that it received a total of 5,479 'Lot C' bids from 324 different companies, totaling BRL89.9 million. This spectrum in this lot was divided into roughly 9,000 regional parcels and distributed on a municipality-by-municipality basis. (December 23, 2015) telegeography.com

## Bulgaria



The Commission on Protection of Competition (CPC) has approved the sale of domestic telco Vivacom (registered as Bulgarian Telecommunications Company [BTC]) to Spas Roussev, a financial investor backed by VTB Capital (the investment-banking arm of Russia's VTB), Novinite reports. The regulator ruled that Vivacom will not gain dominant position in the telecoms market as a result of the deal, as the entities involved are not active in the same markets. Spas Roussev bid EUR330 million (US\$351 million) for the telco in an auction held in mid-November 2015; the sale price values the Bulgarian telco at EUR700 million, when factoring in the existing debt of the company. VTB Capital was able to launch the sale process as it acted as a facility and security agent for a EUR150 million bridge financing loan given to InterV Investment, a Luxembourg-based indirect holding company of Vivacom. The loan was secured via a share pledge of 100% of InterV shares, which were all transferred to VTB Capital after InterV defaulted on its loan repayments in May 2015. Three potential buyers placed bids for Vivacom in the auction: Greece's Olympia Group (backed by US-based hedge fund Third Point); Marc Schneider (co-founder of European cable group UPC, backed by US-based private equity fund CVC); and Roussev, though Schneider's bid was subsequently

disqualified for 'non-conformity with the procedure' despite valuing Vivacom at EUR850 million.

(January 11, 2016) telegeography.com

## Chile



The Department of Telecommunications (SUBTEL) has announced that from 6 February the country will use a nine number dialing system. The change will allow the regulator to implement intermodal number portability, enabling customers to port their fixed number to a mobile subscription and vice versa. At present, mobile lines use an eight digit numbering system whilst fixed lines use a ten digit system. Under the new structure, calls to fixed lines will drop the first '0' of the current number, whilst mobile numbers will add an extra '9' to the start. (January 12, 2016) telegeography.com

Telecoms watchdog the Department of Telecommunications (SUBTEL) is reportedly working on new legislation that will oblige cellular operators to offer devices compatible with all spectrum bands used in the country. The move was prompted by a complaint from WOM claiming that the practice of cellcos selling devices compatible with only the frequencies that they use poses an obstacle to growth, particularly for smaller providers such as WOM, which is the only cellco to use the AWS (1700/2100) band. Undersecretary of Telecommunications Pedro Huichalaf noted, however, that the planned new rules go further and will also require operators and handset sellers to provide clear information on a device's compatibility to users. 'We have already held meetings with companies and are working on these changes,' the official noted, adding that the legislation will ensure that 'all companies that provide services and offer terminals have diversity in terms of spectrum bands...[and will] enable citizens to have clear information about the equipment they buy.'

(January 5, 2016) Diario Financiero

## Costa Rica



The telecom regulator SUTEL has delayed its decision on the competitiveness of the nation's telecoms markets until November 2016. If the market is deemed competitive, SUTEL will deregulate tariffs, providing operators with greater control over their offerings and allowing them greater flexibility to introduce new services more easily. The process has been drawn out by SUTEL's insistence on carrying out studies to verify that the market is indeed competitive. The regulator carried out an international benchmarking study and a survey of providers and other industry stakeholders on the level of competition in 2015, and will now conduct a household survey assessing the substitutability of services. In February-August 2016 SUTEL will prepare reports on the relevant markets, which will be put to public consultation before a decision is made in November 2016. Previously, SUTEL's president had announced in May 2015 that the studies would be completed by the end of December 2015. Making matters worse, the studies have been criticized by the industry as being expensive and unnecessary. Emilio Oscar Barahona, president of the Chamber of Information and Communication Technology (Infocom) was quoted as saying that 'the market already meets the requirements to be declared [to have] effective competitive conditions,' adding that SUTEL has the power to make such a declaration without conducting further studies. (January 20, 2016) El Financiero

## Ecuador



The President Rafael Correa has initiated by executive decree the 'General Regulation of the Organic Telecommunications Law', which confirms and strengthens the functions, powers and responsibilities of the sector's policy-making and regulatory bodies which were originally established under the Organic Telecommunications Law in February 2015. Under Executive Decree No. 864, the latest document defines the powers of the Ministry of Telecommunications & Information Society (MINTEL) as the governing body issuing regulations and overseeing their implementation via the Agency for Regulation & Control of Telecommunications (ARCOTEL), alongside developing and approving plans for universal telecoms services, 'Information Society' and all other telecoms services. For its part, ARCOTEL grants all operating licenses for the provision of telecoms services and the usage of spectrum. The conditions and deadlines for the award of frequencies are determined under the 'Regulations for Granting Authorization Certificates', whilst the text also issues provisions on underground networks, competition regulation, rights of telecoms users and the establishment of a regime of sanctions in case of rule infringements. ARCOTEL officially took over regulation of the telecoms sector on March 4, 2015, assuming the combined functions of the former regulatory authority Consejo Nacional de Telecomunicaciones (CONATEL or National Telecoms Council) and that body's former sister policy administrator, Secretaria Nacional de Telecomunicaciones (Senatel or National Secretariat of Telecoms), as well as duties including spectrum monitoring/enforcement, type approval and statistical analysis which were previously allocated to Superintendencia de Telecomunicaciones (Supertel or Suptel). Earlier, President Correa established Mintel via a decree of August 2009 to assume top-level policy-making responsibility in the sector, and the ministry took over ownership of incumbent telco Corporacion Nacional de Telecomunicaciones (CNT) in January 2010.

(January 5, 2016) Telesemana

## El Salvador



The Superintendencia General de Electricidad y Telecom (SIGET), has announced that a total of 85,170 fixed and mobile numbers have been successfully ported to another service provider since the service was introduced on August 24 last year. In a statement on its website, the watchdog claims that the country's telecoms market has benefited from new and improved deals and promotions from service providers in the four months since the launch of number portability (NP), which gives consumers the opportunity to freely exercise their right to choose their telecoms operator. The legislation calling for the introduction of NP came into force in 2010, but SIGET subsequently postponed the service's implementation, stating that telecoms operators were not prepared for the change, while a lack of consensus over who would fund the process also led to further delays. Eventually, legislation stating that the cost of the process would be absorbed by the recipient operator was approved in October 2014, and in January 2015 SIGET announced that it had awarded the NP administrator contract to Mediafon, in association with local company imCard, ahead of the service's official launch for fixed and mobile users in August.

(January 20, 2016) telegeography.com

## France



ARCEP wants the country's operators to wind up their network-sharing deals, including the contentious Orange-Free Mobile agreement. The regulator said the deal that enables Free Mobile users to roam onto Orange's 2G and 3G network cannot be justified in the long term, however much it eased Free Mobile's market entry. ARCEP wants the agreement to end without waiting for the existing contract to expire. For 3G, the agreement should finish between end-2018 and end-2020, it said. For the less important 2G services, the agreement should end between the beginning of 2020 and the end of 2022. The country's other main network-sharing deal is between SFR and Bouygues Telecom, involving 2G, 3G and 4G over a large part of France. The regulator wants to ensure the deal delivers improved coverage and quality of service claimed for it. ARCEP only set an end date for the 4G part, which involves SFR users using a part of the Bouygues Telecom network. The regulator wants to encourage 4G investment so has set an end date for this arrangement between end-2016 and end-2018. ARCEP has laid out its position in a document for public consultation. The deadline for any feedback is February 23. The document will also be submitted to the country's Competition Authority. The regulator stresses that its analysis is based on the market's current structure for four operators and could be amended should events require, a reference to Orange's merger talks with Bouygues Telecom. Orange of course would be in a position to sell off infrastructure if it goes ahead with its takeover of Bouygues Telecom. Any regulatory settlement will likely involve the disposal of physical networks to a rival to satisfy competition concerns. Orange could then contribute to the winding down of the current network-sharing regime, potentially fitting with the regulator's agenda. (January 12, 2016) [mobileworldlive.com](http://mobileworldlive.com)

Orange confirmed it is in preliminary talks with rival Bouygues Telecom about a possible merger in the French market. Speculation over a possible deal between the two, which would create a joint entity with more than 50 per cent mobile market share, has been rife since the beginning of December, after Bloomberg first broke news of early discussions between the companies. In a statement, Orange said the "discussions are not limited by any particular calendar and hold no commitment to any particular predefined outcome". "The group is exploring the opportunities available within the French telecoms market," it added. In its own statement, Bouygues also confirmed talks, while adding that it had (January 5) signed a confidentiality agreement with Orange. "For the moment, no decisions have been taken and there is no guarantee that there will be an outcome to these preliminary discussions. According to the progression of these discussions, more information will be disclosed in due course," it continued. Orange was previously linked to a bid for Bouygues Telecom in 2014, while market rival SFR Numericable also reportedly failed in its attempt to acquire the company last summer. If talks between the Orange and Bouygues progress, the deal is likely to face antitrust hurdles, as well as political scrutiny in France, with the market shrinking from four players to three as a result. French newspaper Journal Du Dimanche reported earlier this week that the tie-up could be worth as much as €10 billion, with Bouygues taking a 15 per cent stake in Orange worth €8 billion, while the remaining €2 billion paid is paid in cash. Neither Orange or Bouygues revealed valuation information in their statements.

(January 5, 2016) [mobileworldlive.com](http://mobileworldlive.com)

## Guinea



The government of Guinea is planning to introduce a new tax on SMS and mobile data services on 1 February 2016 as part of widespread changes to the Finance Act 2016. According to the report, a tax of GNF10 (US\$0.0013) will be introduced on text messages, while the additional fee for mobile internet access will be 5% of the overall cost of the subscription package. The new levy follows the introduction of a GNF1 per second tax on fixed and mobile telephony calls on July 1, 2015.

(January 27, 2016) [Guineenews](http://Guineenews)

## India



The Telecom Regulatory Authority of India (TRAI) has published its recommendations on reserve prices for frequencies in the 700MHz, 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz and 2500MHz bands for the upcoming spectrum auction, calling for the government to complete the spectrum harmonization process in the 1800MHz band, and to carry out a similar re-assignment exercise in the 800MHz range before proceeding with the tender. Responding to requests from cellcos to adjust the amount of spectrum that operators care permitted to hold, the TRAI also found that there was 'no plausible reason' to change the existing policy on spectrum caps, which limits providers to 25% of the total assigned spectrum and 50% of the assigned spectrum within a particular band. In its recommendation, the watchdog suggested that the Department of Telecommunications (DoT) should complete its harmonization of the 1800MHz band – the reshuffling of frequencies assigned to operators and reserved for the Ministry of Defense (MoD) to free up unused fragments of spectrum and arrange allocations into contiguous blocks – before commencing the auction to ensure that the maximum amount of spectrum is available for operators. Similarly, the TRAI recommended that the DoT rearrange spectrum allocations in the 800MHz band to free up additional airwaves, stressing that: 'the sub-optimal utilization of spectrum not only amounts to denial of the opportunity for its better use by others but also a revenue loss to the government in terms of upfront payment, annual license fees (LF) and spectrum usage charges (SUC)'. Regarding the 700MHz band, which will be made available for the first time in the coming sale, the TRAI recommended using the APT700 band plan, with frequency division duplex (FDD)-based frequency arrangement. The entirety of the available spectrum (2x35MHz) should be put up for sale, the TRAI added. The regulator determined a reserve price of INR114.85 billion (USD1.69 billion) per MHz (paired) of pan-India spectrum, with per MHz prices per circle ranging from INR440 million (North East) to INR15.95 billion (Delhi). The TRAI also suggested adding rollout obligations requiring concession winners to cover all towns and villages with populations between 15,000 and 50,000 within five years, and all towns and villages of 10,000-15,000 residents within seven years. The reserve prices for pan-India spectrum in the 1800MHz and 2100MHz bands was set at INR28.73 billion and INR37.46 billion per MHz (paired), respectively, whilst prices for 2300MHz and 2500MHz were both set at INR8.17 billion per MHz (unpaired). (January 28, 2016) [telegeography.com](http://telegeography.com)

India's telecoms regulator is expected to sharply increase the amount of spectrum in the next auction over last year's level, raising expectations it will be the largest spectrum sale ever. The next auction, which the government aims to hold this fiscal year — barely a year after last year's — is now expected to include spectrum in the highly efficient 700MHz band for the first time. The availability of 770MHz of the 4G band across the country's 22 service areas would significantly boost the amount the government could raise in the auction. The Telecom Regulatory Authority of India (TRAI) is examining how much spectrum should be auctioned and is considering allocating as much as 2,000MHz across seven different bands. A senior official said TRAI could "suggest rational" pricing to stimulate interest in the auction. TRAI chairman RS Sharma said it will recommend spectrum pricing to the government by the end of the month. Credit Suisse warned earlier in the month that the largest three mobile operators will face increased financial pressure if the country's planned spectrum auction goes ahead as scheduled. The brokerage said the spectrum sale will damage operators' returns even if it's only a partial success. Telecom Secretary Rakesh Garg said recently the sale will happen in May or June. Last year's auction of about 470MHz of spectrum in four bands raised a record INR1.1 trillion (\$17.6 billion). The top three operators spent INR895 billion (\$14.3 billion), or 85 per cent of the total, forcing them to raise their already-high debt levels. The country's mobile operators have said the 700MHz sale should be put off for two years until the 4G ecosystem has developed more. The government has set a target of raising INR428.6 billion (\$6.4 billion) from communication services for this financial year, which includes the sale of spectrum as well as license fees. However, the Times said that the chances are slim that the auction will be held in the current fiscal year. The Times quoted Prashant Singhal, global telecoms leader at Ernst & Young, as saying: "The government should first give a clear timeline of auctions for the next two to three years, including visibility on availability of spectrum bands, reserve prices and intervals, such that the industry can make their spectrum and technology bets with more clarity." (January 22, 2016) [mobileworldlive.com](http://mobileworldlive.com)

The Department of Telecommunications (DoT) has set a price of INR69.53 billion (US\$1.04 billion) for Reliance Communications (RCOM) to liberalize its 850MHz spectrum in 16 circles. The fee is based on the market price for the airwaves — INR53.84 billion — and a spectrum usage charge of INR15.69 billion. By liberalizing its spectrum resources, RCOM will be clear to share and trade its frequencies with other providers. Indeed, the cellco was previously reported to have held talks with newcomer Reliance Jio Infocomm (RJIL) regarding a potential spectrum trading/sharing deal. According to the sources, RCOM had applied to liberalize spectrum in 20 circles, but the DoT has yet to make a decision regarding the final four — Rajasthan, Karnataka, Kerala and Tamil Nadu — as a market-determined price for the airwaves is not available. (January 13, 2016) [The Economic Times](http://TheEconomicTimes)

India's Ministry of Defense (MoD) is expected to relinquish half of its 300MHz spectrum holdings in the 1700MHz-2000MHz ranges within the next three months. The move is part of the first phase of the DoT's spectrum harmonization program, and covers 150MHz 2G, 3G and 4G-compatible spectrum in seven operating areas. (January 7, 2016) [The Economic Times](http://TheEconomicTimes)

## Indonesia

 Telecommunications Minister Rudiantara has reportedly threatened to rescind the operating concessions of 'most' of the country's ten mobile phone licensees, warning them either to merge or build out their networks to provide mobile internet services. With the domestic mobile market dominated by just three carriers — Telekomunikasi Selular (Telkomsel), Indosat Ooredoo and XL Axiata — Bloomberg quotes the Minister of Communications and Information Technology as warning: 'Each permit has requirements for the operator to invest and to build, so if they don't build anything, I can revoke their permit.' The minister, who has a background in the private sector, having worked at two of Indonesia's biggest telcos before taking a role in government, added that given his background he is 'pragmatic', and 'will suggest they consolidate to have the capability to invest and retain their permits'. By the end of his term in office, Rudiantara believes that the Indonesian mobile landscape should have consolidated to a maximum four mobile network operators (MNOs), illustrating the government's frustration at its inability to shake up a market in which the 'big three' collectively control around four-fifths of all mobile users, while the seven minnows tussle over the remaining slice of the pie. The minister points to the fact that a number of underperforming MNOs are failing to satisfy the terms of their license agreements, despite having previously been hit with fines. 'So far we've handed them fines and penalties, but my job isn't to accumulate funds for the government,' he is quoted as saying. 'I only need to enforce the permits and I'm prepared to do that, but I'd rather take the business-friendly and practical approach and suggest they merge to keep operating.' In semi-related news, two of the three dominant MNOs, Indosat Ooredoo and XL Axiata, have announced a tie-up to offer 4G LTE network sharing — a first for Indonesia — as part of efforts to expand their reach across the country. The partnership involves the agreement of both parties to share an LTE multi operator radio access network, allowing them to access network equipment, but keep separate distinct infrastructure. The partnership comes after two years of discussions, and involves areas such as Banyumas, Central Java; Surakarta, Central Java; Batam; and Banjarmasin, South Kalimantan, according to a statement published by Indosat Ooredoo. 'This partnership will expand 4G LTE for both of our customers and it will also support the government's program to build Indonesia's digital economy,' said Indosat president and CEO Alexander Rusli. (January 20, 2016) [telegeography.com](http://telegeography.com)

## Italy

 Italy will reportedly press ahead with its plan to build high speed internet networks in underserved areas of the country, despite failing to secure any partners for the €4 billion project. The government announced last year it wanted to improve access to broadband across Italy, focusing on areas of the country so far shunned by operators, and said it was seeking to partner up with private firms to implement the plan. It was hoped the project would encourage major players like Telecom Italia and Vodafone to expand their fiber offering. Government minister Claudio De Vincenti, an undersecretary to the prime minister's office, however told Reuters it would now go ahead with the plan through state-owned infrastructure firm Infratel, after being unable to find willing partners. "We will get started with Infratel and gather speed," he said. "Decisions on

eventual private-public partnerships will be made at a later date." Italy lags behind other European countries covered by next-generation internet networks, according to latest European Union data, with only 36 per cent of households covered. This is compared to 43 per cent in France and 81 per cent in Germany. The government's struggles in attracting private firms to buy into the plan could be down to the large investment involved, which is likely to only generate small returns. Both Telecom Italia and Vodafone have in the past year been linked with an acquisition of partially state owned fiber provider Metroweb, with advances so far shunned by the government, which is keen to keep the company neutral. Vodafone and Vimpelcom's Italian subsidiary Wind signed a letter of intent with Metroweb in June to jointly rollout fiber coverage, putting any possible takeover under major doubt. Prime Minister Matteo Renzi wants to bring broadband to almost all households in the country by 2020, as part of a wider €13 billion plan to upgrade Italy's phone infrastructure. The government is planning to rent the upgraded internet networks to operators once the build out is completed, with tariffs monitored by the country's regulator.

(January 7, 2016) [mobileworldlive.com](#)

The competition watchdog (AGCM), has ordered the country's post office to begin selling SIM cards of all mobile service providers rather than just those of its own MVNO unit, Poste Mobile. Network operator 3 Italia had complained that state-owned Poste Italiane was abusing its monopoly position in the postal sector by using its 13,000 retail outlets to market its own MVNO service while denying access to other operators. 3 Italia says it made repeated requests to Poste Italiane to offer 3 Italia SIM cards in its post offices. The AGCM has not imposed any fine on Poste Italiane. Poste Mobile is the country's largest MVNO, with more than 3.5 million users at the end of September 2015. Separately, the AGCM has extended the deadline for its ongoing investigation into whether incumbent operator Telecom Italia is complying with a request to grant competitors equal access to its fixed line infrastructure. The watchdog now expects to complete its investigation by July 31, 2016.

(January 6, 2016) [reuters.com](#)

## Kazakhstan



Cellcos in Kazakhstan launched mobile number portability (MNP) on schedule on January 1, 2016, following the completion of testing by the government.

The new service means cellular users can transfer their subscription between networks while keeping their original number. A report says that number porting must be carried out free of charge and within five hours of the request being received at the original operator. Kazakhstan was home to 27.9 million mobile subscribers at the end of September 2015. (January 4, 2016) [Kazakhstan Today](#)

## Kosovo



The government has instructed the Regulatory Authority for Post and Electronic Communications (Autoriteti Rregullativ i Komunikimeve Elektronike dhe Postare, ARKEP) to issue a temporary and limited license to state-backed Serbian fixed line incumbent

Telekom Srbija, which now operates under the MTS brand previously used by its mobile arm. The concession will only become operational once Kosovo is allocated the +383 international dialing code, however. The trade is part of the Pristina-Belgrade Action Plan for Telecommunications, signed between Serbia and Kosovo in Brussels last year. The implementation of the pact has seen some delays, with Kosovar news outlets reporting earlier this month that no progress had been made towards the allocation of a dialing code to the breakaway republic. Austria was expected to submit an application to the International Telecommunication Union (ITU) on Kosovo's behalf, but has missed two deadlines to do so, reportedly due to delays in MTS's registration in Kosovo.

(January 18, 2016) [Kosova Press](#)

Kosovo's efforts to secure its own international dialing code have been delayed, after Austria failed to submit an application to the International Telecommunication Union (ITU) on its behalf, local daily Koha. Austria was due to apply to the ITU for Kosovo to be allocated the +383 code by 15 November 2015 as part of the Pristina-Belgrade Action Plan for Telecommunications, which had envisaged the allocation of the dialing code to Kosovo by January 15, 2016. According to the paper, the delay was caused by the registration of Serbian state-owned operator Telekom Srbija in Kosovo, although no further details were given. Whilst neither the EU nor the Austrian embassy commented on the issue, the Kosovo government said it had received assurances from Brussels that there would be no further delays.

(January 4, 2016) [Ditore](#)

## Kyrgyzstan



The National Communications Agency (NCA) has announced that all non-registered SIMs will be disconnected from 1 February 2016; the regulator noted that 345,000 SIMs remained unregistered as at end-December 2015. Compulsory SIM registration was introduced under government decree No. 97 'On approval of rules for the provision of mobile telecommunication services', which entered into force on March 8, 2014. SIM card holders were expected to register their details within a year – i.e. by March 8, 2015 – or face disconnection. Due to the cellco's collective failure to meet the deadline, the timeframe was subsequently extended to August 8, then October 1, 2015. (January 7, 2016) [telegeography.com](#)

## Lithuania



Lithuania's Communications Regulatory Authority (RRT) has announced the preliminary results of its auction of spectrum in the 880MHz-915MHz and 925MHz-960MHz paired frequency range, and the 1710MHz-1785MHz and 1805MHz-1880MHz paired band. The country's three existing mobile network operators – Tele2, Omnitel and Bite Lithuania – were the winning bidders for the spectrum, offering a combined total of EUR38.1 million (USD41.1 million). The trio currently has the right to use the frequencies for wireless telephony and data services until October 31, 2017, and as such, the new licenses will be valid from November 1, 2017 to October 31, 2032. The winning bidders will be required to ensure territorial coverage of at least 98% within three years from the date of authorisation, as well as ensuring high speed (at least

30Mbps) wireless broadband population coverage of at least 85% of the country from January 1, 2020. For its part, Omnitel claims it offered the highest price (EUR14.3 million) for 'radio frequency block bundle No. C1', giving it the right to choose its preferred spectrum first. The TeliaSonera-owned company said it has requested block A2 (891.7MHz-903.3MHz and 936.7MHz-948.3MHz) and block B2 (1735MHz-1760MHz and 1830MHz-1855MHz). Explaining its selection, Omnitel said: 'The chosen frequency blocks will ensure high 2G, 3G and 4G network capacity and maximum coverage of Lithuania's territory, including and state border areas, as the chosen frequency blocks have the biggest number of priority frequency channels harmonized with the neighboring countries. Those channels also have the least limitations compared with the other frequency blocks.' According to the regulator, information regarding the auction results will be reviewed by the director of the RRT, as well as the auction participants, each of which will have the opportunity to submit a claim within seven working days concerning any potential violation of the auction procedure. If no claims are received, then the director of the RRT will approve the auction winners after this term expires. (January 31, 2016) telegeography.com

Lithuania has begun the process of reallocating spectrum in the 900-MHz and 1800-MHz bands that is currently in the hands of its three main mobile operators. Bite, TeliaSonera-owned Omnitel and Tele2 all hold 900-MHz and 1800-MHz frequency licenses that are due to expire at the end of October next year. Thus, the country's Communications Regulatory Authority, known locally as the RRT, has officially launched a competition to license that spectrum for a further 15 years, from 1 November 2017 to 31 October 2032. All three mobile operators have indicated that they will take part in the process and have collected the required documents. The RRT said it has split the available spectrum into three lots, each with a starting price of €10 million. The minimum bid price increase is €100,000 and participants will be able to bid up to a threshold of €80 million. Based on the regulator's local language statement, it is difficult to ascertain whether bidding for each block will be permitted at above €80 million. (January 12, 2016) totaltele.com

## Madagascar



The government is increasing excise tax on all telecommunications services to 10% under the 2016 Finance Act, noting the revision is up from 7% for mobile calls, while national and international communications including fixed telephony, internet, SMS and data transfer were previously exempt. The state expects to gain tax revenues of MGA3.429 trillion (US\$1.054 billion) in the next year – MGA1.689 trillion from customs revenue and MGA740.4 billion in domestic revenue. End-users will be hit by the revised tax implementation, with Orange Madagascar announcing in a statement that as of January 14 it will apply a hike on its service charges of between 3% and 10%.

(January 7, 2016) L'Express de Madagascar

## Mexico



The selection of a vendor for Mexico's shared network project will take place on January 29, the country's communications ministry said. Interested suppliers include Alcatel-Lucent, Ericsson, Cisco Systems, Huawei, Nokia, China Telecom, Motorola Solutions and Alestra. Requirements to take part in the process include having assets worth \$890 million and a projected model for the next 10 years. The shared network is a result of the completion of Mexico's digital switchover in December, which freed up the 700MHz band for a shared 4G network. The Secretariat of Communications and Transportation (SCT) is partnering with telecoms watchdog Federal Telecommunications Institute for the project. Earlier this year, SCT said the cost of the project had been reduced from \$10 billion to \$7 billion over the next ten years. SCT wants the network to help MVNOs compete with traditional carriers, although the auction's financial viability has come under scrutiny.

(January 11, 2016) BNAmericas

## Montenegro



The Agency for Electronic Communications and Post (EKIP) has revealed that it has received expressions of interest from several foreign companies regarding a possible fourth mobile license in the small Balkan country. EKIP Director Zoran Sekulic said that certain interest from foreign investors has been expressed. Therefore EKIP has designed procedures to reserve a part of the radio frequency resources for potential new operators and to provide them with sufficient radio frequency resources for commercial operation.' Representatives from the country's three incumbent operators – Telenor, Crnogorski Telekom and M:tel – have reportedly voiced their collective unhappiness about the development. EKIP attempted to introduce a fourth player back in October 2011, only for the tender to fall flat. The would-be concession comprised a five-year authorization to use 2x5.2MHz in the 900MHz range, 2x14MHz at 1800MHz and 2x15MHz in the 2100MHz range. EKIP set a minimum price of EUR1.315 million (US\$1.434 million) per concession, and required bidders to have at least three years' experience providing electronic communication services. In the absence of a new bidder, incumbent operator Telenor scooped the spectrum. (January 12, 2016) Balkan Insight

## Myanmar



A total of seven international companies are reportedly interested in participating in Myanmar's fourth telecoms license auction, though deputy permanent secretary of the Ministry of Communications and Information Technology (MCIT), Chit Wai, has declined to reveal any further details about the companies that had submitted Expressions of Interest (EoI) earlier this month, Reuters reports. The successful applicant will be handed a 15-year license and form a joint venture with a consortium (or special purpose vehicle, SPV) of eleven local companies, including ISP Yatanarpon Teleport (YTP). The joint venture will be 51% owned by the SPV, whilst the foreign partner will hold the remaining 49%. (January 26, 2016) telegeography.com

Passive infrastructure firm Irrawaddy Green Towers (IGT) has secured a US\$122 million syndicated loan from a group of European development finance institutions. The funding forms part of the tower company's US\$230 million investment plan, which will feature the deployment of a network of more than 2,000 towers covering 14 million people. The Netherlands' FMO arranged the loan, consisting of a US\$13 million nine-year subordinated loan and a senior US\$109 million eight-year loan. FMO provided the subordinated loan via its Infrastructure Development Fund, whilst the senior loan was provided by Deutsche Investitions und Entwicklungsgesellschaft (DEG), France's Proparco, CDC Group (UK), the Belgian Investment Company for Developing Countries (BIO) and Austria's Oesterreichische Entwicklungsbank (OeEB).

(January 11, 2016) The Myanmar Times

The Ministry of Communications and Information Technology (MCIT) has pushed back the deadline for Expressions of Interest (EoI) in the country's fourth mobile license to January 8, 2016 from its previous deadline of December 18, 2015. No reason for the delay was given. The successful applicant will be handed a 15-year license and form a joint venture with a consortium of eleven local companies, including ISP Yatanarpon Teleport (YTP). (January 4, 2016) telegeography.com

The Communications Ministry pushed back the deadline for expressions of interest in acquiring its fourth mobile license into 2016. Interested parties now have until January 8 to submit their expression of interest form, the Ministry of Communications and Information Technology (MCIT) announced. Earlier this month the MCIT set a deadline of December 18 for would-be applicants. It gave no reason for its decision to push back the timetable. Once it has received the expressions of interest, the MCIT will select a preferred applicant and apply to the Posts and Telecommunications Department (PTD) for a license, which will be valid for 15 years. The successful applicant will be asked to form a joint venture with a consortium of 11 local investors and companies – including ISP Yatanarpon Teleport (YTP) – known as the Domestic SPV (special purpose vehicle). Myanmar opened up its telecom sector in 2014 and is currently home to three mobile operators: Telenor, Ooredoo, and Myanma Posts and Telecommunications (MPT), which includes Japan's KDDI among its partners. According to the MCIT, telecom penetration had grown to 60% by the end of September 2015 from just 10% in 2013.

(December 23, 2015) totaltele.com

## Nigeria



MTN risks facing additional fines if it does not meet the year-end deadline to pay the NGN 780 billion imposed already, Nigerian authorities have warned.

Nigeria's Communications Minister Adebayo Shittu said that his country will not be cowed or threatened by MTN's announced court challenge of the fine, The Independent reports. Shittu said the decision by the company to approach the Lagos High Court put it at risk of another fine if it failed to meet the deadline. Shittu said that while MTN had the right to seek the court's interpretation of the Nigerian Communications Commission's decision, nothing would stop the government from imposing additional fines on the operator at the expiry of the deadline. He noted that MTN had already admitted the infraction when it pleaded for leniency and obtained a reduction in the amount of the fine. MTN's court appeal,

led by former Nigerian Bar Association President Wole Olanipekun, claims that the NCC did not have the power to impose the fine, nor was MTN found guilty of an offence that would warrant it to pay such a fine. MTN argues that the NCC gave the operator an unreasonable deadline for disconnecting over 5 million unregistered subscribers of seven days and imposed the fine within only 24 hours of MTN's written submission on the disconnection exercise. The company said the deadline was unfair and ran contrary to the requirement to give adequate notice to subscribers to update their records. It accused the regulatory agency of overstepping its authority, acting as a legislator, executor, accuser, prosecutor, judge and beneficiary of the penalty.

(December 23, 2015) telecompaper.com

## Norway



The Norwegian Communications Authority (Nkom) has opened a consultation on the auction rules for the 900 MHz auction. Nkom will award approximately 2 x 20 MHz in the 900 MHz band. The frequencies are currently assigned to TeliaSonera Norge AS and Telenor ASA. According to plan the auction will be conducted summer 2016. The licenses will be valid from January 1, 2018. Nkom has prepared draft auction rules for consultation, including rules for participation, registration and the conduct of the auction. Nkom also presents the annexes to the rules, consisting of the registration form, the bank guarantee and the draft license (in Norwegian only). Consultation responses can be submitted in Norwegian or English to 900mhz-auksjon@nkom.no with cc to sidsel.huse@nkom.no no later than February 26, 2016. The final auction rules will be decided after the consultation and will according to plan be published mid-April 2016. The deadline for submitting responses is February 26, 2016.

(January 27, 2016) cellular-news.com

Telenor Norway and NetCom will have to take part in a spectrum assignment auction, after failing to agree on the placements of frequencies won by the pair last month. In December 2015 Telenor and NetCom secured LTE-suitable 1800MHz spectrum, with the former paying NOK583.32 million (US\$65.7 million) for a 2x10MHz block and the latter NOK292.66 million for a 2x5MHz block. Following the sale the Norwegian Communications Authority (Nkom) revealed that the two operators could negotiate the placement of their new spectrum holdings between themselves by January 20. However, with Telenor and NetCom having failed to reach a consensus, the regulator has now confirmed that the pair will have to take part in a spectrum assignment auction to determine which actual frequencies the cellcos get, with the deadline for bids from the pair set as January 28, 2016. In separate but related news, Telenor has announced the launch of voice-over-LTE (VoLTE) at no additional cost to its subscribers with compatible handsets. Highlighting the fact that it had built out a 4G network utilizing three frequency bands – 800MHz, 1800MHz and 2.6GHz – the operator has suggested that the introduction of VoLTE will offer a notable improvement in indoor coverage, while it claims call connection times will fall from the current seven to ten seconds down to two to three seconds.

(January 22, 2016) telegeography.com

The Norwegian electronic communication regulator Nkom said that Telenor Norge and TeliaSonera Norge failed to reach an agreement by the January 20 deadline regarding frequencies in the 1,800 MHz band. It said Telenor Norway had won 2 x 10 MHz in the recent auction and TeliaSonera had won 2 x 5 MHz. The matter now progresses to another stage involving sealed bids, and the deadline for submission is January 28.

(January 22, 2016) telecompaper.com

## Paraguay



Paraguayan mobile operator Telecom Personal has attracted criticism from industry watchdog National Telecommunications Council (CONATEL) over its 'unlicensed' 4G launch in the capital city Asuncion late last month. Personal opted not to participate in the regulator's 1700MHz/2100MHz 4G auction earlier in December, with rival operators Tigo and Claro paying a combined US\$90 million for the concessions on offer. Instead, Personal has opted to use a reformed 10MHz block of 1900MHz 3G spectrum to implement its 4G launch, arguing that 'operators are free to choose the band they see fit, provided they have a license for the commercial exploitation of [that spectrum]'. Going forward, Personal expects to extend the 1900MHz 4G network to all main cities by the end of 1Q16. For its part, CONATEL has pledged to investigate the launch, on the grounds that Personal failed to seek its consent for the activation of such a service. The watchdog has also asserted that it will look into the cellco's plans to 're-engineer' its existing 850MHz and 1900MHz spectrum holdings for future 4G use. (January 5, 2016) telegeography.com

## Poland



Poland's Office of Electronic Communications (UKE) has awarded the 800MHz and 2600MHz licenses that were won at auction last October. The sale of 4G-capable spectrum ended with bids totaling PLN9.23 billion (US\$2.5 billion), with Orange emerging as the highest bidder after offering a total of PLN3.17 billion for two 5MHz blocks of paired frequencies in the 800MHz band and three blocks of 2x5MHz at 2600MHz. The other winners were T-Mobile (PLN2.14 billion for 800MHz and 2600MHz licenses), P4/Play (PLN1.72 billion, 800MHz and 2600MHz), NetNet (PLN2.05 billion, 800MHz only) and Polkomtel (PLN155.8 million, 2600MHz only). Licensees have two years to cover 1,149 municipalities designated as internet 'white spots', which are regions with no internet access or access at speeds of below 10Mbps. They must also cover 1,053 towns of up to 30,000 inhabitants within three years and 91 towns of between 30,000 and 50,000 inhabitants within four years. In total, the licenses require coverage of at least 80% of Poland in geographic terms.

(January 26, 2016) telegeography.com

The Polish mobile operator Polkomtel, which is part of the Cyfrowy Polsat group and operates under the 'Plus' brand, has abandoned plans to utilize the 800MHz band for 4G LTE services, saying it will be more cost-effective and efficient to use spectrum in other ranges. A statement on the company's website explained: 'Polkomtel is developing a model of network development based on 900MHz, 1800MHz, 2100MHz and 2600MHz. Polkomtel withdrew from the government's 800MHz license auction

in March last year, saying it had decided instead to bid solely for 2600MHz frequencies; the operator advocated the construction of a single national 800MHz network which could be shared by operators to reduce costs. By the time the auction ended in October, however, two of the five available 800MHz packets had drawn bids of over PLN2 billion (US\$535 million) each, while the other three were sold at between PLN1.48 billion and PLN1.57 billion. The government had been expecting bids of around PLN300-500 million per license. The cellco now says that the high price of the concessions would make cooperation 'unprofitable and unreasonable'. It is instead considering using ODU-IDO (outdoor unit-indoor unit) systems to provide 1800MHz network coverage levels similar to those available with 800MHz spectrum. It will also look to reform its existing spectrum holdings in the 900MHz and 2100MHz band. (January 4, 2016) telegeography.com

## Russia



Russian federal competition regulator FAS has initiated an investigation into SMS traffic rates applied to SMS aggregators by Russian mobile operator MTS, Beeline and Megafon, reports Vedomosti. The modification of the rates led to price increases for end-users. Companies using the text dissemination service submitted appeals to the watchdog on the issue. MTS claims that it introduced new rates in order to reduce SMS spam.

(January 20, 2016) telecompaper.com

## Senegal



Senegal in January invited new entrants to apply for its 4G auction, following a coordinated boycott by the country's three current mobile operators, according to the telco regulator. The Regulatory Authority for Telecommunications and Posts (ARTP) launched the 4G tender process in November. At the time it was only open to existing license holders, of which there are three in Senegal: Orange, Tigo, and Expresso. Frequencies in the 800-MHz, 700-MHz, and 1800-MHz bands are up for grabs, and the ARTP set a reserve price of 30 billion francs (€45.7 million) for a 20-year license. Interested parties had until Monday to submit their applications. In a statement on Monday, the watchdog revealed that it received a letter in December signed by Orange, Tigo and Expresso reporting their "concern on the reserve price of the license," but said that it received no formal request to push back the application deadline. "On this day, the state acknowledges the collective and coordinated non-participation of the operators," said the ARTP. The regulator said that the spectrum reserve price was developed from a benchmark of more than 20 countries, taking into account the quantity and quality of available frequencies, the population, the income of Senegal's telco market, and the coverage obligation attached to the 4G licenses. The ARTP said it plans to revive the 4G license process in the coming days. "The future call for applications will be open to new entrants, [and] international telecommunications operators, interested in the development of telephony and mobile Internet in Senegal," the ARTP said. (January 20, 2016) totaltele.com

The Regulatory Authority for Telecommunications and Post (ARTP) in Senegal wants 4G to be a reality in the first quarter of 2016, and to that end has set an 18 January deadline for companies interested in obtaining a commercial operating license. Director General of the

ARTP confirmed the development, noting that under the terms and conditions of the awards operators will have to deliver 4G coverage to at least 65% of the population by 2021, rising to 85% by 2026. The city of Dakar and all regional capitals should be fully covered within five years, while all nine major highways of the country must be served within ten years. The ARTP official, however, declined to provide any details on minimum reserve fees for the concessions or the amount the government hopes to raise from the process. The telecommunications sector generated nearly 10% of GDP in 2014, and is one of our most dynamic service sectors and, indirectly, is a major sector of the economy of Senegal – and growing strongly. As such, the state sees the industry as a key driver of wider economic growth.

(December 23, 2015) Agence Ecofin

## Serbia



Regulatory Agency for Electronic Communications & Postal Services (Regulatorna Agencija za Elektronske Komunikacije i Postanske, RATEL) has confirmed that local mobile operators Mobile Telephony of Serbia (MTS), Telenor Serbia & Mobilkom Serbia (VIP Mobile) have each been awarded 800MHz spectrum, following last November's tender process. The ten-year concessions comprise frequencies in the 791MHz-821MHz/832MHz-862MHz spectrum range and can be extended by a further five years at a later date. In November 2015 the sale process generated a total of EUR105.05 million (US\$111.81 million). MTS paid EUR35.05 million for its 2x10MHz technology neutral concession, while Telenor Serbia and VIP Mobile each paid EUR35.00 million for similar licenses. (January 15, 2016) telegeography.com

## South Africa



South Africa's Independent Communications Authority of South Africa (ICASA) is planning to launch an inquiry into the impact of over-the-top (OTT) VoIP services – including WhatsApp, Viber and Skype – on the data services market in the next financial year, following hearings held by the Portfolio Committee on Telecommunications and Postal Services. ICASA's chief operating officer Willington Ngwepe said: 'our plan is that [in] the next financial year, we will be conducting an inquiry into priority markets ... We intend to look into data services next and as part of that, we will consider the possible impact of OTTs on the market.' While MTN South Africa and Vodacom have called for regulations governing OTT services, Cell C has warned that such legislation 'could be to the detriment of the industry and consumers at large'. (January 28, 2016) TechCentral

## South Korea



South Korea's Ministry of Science, ICT, and Future Planning (MSIP) has revealed it aims to determine whether or not to license a new mobile network operator next week. Three candidates are currently being considered as possible licensees after months of deliberation following an initial government assessment back in November 2015. As part of plans to enhance competition in the South Korean wireless sector, the MSIP is understood to have established a special team of 16 experts that will assess the candidates' service, financial, and technology capabilities, along with their

plans to protect users' privacy. Sejong Telecom Co, K Mobile and Quantum Mobile are now in the running for the country's fourth mobile license, while Korea Mobile Internet (KMI) and Internet Space Time chose not to take part in the most recent application process, each having had previous bids rejected. Should the MSIP decide that none of the three candidates are eligible for the concession it has, however, said that it may not license any of them. As part of the process, representatives from Sejong Telecom, K Mobile and Quantum Mobile will also go through hearing procedures, although they will not be able to meet judges face-to-face for transparency reasons. (January 22, 2016) Yonhap News Agency

## Togo



The telecoms watchdog, the Authority of Posts and Telecommunications Regulation (ART&P) has extended the deadline for its SIM registration program until January 10, 2016, from its previous cut-off date of December 1, 2015. Subscribers that do not complete the registration process by the new deadline will have their SIMs blocked. ART&P began implementing the measure under Decree No. 2011-120/PR, which establishes mandatory identification of all subscribers using mobile telecoms services in Togo. Adopted in 2011, Decree No. 2011-120/PR is intended to clamp down on handsets being used for illegal activity. Four years after it came into force, however, many users still remain unidentified – something the watchdog is looking to change. Mobile operators Togo Cellulaire (Togocel) and Atlantique Telecom (Moov) have been asked to ensure that all their customers are informed of the deadline.

(January 8, 2016) Agence Ecofin

## Ukraine



The National Commission for the State Regulation of Communications and Informatization (NCCIR or NKRZI), has refused to extend 4G LTE-suitable wireless spectrum licenses held by MMDS Ukraine, an associated company of SCM Group, the conglomerate owned by the country's richest man Rinat Akhmetov, which also owns nationwide incumbent telco Ukrtelecom and sister operator Vega. 4G-capable frequency licenses expiring in May 2016 have not been renewed in the following territories: Volyn, Poltava, Kirovohrad, Cherkasy, Rivne, Khmelnytsky, Vinnytsia, Luhansk, Sumy, Nikolaev, Kherson, Ternopil, Kharkiv, Transcarpathian, Zhytomyr, Ivano-Frankivsk, Lviv, Chernivtsi, Chernihiv and Kiev. The report adds that the NCCIR refused to renew similar frequency concessions held by MMDS Ukraine in Odessa and Dnipropetrovsk at the end of 2015, whilst the reason stated is the failure of MMDS to utilize the spectrum. The Ukrainian telecoms regulatory authorities awarded a nationwide 2.5GHz license (suitable for WiMAX, but now earmarked for LTE), without tender, in December 2005 for US\$150,000 to SCM, which transferred the license to MMDS Ukraine, a firm 25%-owned by the conglomerate. The potential 4G frequencies have largely remained dormant in many areas of the country ever since.

(January 14, 2016) BizLiga

## United Kingdom



Two appeals over restrictions to charges that British fixed line incumbent BT is permitted to make for use of its superfast broadband network have been referred to the Competition and Markets Authority (CMA) by the Competition Appeal Tribunal (CAT). Previously, BT and rival TalkTalk both lodged appeals with the CAT following a decision on superfast broadband pricing by local telecoms regulator OFCOM in March 2014. As the largest retail provider of fiber broadband services over its network, BT is required to allow other operators to use its infrastructure to sell superfast broadband to consumers under a virtual unbundled local access (VULA) model. OFCOM's pricing rule aims to ensure that BT maintains a sufficient margin between its wholesale and retail superfast broadband charges, in order to allow other providers profitably to match its prices. Under the UK's 2003 Communications Act, if decisions by OFCOM are appealed to the CAT and include a price control matter, then the issue must be referred to the CMA for determination. As such, both parties are said to have 'sought a reference to the CMA of the price control matters in their respective appeals'. A press release has also confirmed that the CAT has permitted both TalkTalk and another of the country's alternative broadband providers, Sky UK, to be 'interveners' in the appeal brought by BT, while the incumbent will be an intervener in the appeal brought by TalkTalk. A determination will be made by a group of independent panel members supported by a case team of CMA staff, and the CMA has six months to send its final determination to the CAT. Following this, the CAT will include the determination in its judgment alongside the other issues it has considered as part of the appeals. (January 7, 2016) [telegeography.com](#)

## United States



The Federal Communications Commission approved further testing of the approach, known as LTE-U (U for unlicensed), which has been at the center of a struggle between tech heavyweights. For months now, Verizon, Qualcomm and others have been pushing LTE-U, promising that it would allow for more efficient data use by cellular devices, while also insisting that it can be a good neighbor with Wi-Fi devices. Opponents, including Wi-Fi advocates, Google and various cable companies, meanwhile, have been leading a charge against the effort, saying LTE devices could overwhelm the airwaves, shutting out Wi-Fi and other uses. Both sides have put forth a variety of scientific arguments to bolster their business-related reasons for supporting or opposing LTE-U. The FCC is giving Qualcomm permission to test gear at two Verizon facilities, saying the move will give device makers an opportunity to show they won't interfere with Wi-Fi and other unlicensed spectrum users. The agency has been studying the issue for some time now, but has been trying to avoid taking sides. "The Office of Engineering & Technology and the Wireless Telecommunications Bureau have encouraged the industry to address and resolve these concerns, and considerable progress has been made," the FCC's Julius Knapp said in a blog post. Qualcomm said it was pleased with the FCC's move as well as a letter from the Wi-Fi Alliance that indicated the group did not oppose Qualcomm's application. "We are collaborating with the Wi-Fi Alliance to develop a coexistence test plan, and we anticipate using that plan for joint lab and field tests to validate that LTE-U will not have any adverse impact on Wi-Fi. We would like to thank the FCC and the Wi-

Fi Alliance for working with us to reach this important result." That said, the Wi-Fi Alliance isn't saying it is okay with commercial deployment of LTE-U. The Wi-Fi Alliance said it "remains concerned about the widespread introduction of LTE-U devices" and hopes that "before the [FCC] approves the routine use of LTE-U products, the commission will evaluate the results of testing in real-world scenarios to demonstrate that LTE-U devices can coexist fairly" with others. (January 31, 2016) [recode.net](#)

The Federal Communications Commission (FCC) has approved AT&T Mobility's purchase of two 700MHz Lower C-block licenses from Peoples Wireless in Texas. The spectrum attached to the concessions covers 17 counties across two Cellular Market Areas (CMAs), and post-transaction, AT&T will increase its below-1GHz spectrum holdings from 30MHz to 55MHz (varying by county). In its review of the deal, the FCC observed: 'We also note that the three other nationwide service providers each have significant 3G and LTE population and land area coverage in both markets. Moreover, other entities were actively solicited with respect to this business opportunity, so they had the opportunity to acquire this low-band spectrum on the secondary market'. AT&T has been an active participant in the so-called 'secondary spectrum market' in recent years, plugging holes in its network with a series of small-scale transactions. The value of the Peoples Wireless deal, which was agreed in October 2015, has not been disclosed. (January 19, 2016) [telegeography.com](#)

The Federal Communications Commission said Friday it has removed Cuba from its "exclusion list," allowing U.S. companies to provide telecommunication services to the Caribbean country without separate approval from the agency. Cuba was the last remaining country on the FCC's exclusion list. "Removing Cuba from the Exclusion List benefits the public interest as it will likely alleviate administrative and cost burdens on both" telecom companies and the FCC and fuel more competition among telecom carriers interested in the market, the agency said. The move has been anticipated following the Obama administration's decision in late 2014 to reopen diplomatic relations with the island nation. At the time of the dramatic announcement, the U.S. government said telecommunications companies will be among the first industries to set up equipment and other infrastructure projects needed to begin their services. In September, the departments of Commerce and Treasury followed through by removing a series of restrictions on Americans traveling to and doing business with Cuba. The changes, ranging from investment to banking to joint ventures, enabled American businesses to establish a "physical presence" in Cuba and hire Cubans to work in their offices. The U.S. economic embargo on Cuba remains in place since only an act of Congress can lift it. Cuba is a largely untapped market that is hungry for expanded wireless phone and Internet services. In June, 2013, Cuba extended access to its new high-speed internet to citizens at designated, censored 'cyber points' "at prices few can afford," according to advocacy group Freedom House. Only about 5% to 26% of Cubans have access to the Internet, it said. "Cuba has long ranked as one of the world's most repressive environments for information and communication technologies," according to Freedom House's analysis of the Cuban Internet market. "High prices, exceptionally slow connectivity, and extensive government regulation have resulted in a pronounced lack of access to applications and services other than email. Most users can access only

a government-controlled intranet rather than the global internet, with hourly connection costs amounting to 20 percent of the minimum monthly wage." In September, Verizon Wireless said it became the first U.S. wireless company to offer roaming in Cuba through its "Pay-As-You-Go International Travel" option, which costs \$2.99 per minute for calls and \$2.05 per megabyte for data. The State Department recommended in October that the FCC remove Cuba from the exclusion list, and the FCC began collecting public comments. Not surprisingly, the industry is supportive of the move. AT&T told the FCC "that removal of Cuba from the Exclusion List would help foster competition for bilateral communications between the United States and Cuba, and thus increase the flow of information to and from the Cuban people," according to the FCC's order for removing Cuba from the list. Medical device maker Medtronic said scrapping the reporting requirement will "promote connectivity for medical devices and services, such as remote monitoring of medical devices and exchange of medical information between the two countries," according to the FCC order.

(January 15, 2016) [usatoday.com](#)

The Federal Communications Commission's planned 600 MHz incentive auction process reached a milestone this week as the broadcaster application deadline passed, with apparently positive results. Television broadcasters interested in giving up some of their current spectrum holdings in the 600 MHz band had until January 12 to file an application with the FCC, with a statement from the National Association of Broadcasters indicating "robust" participation from television broadcasters. "The FCC's staff has done a remarkable amount of work to get us to this point," explained NAB EVP of communications Dennis Wharton, in a statement. "NAB expects robust broadcaster participation in the reverse auction, and we hope to see similarly robust participation from wireless bidders in the forward auction. While we've expressed our concerns, we hope that the rules and systems the FCC has in place will ensure that this voluntary auction goes off without a hitch, and we look forward to the close of a successful auction." NAB had initially fought the FCC on auction rules, including filing a petition with the United States Court of Appeals for the District of Columbia Circuit claiming the FCC auction rulemaking changed the "methodology used to predict local television coverage areas and population served, which could result in significant loss of viewership of broadcast TV stations after the FCC 'repacks' TV stations into a shrunken TV band." That challenge was eventually overturned. The deadline for companies looking to bid on the broadcast spectrum is currently set at February 9, with the reverse-auction proceedings still set to begin on March 29. A number of large mobile carriers have expressed keen interest in the process, including AT&T and T-Mobile US. Verizon Wireless has been cagey in its auction intentions, while Sprint has said it will not participate. (January 13, 2016) [rcrwireless.com](#)

The Federal Communications Commission (FCC) has paused the 'shot-clock' on its 180-day review of Charter Communications' proposed purchases of rival cablecos Time Warner Cable (TWC) and Bright House Networks. The watchdog said the 15-day recess is necessary to evaluate a number of supplementary documents filed last month by the merging companies. On December 17, to help FCC staff to assess the applicants' commitment to build one million residential line extensions and deliver US\$2.5 billion of commercial network investment, TWC provided new information regarding its own residential

and commercial build out methodologies. On December 22 Charter provided similar information, as well as new details concerning its commitment to deploy a new low-cost broadband service. Other documentation submitted relates to IP interconnection, residential pricing and packaging methodology and cybersecurity. The review process, which started in September 2015, will still have 65 days to run once it resumes on January 20. Charter and TWC entered into a definitive merger agreement in May 2015, which valued the latter at US\$78.7 billion. Running parallel to the above, Charter and Advance/Newhouse Partnership – the parent company of smaller rival Bright House Networks – announced that they had amended an agreement signed on March 31, 2015, whereby Charter would acquire Bright House for US\$10.4 billion. Each of the deals received shareholder approval in September 2015. The combination of Charter, TWC and Bright House will create the second largest broadband provider in the US – behind cable giant Comcast – serving around 23.9 million customers across 41 states. (January 6, 2016) [telegeography.com](#)

Tom Wheeler, chairman of the Federal Communications Commission (FCC), predicted a "spectrum extravaganza" from the billion-dollar sale of US airwaves scheduled for the first quarter of 2016. In bullish mood, the FCC chief said the so-called reverse auction will prove to be the world's largest sale of radio frequencies. It is due to happen in 84 days. However he would not be drawn into putting a figure on the proceeds during a fireside chat with Gary Shapiro, CEO of the Consumer Technology Association. Wheeler explained how the auction will work, with broadcasters first selling their 600MHz spectrum to the FCC then the regulator auctioning the frequencies to the mobile industry. "Safe to say it will be a spectrum extravaganza with lots of selling and lots of buying," he said. Broadcasters have less than one week to register as spectrum sellers with the FCC. He said big name broadcasters were interested in the auction but didn't name anyone, and said undisclosed mobile operators were game too (although Sprint has already ruled itself out). There will be a transfer of spectrum in every major US city, he predicted. "This is the last time we sell sand on the beach. And this is beachfront property," said Wheeler. But this process has not been without its share of headaches, with broadcasters originally taking legal action against the FCC over the sale.

(January 5, 2016) [mobileworldlive.com](#)

## Vietnam



The Prime Minister approved a broadband development plan that calls for 3G/4G networks to cover 95 per cent of residential areas and fixed-line broadband reaching at least 40 per cent of households by 2020. The new program also calls for at least 60 per cent of internet subscribers having access to a minimum download speed of 25Mb/s, Viet Nam News reported. The government is targeting 100 per cent of public internet access points nationwide offering broadband service by 2020, with half of the access points delivering a minimum download speed of 50Mb/s. Its target for wireless access is 4Mb/s in urban areas and 2Mb/s in rural areas. The government said the program aims to encourage businesses to invest in broadband infrastructure and make issuing licenses for telecoms businesses easier. It also plans to create market mechanisms to encourage competition and won't allow discrimination between state-run and private companies. The government plans to set targets

for local firms to manufacture or assemble equipment to reduce costs and lower imports. (January 25, 2016) Viet Nam News

## Zambia



The mobile subscribers have been given two months by the Zambia Information and Communication Technology Authority (ZICTA) to update incorrect SIM card registration data or face permanent disconnection. The sector regulator has issued a statement urging the public to check registration status with their respective mobile service providers, while noting that it had teamed up with all three local cellcos – MTN Zambia, Airtel Zambia and Zamtel Mobile – to ‘clean up’ registered SIM cards held by operators. Approximately one million SIM cards have been temporarily blocked by mobile operators for not being properly registered, and the ZICTA has said the clean-up is intended to address unclear photos, incorrect and incomplete information and other details on the IDs. In its statement on the matter, the ZICTA said: ‘Please be advised that all SIM cards deemed to have any of the problems highlighted will be permanently de-registered, if not corrected by February 29, 2016.’

(January 8, 2016) ITWeb Africa

## Zimbabwe



The latest quarterly report from the Post and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) shows that the country has seen a surge in interest in 4G LTE technology thanks to the continuing network rollouts by mobile operators NetOne and Econet. There were 26,185 LTE users in Zimbabwe at the end of September 2015, up from just 474 three months before. The wider mobile market saw the active subscriber total rise from 11.95 million to 12.39 million over the same three-month period, with market leader Econet claiming 6.68 million users, up from 6.63 million at end-June, NetOne taking second place with 3.80 million (up from 3.38 million), and Telecel witnessing a slight fall, from 1.94 million to 1.91 million. Meanwhile, the number of mobile money customers in the country rose from 6.23 million at June 30, 2015 to 6.67 million three months later, though the total value of deposits fell by 10.5% to US\$458 million due to the tough economic situation. (January 20, 2016) telegeography.com

Zimbabwe’s mobile market leader Econet Wireless is suing the country’s telecoms watchdog, the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ), for US\$132.7 million. The cellco says POTRAZ was wrong to order mobile operators to reduce tariffs by 30% from January 1, 2015 and is suing for lost profits; it claims that the move was outside of the powers given to POTRAZ by the Telecommunications Act. In addition, Econet says that while it paid a USD137.5 million fee to renew its operating license in mid-2013, rival operators NetOne, Telecel and TelOne – all of which are either wholly or part owned by the Zimbabwean government – failed to pay for their own license renewals, and this action was ‘discriminatory’ according to Econet. Econet did launch an appeal against the 2015 tariff cuts, but its case was rejected in November. (January 15, 2016) NewsDay

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has announced a one cent per minute increase in voice tariffs, taking the cost of calls from US\$0.15 per minute to US\$0.16. At the start of 2015 the regulator implemented a drastic reduction in voice tariffs, requiring operators to cut the cost of calls from US\$0.23 per minute to US\$0.15, and there had been plans to introduce another cut at the start of this year, but operator revenues have been hit hard by the move, with mobile market leader Econet Wireless forced to lower its wages and negotiate cheaper deals with its suppliers. Econet did launch an appeal against the 2015 tariff cuts but its case was rejected in November. The latest move by POTRAZ will give operators some breathing space, with the telecoms sector also being affected by the weak domestic economy which has hit disposable incomes. Zimbabwe’s mobile market is home to three players – privately owned Econet plus state-backed firms NetOne and Telecel – while the fixed line sector is dominated by state-run TelOne.

(January 11, 2016) TechZim

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Regulatory Affairs

SAMENA Telecommunications Council

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## ▼ WHOLESALE NEWS

### WHOLESALE UPDATES

#### Mexico to launch wholesale telecoms network tender

Mexico will launch a long-delayed tender for one of the largest infrastructure projects under President Enrique Peña Nieto, a wholesale telecoms network that will cover most of the country. The project, which was meant to be up and running by 2014, is part of a sweeping telecoms reform aimed at curbing the dominance of Carlos Slim's America Movil and improving Mexico's low levels of cell phone penetration and network coverage. It offers the winner cheap, high quality spectrum in the 700MHz band to build a mobile network that operators and virtual network operators can rent. However, the winner will not be able to sublet spectrum and the network will have to cover a minimum of 85 percent of the population, the government said on Thursday. Mexico's telecoms minister told Reuters last year it expected a capital investment of around \$7 billion in the project.

#### Etisalat has over 100 roaming partners for its 4G LTE networks

Etisalat has more than 100 roaming partners for its 4G LTE networks across 55 countries. The telecom operator currently

facilitates international mobile roaming services on 2G, 3G and 4G networks across 612 partner networks. In addition, etisalat's roaming data network facilitates customers subscribed to etisalat's mobile data packs to access internet on the country's largest roaming data network of a total of 213 operators across 100 countries. The operator also recently launched a new access point for its mobile roaming customers to view and subscribe to the most preferred roaming voice or data plan while travelling.

#### India's Idea reports slowing growth as tariffs fall

India's third largest operator Idea Cellular reported a sharp increase in data and voice usage in its Q3 ending 31 December, but downwards pressure on tariffs caused by increased competition and regulatory changes slowed revenue and profit growth. Mobile data usage jumped 75.8 per cent to 81 billion megabytes during the quarter and voice minutes expanded 16.7 per cent to 199.2 billion minutes. But declines in data and voice rates (down 17.2 per cent and 10.6 per cent respectively) slowed the operator's revenue growth from the previous year, the company said. The operator attributed the decline in tariffs to "intense pressure on mobile data rates,



as wireless broadband demand growth is slower than the increased supply from operators launching/expanding their 3G/4G footprints". In addition, it said the regulator last March reduced the termination charge for incoming calls by 30 per cent and lowered the cap for national roaming calls and texts on 1 May. While consolidated Q3 revenue increased 12.3 per cent to INR90.1 billion (\$1.35 billion), its net profit dipped slightly to INR7.64 billion from INR7.67 billion a year ago. Consolidated EBITDA increased 13.6 per cent to INR31.28 billion, as its EBITDA margin rose 0.4 points to 34.7 per cent. Last year the operator added 29.7 million subscribers, taking its total customer base to 182 million. It had a 19.1 per cent share of the country's mobile connections, according to TRAI. Its net mobile data customer base, however, remained flat at 41.4 million (41.3 million in fiscal Q2) during the quarter as the company said it tightened its data subscriber reporting. Higher mobile data usage per customer helped improve blended mobile data ARPU to INR145 (\$2.17) in fiscal Q3. Non-voice revenue contributed 28 per cent of total turnover during the quarter, up from 23 per cent a year earlier. Idea said the INR23.1 billion it spent on capex was financed by a cash profit of INR23.5 billion for the quarter. It rolled out almost 11,000 base stations in the quarter, including nearly 7,700 3G/4G sites, taking its nationwide total to 170,000 (47,500 3G/4G). The operator said it has rolled out 4G service in 183 towns in seven service areas and aims to expand the 4G footprint to three remaining regions, where it has 4G spectrum, by March and cover more than 750 towns by June. Its 900MHz spectrum in seven regions, which expired in December, was replaced in five service areas with the 900MHz 'liberalized' spectrum it won in the March auction. It will have access to 900MHz spectrum in the other two regions in April. Idea signed an agreement with Videocon Telecommunications last November to purchase 1.8GHz spectrum in two service areas.

## Vodafone Malta drops EU roaming fees

Vodafone Malta has removed European roaming charges, enabling its customers on certain tariffs to make and receive calls and messages and use mobile data services across Europe at no additional cost. Its revised 'RED' unlimited plans will provide free in-bundle roaming services for Maltese travellers to all 27 EU countries plus Albania, Iceland, Liechtenstein, Norway and Switzerland, while the firm said it has also reduced the cost of out-of-



bundle calls and data usage for its RED customers. Some Vodafone customers have complained, however, that the price of the RED tariffs has also been increased – by between EUR2 and EUR5 (USD2.27-USD5.67) per month. A Vodafone press release stated: 'With the number of Maltese travelling abroad increasing year on year – in August 2015 the National Statistics Office recorded an increase of 15.3% compared to the previous year, with the majority travelling to EU countries – these new plans will respond to a growing need on the part of Maltese consumers.' The move has been prompted by an EU decision which will force all of the region's operators to remove mobile roaming charges across Europe by June 2017. Vodafone is Malta's largest cellco by subscribers, according to TeleGeography's GlobalComms Database, with 46% of the country's 567,000 mobile users at the end of September 2015.

## Telefonica wins 2016 Global Wholesale Service Provider Excellence Award at prestigious Pacific Telecom Council event

Telefonica Business Solutions, a leading provider of a wide range of integrated communication solutions for the B2B market, has today been awarded with the 2016 Global Wholesale Service Provider Excellence Award in the Large

Service Provider division for Data Value by ATLANTIC-ACM at PTC, Asia-Pacific's premier telecommunications annual conference event held in Honolulu, Hawaii. The awards are based on extensive customer surveys conducted by ATLANTIC-ACM as part of its annual Global Wholesale Report Card. This year's awards were based on over 1,400 carrier ratings from more than 370 international wholesale customers. The Data Value award is given to the provider who received the highest combined average score for the quality and price competitiveness of their data product suite such as Ethernet DIA, Legacy DIA, IP WAN, International Private Line and Ethernet Transport products.

## ARCEP warns scrapping roaming fees in overseas departments will destabilise markets

ARCEP this week warned that removing roaming fees between France and its overseas departments and territories will destabilize markets. "Accompanying measures for operators would be

required to ensure that putting an end to the roaming fees billed to end users is economically viable," the French telco regulator said in a statement on Thursday. In October 2015, France's government passed a law that will put an end to roaming charges for mobile calls and text messages for consumers travelling between France and its overseas departments and territories. The new law is due to come into force on May 1. France has five overseas departments: French Guiana, Guadeloupe, Martinique, Mayotte and Réunion. The French Southern and Antarctic Lands together constitute its sole overseas territory. ARCEP said that the wholesale roaming market requires reform before retail roaming fees can be phased out. In addition, ARCEP said that fair usage policies should be permitted to coincide with the end of roaming fees. "If these conditions are not met, operators' business models will be undermined, and operators in France's overseas markets will be deprived of the resources they need to introduce superfast mobile services and to invest in 4G network rollouts," the watchdog warned.

## Orange wins Global Wholesale Service Provider Excellence Award

Orange International Carriers is pleased to have been acknowledged as a prize-winner in this year's Global Wholesale Service Provider Excellence Awards. This year's prize, in the category of Large Service Provider for Voice Value, recognises excellence in the wholesale industry. Atlantic ACM – a telecom research consultancy and marketing company which carries out annual evaluations of international wholesale service providers – selected Orange International Carriers for this prize after analysis of more than 1,400 customer evaluations of wholesale providers. In winning the award, Orange International Carriers continues to be proud of its quality both in its services and through its support for customers.

## Sri Lanka enforces common on-net, off-net retail floor call rates

From 1 February 2016 Sri Lanka will enforce a common minimum retail

voice call rate for on-net and off-net domestic voice calls, to support competition between large and small network operators. As reported by the Sri Lankan Daily Mirror, the Telecommunications Regulatory Commission (TRC) has scrapped an existing dual-rate structure for on-net and off-net voice calls, by raising the on-net rate and lowering the off-net rate. The TRC said the floor rate revision was made in response to submissions made by the [smaller] telcos and would only be applicable for new connections issued from the effective date. For end-user tariffs with per-second basis billing, the new unified minimum voice call rate will be LKR1.80 (USD0.01) per minute for calls within Sri Lanka regardless of making on-net or off-net calls; previously the on-net rate was LKR1.50 and the off-net rate LKR2.50. For end-user tariffs with per-minute basis billing, the new common floor rate is LKR1.50 for calling all domestic phone numbers (previously LKR1.50 on-net, LKR2.00 off-net). The SMS/MMS minimum charge was already a unified on-net/off-net LKR0.10 per message, but the TRC is raising this to LKR0.20 from 1 February. Five mobile network operators are active in Sri Lanka, although the market leader Dialog Axiata accounted for more than 44% of all users at end-September 2015.

## Rostelecom introduces PLC for IPTV; inks RUB4.4bn wholesale deal with Beeline

Russian nationwide fixed network Rostelecom has finalized a new wholesale contract with mobile operator VimpelCom (Beeline Russia) worth RUB4.37 billion (USD64 million) which grants the latter access to Rostelecom's duct infrastructure, towers and buildings for installation of mobile network equipment, reports Telecompaper citing Vedomosti. The contract – valid until the end of 2019 – will replace several existing infrastructure leasing agreements between Beeline and Rostelecom. In other company news, Rostelecom's North-West division has begun selling Power Line Communications (PLC) adapters for connecting to the telco's 'Interactive TV' IPTV set-top box service directly through the user's electrical socket outlet, in areas including St Petersburg, Telecom Daily reports. A

set of two PLC adapters (sending and receiving) costs RUB1,999, payable in instalments. Rostelecom currently claims to have over 60% of the national Russian IPTV subscriber market.

## Impact Telecom Completes Merger with TNCI Operating Company

Impact Telecom, a leading provider of voice and messaging solutions to businesses, carriers, and consumers, today announced the completion of its operational merger with Garrison Investment Group entity, TNCI Operating Company, a national voice, data and cloud services provider. Bob Beaty will continue as President and CEO and Laura Thomas, former CEO of TNCI will become Chairman of the Board of Directors of the new company. TNCI systems and operations are now being combined with Impact Telecom's existing infrastructure to form the new Impact Telecom, which will be uniquely positioned to serve businesses and carriers of any size with voice, messaging, cloud and unified communications needs. Beaty said the deal underscores Impact's commitment to quality and customer experience. "The combined Impact Telecom and TNCI infrastructure creates a robust nationwide network along with enhanced product capabilities backed by a dedicated team of experts. Our customers will notice the difference." Joshua Brandt, Managing Director at Garrison Investment Group added, "Garrison believes in the growth of this telecom platform. The operational combination of Impact Telecom and TNCI represents a significant milestone in our progress. Both companies are facilitating a smooth integration and we look forward to benefits of the merger for our customer base." Wholesale customers will benefit from the expansion and augmentation of Impact's state-of-the-art IP-based network connected to a nationwide Feature Group D (FGD), with the addition of 1,215 rate centers in the Western States footprint. The new Impact Telecom will better serve its customers and offer new services with enhanced capabilities positioning the company as a leader in the wholesale voice and messaging industry. Uniting two telecommunications leaders, the merger enables Impact Telecom to better align with the growing cloud-

based services industry and to offer a variety of innovative and leading-edge technologies that help improve communication methods for businesses and their customers while reducing costs. To support sales growth, Impact Telecom will continue its commitment to partners. Impact will now offer a comprehensive product portfolio, including its new ImpactConnect unified communications platform with specialization in cloud-based voice, SMS, toll free, collaboration and long distance services. Impact's feature-rich Hosted PBX service includes a high-quality office phone and mobile app for Apple and Android smartphones and tablets. The transaction received approvals of the FCC and applicable state regulatory authorities. Financial terms of the transaction were not disclosed. The Bank Street Group LLC served as exclusive financial advisor to Impact in connection with this transaction.

### BT Openreach publishes new wholesale prices

BT Openreach has published new prices for local loop unbundling and wholesale line rental (WLR) which come into effect on 1 April. The price changes were being made to comply with year 3 of Ofcom's fixed access market review charge control. The price of almost all services will come down, with the notable exception of WLR line transfer, which will rise to GBP 8.43 from GBP 6.28. WLR basic

line rental will decline by 3.1 percent to GBP 86.72 a year. The Metallic Path Facility (MPF) price will be GBP 87.65 a year, essentially unchanged compared to GBP 87.48 at present. ISDN2 and ISDN30 prices will not change.

### 3 Hong Kong, NTT DOCOMO complete international VoLTE roaming trial

Hutchison Telecommunications Hong Kong Holdings mobile arm 3 Hong Kong has announced the successful completion of a bilateral international VoLTE roaming trial with NTT DOCOMO of Japan. In a press release, 3 Hong Kong confirmed that the trial involved S8 Home Routed (S8HR) architecture, an LTE data roaming-based technology that can be deployed without IP Multimedia Subsystem (IMS) interaction between parties. The cellco confirmed that the S8HR platform 'enables VoLTE roaming service to be made available in fast-track fashion' to deliver superior HD voice and video roaming on a suitably enabled device. With the trial completed, the pair now aim to deliver commercial VoLTE roaming in Hong Kong and Japan.





## ▼ TECHNOLOGY NEWS

### TECHNOLOGY UPDATES

#### 2016 Technology Trends: Which way is the wind blowing?

Talk of market disruption is generally characterized in terms of David toppling Goliath: agility and flight of foot trump sheer heft. While the analogy has some appeal it misses the point that these 'disruptors' are probably winning because they are closer to what consumers today really want. Larger organizations, by contrast, have to contend with organizational structures that don't automatically foster responsiveness. Brands in telecoms, utilities, financial services and beyond in 2016 have got to evolve both a keener sense of hearing, and the ability to respond to the clues they pick up. What does this look like in practice? Trendwatchers Global have coined the term Revelation Brands to describe the new dynamic between brands and consumers – the "revelation" being afforded through open-ended, unmanaged dialogue, rather than targeted, highly optimized interactions. Smaller, younger organizations are better positioned to become revelation brands, but there are ways that larger organizations can play the disrupters at their own game. Here are six of them.

#### **Service gets smarter**

"Data" and "connectivity" have long been buzzwords in tech and this is set to become further embedded in the world of customer service. From real-time queue monitoring informing smarter staff allocation, to increasing connectivity between cards and mobile devices, alerting you to targeted offers based on previous purchases, data and connectivity will inform smarter service. This is being driven by consumer demand for speed and efficiency when interacting with organizations.

#### **Even more channels to contend with**

Consumer devices will become more connected than ever before. The demand on businesses will be to support this with what Gartner are calling, a new "continuous and ambient user experience". That is to say, providing a consumer experience that is not just available across multiple channels and devices, but that moves seamlessly between them. This requires intelligent use of customer data and, with almost half of consumers being suspicious of how their data is used by companies, the challenge here will be to temper these concerns through engagement and transparency on how this personal information is collected and used. From smartphones to smart watches, from apps to ApplePay, consumers will increasingly

require support for new digital innovations as they continue to come thick and fast in 2016. Businesses need to be able to handle any issues or unexpected side effects of these new devices or apps as efficiently as any other customer enquiry. To support this we expect to see the growth of ever smarter virtual assistants, joining the ranks of Siri, Cortana and Facebook's M. It's all about smarter engagement.

### Slow death of the password

We can already see this in motion but the plethora of, and sharp rise in, fraud is resulting in a surge in improving security. But there is a fine balance to be struck between strengthening security while at the same time enhancing the user experience – additional layers of security seldom lead to the speed and efficiency consumers crave. Across devices, industries and organizations, progress is being made in harnessing the power of voice biometrics and authentication and 2016 will see this become increasingly mainstream.

### Don't alienate different generations

The rise of digital is often associated with younger generations and as GenZ (born late 1990s onwards) comes of age in 2016-2020, with a truly habitual affinity with digital concepts, peer-to-peer engagement and online communities. Brands need to ensure that they build key advocates in this space. However, with spending power still set to be largely owned by the established older generations, a single minded focus on GenZ could potentially alienate a core customer base that may be older – so a careful balance needs to be struck.

### The oracle of reviews

Organizations everywhere are realizing that nobody is better at engaging and supporting customers than other customers. Businesses need to ensure that happy customers contribute their positive feedback, helping to generate further business. To achieve this, they need to provide quick and easy means to do so. Removing barriers and reducing effort is crucial here. And so ends our glimpse into what we can expect in 2016 from a customer service perspective. One thing we can be certain of is that digitalization will continue to influence and change how businesses operate. Though we cannot be sure of the specifics, we

can get a sense of which direction the wind is blowing.

## Living in the '90s? So are Underwater Wireless Networks

Like Beanie Babies and Steve Urkel, the systems we use to transmit information through water bring to mind the 1990s. The flashback is due to the speed of today's underwater communication networks, which is comparable to the sluggish dial-up modems from America Online's heyday. The shortcoming hampers search-and-rescue operations, tsunami detection and other work. But that is changing due in part to University at Buffalo engineers who are developing hardware and software tools to help underwater telecommunication catch up to its over-the-air counterpart. Their work, including ongoing collaborations with Northeastern University, is described in a study - Software-Defined Underwater Acoustic Networks: Toward a High-Rate Real-Time Reconfigurable Modem - published in November in IEEE Communications Magazine. "The remarkable innovation and growth we've witnessed in land-based wireless communications has not yet occurred in underwater sensing networks, but we're starting to change that," says Dimitris Pados, PhD, Clifford C. Furnas Professor of Electrical Engineering in the School of Engineering and Applied Sciences at UB, a co-author of the study. The amount of data that can be reliably transmitted underwater is much lower compared to land-based wireless networks. This is because land-based networks rely on radio waves, which work well in the air, but not so much underwater. As a result, sound waves (such as the noises dolphins and whales make) are the best alternative for underwater communication. The trouble is that sound waves encounter such obstacles as path loss, delay and Doppler which limit their ability to transmit. Underwater communication is also hindered by the architecture of these systems, which lack standardization, are often proprietary and not energy-efficient. Pados and a team of researchers at UB are developing hardware and software -everything from modems that work underwater to open-architecture protocols - to address these issues.

Of particular interest is merging a relatively new communication platform, software-defined radio, with underwater acoustic modems. Traditional radios, such as an AM/FM transmitter, operate in a limited bandwidth (in this case, AM and FM). The only way to pick up additional signals, such as sound waves, is to take the radio apart and rewire it. Software-defined radio makes this step unnecessary. Instead, the radio is capable via computer of shifting between different frequencies of the electromagnetic spectrum. It is, in other words, a "smart" radio. Applying software-defined radio to acoustic modems could vastly improve underwater data transmission rates. For example, in experiments last fall in Lake Erie, just south of Buffalo, New York, graduate students from UB proved that software-defined acoustic modems could boost data transmission rates by 10 times what today's commercial underwater modems are capable of.

## Ericsson, Telia Sonera accelerate 5G race with planned 2018 launch

Stockholm-based TeliaSonera and Ericsson (NASDAQ: ERIC) are making no secret of their 5G ambitions, announcing that they aim to offer some version of 5G services to TeliaSonera customers in Stockholm and Estonia's Tallinn as early as 2018. That would put them very near if not at the top of the list of operators aiming for a speedy ascent to 5G. Last week, Verizon (NYSE: VZ) CFO Fran Shammo said during the company's quarterly conference call that the carrier is moving aggressively to deploy 5G technologies and will be the first company to roll out 5G in the United States. Ericsson is among the vendors working with



Verizon to launch field trials this year. TeliaSonera, which has operations in more than a dozen countries, plans

to develop 5G use cases and service scenarios with Ericsson, including both communication and Internet of Things (IoT) services with the purpose of addressing new business opportunities. "Our ambition is to be at the cutting edge - at all times - offering our customers and society at large all the possibilities that technology brings," TeliaSonera President and CEO Johan Dannelind said in a press release. "Stockholm and Tallinn are two of the most connected cities in the world and now we'll take them to the next level. 5G will create completely new innovations, ecosystems and great services to our customers. 5G will also take connected things (IoT) to a new level. I can't wait to see how Stockholm and Tallinn will embrace 5G." Potential 5G applications could include e-health with real-time surveillance of patients and remote treatment; connected cars, including critical communication between vehicles (warnings, support to self-driving cars and more), as well as better network performance in terms of capacity, coverage and power consumption, the companies say. Indeed, at Ericsson's forum held in Stockholm in 2014, Volvo said it was planning to unleash 100 autonomous cars on the streets of Gothenburg, Sweden, in 2017. Volvo plans to use sensors as well as the city's wireless network infrastructure to provide the underlying connectivity, as well as take advantage of Ericsson's Connected Vehicle Cloud system. TeliaSonera's ambitions come as operators in South Korea and Japan eye early roads to 5G. Korean mobile operator KT is aiming to launch a live service for the 2018 Winter Olympic Games being hosted in Pyeongchang, while Japan's NTT DoCoMo is gearing up to showcase 5G at the 2020 Tokyo Olympics. Verizon has not revealed exactly what it intends to offer consumers via 5G, but Shammo suggested that it's not just about mobility - other use cases may emerge, and CEO Lowell McAdam has said 5G is much more designed for video and more point-to-point solutions, as well as the ability to deliver up to 1 gigabit data speeds. Rival AT&T (NYSE: T), which has taken a decidedly quieter tact to 5G, historically has been more vocal about moving to next-gen technologies like SDN and NFV, as well as establishing a leadership position in the Internet of Things (IoT), but executives have said they prefer to talk about 5G in the context of standards, which have yet to be written.

## IoT could have a revolutionary effect in developing world, says ITU

A report from ITU and Cisco said the Internet of Things (IoT) can "improve the lives of millions and dramatically accelerate progress towards the UN's sustainable development goals" such as those around healthcare and education. Launched at the Pacific Telecommunications Council annual meeting in Hawaii, the report, titled 'Harnessing the Internet of Things for global development,' notes that there are three "prime drivers that, if supported, could create an 'IoT revolution' in the developing world". Firstly, IoT devices are already common, cheap and easy replaceable in developing markets. Basic infrastructure to support IoT, such as Wi-Fi and internet cafes, is already in place, with near-ubiquitous



basic mobile connectivity. According to ITU's latest figures, there is 95 per cent global 2G coverage, and growing levels of 3G coverage. What's more, IoT devices are being used in rugged, remote and inhospitable environments and many can withstand extreme conditions. Secondly, IoT R&D costs are absorbed by strong demand in developed world markets, and there is little cost associated with tweaking them for the developing world. Lastly, IoT devices offer simple 'plug & play' functionality that doesn't require special skills, while power supplies such as solar can maintain sensors and networks where there is no consistent electricity supply. The study recommends that governments and businesses support tech start-ups, ICT incubators and local data centers, and work to develop policies and regulatory frameworks that will create "an enabling environment for IoT deployment". ITU sees M2M

communications over mobile cellular networks as the fastest-growing ICT service in terms of traffic and estimates that over one billion wireless IoT devices were shipped in 2015, up 60 per cent from 2014 to reach a predicted installed base of 2.8 billion. Earlier this week, Sigfox launched the Sigfox Foundation, which aims to bring the benefits of the IoT to "nonprofit, humanitarian causes around the world".

## M1, Huawei demo 1Gbps download speeds in 'innovative' LTE-A test

The Singaporean mobile operator M1, working in partnership with China's Huawei Technologies, has successfully demonstrated download speeds in excess of 1Gbps and peak uploads of over 130Mbps in a LTE-Advanced (LTE-A) laboratory test. Huawei notes that LTE Cat 9 devices - the most advanced 4G devices available commercially at the moment - support download speeds of up to 450Mbps and upload speeds of up to 50Mbps; the latest trial was carried out on a prototype Cat 14 device, Xinhua news agency reports. The pair reported that the trial involved the integration of no fewer than four advanced mobile carrier technologies: tri-band carrier aggregation (3C), multiple-input multiple-output (4x4 MIMO), higher order modulation 256 (Quadrature Amplitude Modulation, or QAM) and dual-band uplink carrier aggregation (CA). M1 Chief Technical Officer Denis Seek commented: 'Through technology innovation, we can further stretch the capability of current 4G technology, prior to the advent of 5G technology, to achieve an incredible peak download speed of more than 1Gbps,' while Huawei's President of LTE Networks, Wang Jun, noted: 'The successful trial marks the beginning of the 4.5G era in Singapore, demonstrating Huawei and M1's continual innovation in delivering the benefits of the latest mobile technology advances to Singapore consumers, for instance, in enabling machine-to-machine connections and improving HD video experience.'

## ITU-IT meets to plan global IoT standards

Technical experts are meeting in Singapore this week to discuss the development of the global standards for the Internet of Things (IoT) and its applications, including smart cities. The International Telecommunication Union Standardization Sector (ITU-IT) Study Group 20 meeting will gather 150 participants from 14 ITU member states and 36 organizations. The first such meeting was held in Geneva, Switzerland, last year. Currently, there is no universal set of IoT standards to govern the increasing proliferation of interconnected and interoperable devices. Most countries are working on developing their own IoT standards to meet their requirements. Singapore aims to be a forerunner in the development of interoperable IoT standards – which can be adopted not just by industry in Singapore to build our Smart Nation applications, but are also recognized and used universally. IoT is a critical cornerstone of many of Singapore's Smart Nation initiatives such as Smart Homes, Smart Urban Habitat, Autonomous Vehicles, and even Digital Healthcare wearables. A Cisco white paper forecast that there will be 50 billion devices connected to the internet by 2020. More recently, industry research firm Gartner predicted that IoT will support total services spending of \$235 billion worldwide in 2016, up 22% from 2015. IoT is a critical cornerstone of many of Singapore's Smart Nation initiatives such as Smart Homes, Smart Urban Habitat, Autonomous Vehicles, and even Digital Healthcare wearables. The ITU-T SG20 meeting is collaboration between ITU and the ITU, following the signing of a joint MOU in October 2015. As a signatory, Singapore is one of 10 cities that will pilot a set of key performance indicators leading to the eventual development of a "Global Smart Sustainable Cities Index". This index will allow ITU to benchmark and rank cities' performance in terms of their level of "smartness". "A smart city 'system of systems' will be characterized by openness and interoperability, built on coordinated adherence to common standards. Harmonized implementation of standards will help to prevent the emergence of industry-specific technology 'silos', thus ensuring that all industries can benefit from the information drawn from data-driven IoT systems," said Chaesub Lee,

director of the ITU-IT. "Singapore's participation in ITU work is an invaluable asset to our development of international standards for Smart Sustainable Cities. I applaud Singapore for its work to share the blueprints of its smart city advances with other ITU member states."

## China outlines 5G R&D roadmap

China's Ministry of Industry and Information Technology (MIIT) held its '5G technology R&D testing' launch meeting, with head of the IMT-2020 (5G) Promotion Group Cao Shumin introducing the overall plan for 5G testing in China. The country's 5G technology R&D tests will be carried out by the IMT-2020 (5G) Promotion Group under the leadership of the MIIT, with support from the National Science and Technology Major Project, C114.net reported. The main goals are to support the formulation of 5G international standards and boost 5G R&D and industry development. Cao, who is also president of the China Academy of Information and Communications Technology (CAICT), said the 5G tests will be divided into two major stages, namely technology R&D tests from 2015 to 2018 and product R&D tests from 2018 to 2020. The technology tests are organized by CAICT and jointly supported by operators, equipment vendors and scientific research institutions, while the product tests are organized by China's operators, with support from equipment vendors and research institutions.

### Technology tests

The technology R&D, which is the current focus Cao said, will be broken into three phases. The key technology verification phase (September 2015 to September 2016) will focus on performance tests of single-point technology prototypes. The technical solution verification phase (June 2016 to September 2017) will merge multiple technologies and carry out single base station performance tests. The system verification phase (June 2017 to October 2018) will complete networking technology performance

tests and demonstrate typical 5G services. Cao said the first step is to build a unified 5G public test platform to carry out performance tests of key technologies, technical solutions and systems. The Promotion Group will conduct 5G technology R&D tests at facilities in Beijing's Huairou and Shunyi districts. The second step is to set unified test requirements and the third is to establish a unified specification group and test group, which will be formed inside the IMT-2020 Promotion Group and take charge of the formulation of test specifications and field tests. At the signing ceremony of China-Europe 5G Collaboration Joint Statement back in September, Ma Kai, China's vice premier, noted that China will strive to launch 5G networks in 2020, C114.net reported. Despite numerous 5G claims by operators and vendors around the world, it remains uncertain as to what will eventually comprise a set of 5G standards. An official 5G standard is unlikely to be ratified until at least 2017.

## EC urges mobile industry to hurry up on 5G

Gunther Oettinger, the European commissioner for the digital economy, called CEOs from Europe's leading operators and vendors to a meeting today about progress on 5G. Oettinger wrote to the CEOs of Europe's ten leading telecoms firms to say "Europe must be a leader in this area", according to the Financial Times. The letter adds that the EC chief wants to create "closer EU co-ordination to achieve a timely deployment of 5G" and to develop a "home market" in Europe for 5G-based products and services. Oettinger tweeted on 8 January



about “several important meetings next week about 5G, Industry40 and broadband”. The 5G meeting is scheduled in his diary for January 12. Among others, letters were sent to the CEOs of BT, Deutsche Telekom, Telecom Italia, Orange, Vodafone, Nokia and Ericsson. The European Commission has announced various initiatives designed to encourage 5G deployment and is reported to be worried about how economic rivals such as China, Japan and South Korea have given the technology a priority. For instance, China’s Ministry of Industry and Information Technology (MIIT) this week announced a roadmap for testing 5G. However, the development of 5G is not just a matter of competition between countries and economic blocs, it’s also about collaboration. The EC signed an agreement in September with China to make “5G a reality by 2020” and has similar agreements with South Korea and Japan.

## French shared spectrum pilot kicks off

A number of vendors are working on a shared spectrum trial, exploring a technology which could “release enough spectrum to enable innovative 5G services for all EU citizens”. But no operators have so far been named as participants. The work uses frequencies owned by the French Ministry of Defense in the 2.3GHz-2.4GHz band. If successful, this “should lead to the release of large amounts of licensed spectrum in France over the next 24 months”. Participating in the work are French start-up Red Technologies, which is providing a dynamic spectrum management platform; Ericsson, which is providing radio networks with carrier aggregation capabilities; and Qualcomm, which is supplying devices. “Spectrum availability is a core condition for flourishing technology adoption and innovation. This Licensed Shared Access (LSA) pilot is therefore a vital step towards the realisation of Europe’s Digital Single Market,” said Wassim Chourbaji, VP of government affairs at Qualcomm Communications. Many governments worldwide are looking at spectrum allocations held by public bodies such as the military, against a backdrop of growing demand from the mobile industry. While in some cases this is leading to parts of allocations being handed back, sharing provides an alternative way to ensure the resource

is used efficiently. And important consideration is that many public applications do not use all of an allocation, are focused regionally, or do not have consistent usage levels – meaning there is an opportunity to support other uses.

## The IoT future is cognitive: IBM CEO

Collecting data through connected devices isn’t enough, and IBM wants to infuse cognition into the Internet of Things, declared CEO Ginni Rometty, as she spoke about the partnerships IBM has made to achieve this. According



to Rometty, cognitive IoT needs a new platform, finding new forms of data (not just more data) such as weather and videos and creating the right ecosystem. As part of this, IBM has upgraded Watson, a cognitive technology that processes information “more like a human than a computer”, and put it into products like a dinosaur toy that interacts with children and adapts its personality to theirs, and partnered with Airbus to collect half a billion bytes of data for every flight. This information will then be used to predict wear and tear of plane parts and even create a cognitive pilot. She highlighted the fact that thanks to Watson’s help, Mediatronics is able to predict a hypoglycemic incident in diabetes patients up to three hours before it happens. The app that can achieve this will roll out in the summer. SoftBank’s Kenichi Yoshita said the company’s robot Pepper now operates in bank branches as part of the customer service staff and in Nestle’s coffee shops as a coffee maker salesman. “IBM is reinventing itself as a cognitive solutions and cloud platform provider,” Rometty concluded.

## Qualcomm and Industry Leaders Plan to Introduce end-to-end 11ad multi-band capabilities

Qualcomm Incorporated today announced that its subsidiary, Qualcomm Atheros, Inc., reached a major milestone by enabling a number of new multi-band Wi-Fi products (featuring 802.11ad in the 60 GHz band and 2.4/5 GHz 802.11ac with MU-MIMO) across networking, mobile and computing segments. These products are expected to lead the way for a robust ecosystem and underscore the importance of the greater capacity and speed that 802.11ad brings to the evolution of Wi-Fi. Several companies plan to release products in the coming year that utilize the end-to-end solutions for 802.11ad products including:

- Smartphones from Letv
- Access points from Elecom, NEC and TP-Link
- Notebooks from Acer and Asus
- Adapters from SiBEAM, Inc., a Lattice Semiconductor company, and Peraso Technologies, Inc.

“With the rising demand for more wireless capacity and speeds in the home and workplace, further evolving Wi-Fi continues to be a top priority for the industry and for us,” said Rahul Patel, senior vice president and general manager, connectivity, Qualcomm Technologies, Inc. “Qualcomm Atheros was the first to commercialize 802.11ac wave 2 with MU-MIMO, providing up to 3x greater performance. We are once again leading the industry by bringing multi-gigabit, high capacity connectivity with our 802.11ad multi-band technology.” By utilizing a portfolio of platforms, including the Qualcomm Technologies’ Qualcomm® Snapdragon™ 820 and Qualcomm Atheros’ Qualcomm® Internet Processor (IPQ) 8064 reference designs combined with its QCA9500 802.11ad chipset, Qualcomm is providing easy to use solutions for the industry. As a result, customers can easily design the most advanced wireless connectivity features into a variety of products. By offering up to 4.6 Gbps PHY and bringing bandwidth rich 60GHz spectrum to Wi-Fi’s fold, 802.11ad is

one of the tools that can address the burgeoning data demand in homes, enterprises and carrier networks. Some of the 11ad use cases include lag-free docking and screen mirroring, 4k streaming to multiple devices, near instant access to multimedia and fast upload and downloads. "Letv has already established itself as one of the world's top innovators and our decision to include the Qualcomm Snapdragon 820, Snapdragon Sense ID and the first to roll out 802.11ad into these new devices demonstrates our commitment to creating and delivering the best technology available to our customers," said Jun Liang, chief operating officer, Letv. "With the rollout of Letv products globally, users will experience multi-gigabit wireless performance for video streaming and sync-and-go applications wherever they go." "Through our continued collaboration with Qualcomm Atheros, TP-LINK is thrilled to introduce the Talon AD7200, the industry's first wireless 11ad multi-band router launching in early 2016," said Andy Chen, vice president, networking business unit, TP-LINK International. "Now users can share thousands of photos, full-length HD movies, and entire music libraries between devices in seconds. They can also game online wirelessly at speeds faster than wired Gigabit Ethernet connections, and stream in 4K HD on multiple devices at the same time. The Talon AD7200 brings a whole new level of wireless connectivity to the home." "Acer's continued collaboration with Qualcomm Atheros demonstrates our mutual commitment to delivering industry-leading connectivity technology," said Jerry Kao, president of notebook business group, Acer, Inc. "After launching the world's first notebooks with 802.11ac MU-MIMO last year, we are excited to introduce the industry's first commercial notebook with multi-band 802.11ad networking technology with our TravelMate P648 series, which unlocks a whole new spectrum of use cases for professional users." "Gaming tests the performance limits of laptops, and Asus excels in bringing the best gaming experience to our customers," said S. Y. Shian, corporate vice president, Asus, "End-to-end 802.11ad multi-band solutions from Qualcomm Atheros allow us to deliver the best connectivity to gamers, with exceptional speed, lower latency, and outstanding performance." "Wi-Fi has become the lifeline of enterprise and carrier networks today. 802.11ad,

through its multi-gigabit speeds and significant increase in capacity, can revolutionize enterprise Wi-Fi connectivity," said Mr. Mamoru Nagatani, vice president, platforms, NEC. "Integrating advanced 802.11ad multi-band Wi-Fi technology into our access points is a testament to our technology leadership as well as our close relationship with Qualcomm Atheros." "802.11ad and 60 GHz enable a new class of applications and services, while also augmenting the capacity of existing Wi-Fi networks," said Koji Kajiura, managing director, Elecom. "In continuing our track record of delivering cutting-edge wireless networking technologies, thanks to Qualcomm Atheros, we are proud to once again be offering high-performance, next-generation 802.11ad multi-band technology to our customers."

## Ultrafast Broadband Gaining Traction at CES 2016

Sckipio Technologies, the leader in G.fast, today announced it's demonstrating over 750Mbps of ultrafast broadband upload speeds on existing twisted pair copper telephone wires -- over 100 times faster than most consumers achieve today. This breakthrough performance will allow telcos worldwide to dramatically improve consumer experience with the many new consumer services and devices being announced at CES. In October of 2015, Sckipio previously demonstrated overall download and upload speeds of over 1.5Gbps by bonding two phone lines together -- a highly attractive solution for operators in North America and Taiwan. At upload speeds, it'd take the average broadband subscriber over five hours to upload a thirty-second full-resolution, GoPro 4K video to YouTube -- the same amount of time it would take to fly from Los Angeles to New York City. With the G.fast solution from Sckipio, consumers could upload the same video in 2.5 minutes -- less time than it would take to brew a cup of coffee. The ITU standard-compliant G.fast technology utilizes copper wires. The Sckipio solution is perfect for Internet Service Providers trying to bring fiber-like broadband speeds into apartment buildings and the

small business market at a fraction of the cost of fiber to the premises. "Most DSL and cable broadband technologies are unable to provide a higher ratio of upload to download speeds, making it very challenging to deliver next generation consumer services," said David Baum, CEO of Sckipio Technologies. "Since user-generated content has increasingly become important, having fast upload is critical and this is a big advantage of G.fast." The solution is the world's fastest implementation of G.fast and it helps telcos compete very effectively against cable operators using DOCSIS 3.1.

## Qualcomm partners with Audi for new Wi-Fi Technologies

Qualcomm unleashed a bunch of news at CES, the big consumer tech show in Las Vegas. But the most significant bit was related to the future of cellular networks for the Internet of things and two new Wi-Fi technologies that consumers might benefit from. It also shared new partnerships with Audi, a Chinese smartphone maker and a Tencent, which is making a drone using the chip firm's technology. In general, the cell phone product announcements were



meager with Chinese TV manufacturer LeTV announcing that its Le Max Pro would be the first smartphone that would use Qualcomm's flagship Snapdragon 820 chip. Qualcomm QCOM -5.14% might be excited, but the lack of a major smartphone maker such as Samsung using the silicon means that Qualcomm turned up to the tech industry's big party with a D-list celebrity on its arm. The other news was much better. Qualcomm announced that Audi was using its automotive chip that combines radio connectivity, intelligence, and a variety of machine learning inside its infotainment and advanced driver assistance system platform. ADAS platforms, as they are called, use

cameras, sensors technology, and data networks to automate and enhance safety features in the car, including adaptive cruise control, automated braking, blind spot warnings and keeping the driver in the correct lane. Qualcomm is also announcing a new chip for the auto industry called Snapdragon 820 Automotive that is built on a similar platform as its smart phone 820 platform. But it adds a few vehicular modifications such as the vehicle to vehicle communication network capabilities and some artificial intelligence needed for the ADAS platform. Combining the platforms helps cut down on R&D and makes manufacturing a bit easier. It also introduced a modular system for cars, and Ricky Hudi, executive vice president for electronic development at Audi AG, explained that he anticipated swapping out the radios and brains that make the car smart every three years. That's a number worth noting for financial analysts trying to figure out how the connected car might drive the refresh cycles at chip firms. Qualcomm also announced a modular automotive box that can be easily swapped out at the dealer when a consumer finds their maps loading too slow or their connected car software bogging down on older application processors.

## Wi-Fi Alliance Introduces Low Power, Long Range Wi-Fi HaLow

With industry momentum mounting around a low power Wi-Fi solution, Wi-Fi Alliance has announced the Wi-Fi HaLow designation for products incorporating IEEE 802.11ah technology. Wi-Fi HaLow extends Wi-Fi into the 900MHz band, enabling a wireless range is nearly twice that of today's Wi-Fi, and will not only be capable of transmitting signals further, but also providing a more robust connection in challenging environments where the ability to more easily penetrate walls or other barriers is an important consideration. "Wi-Fi HaLow is well suited to meet the unique needs of the Smart Home, Smart City, and industrial markets because of its ability to operate using very low power, penetrate through walls, and operate at significantly longer ranges than Wi-Fi today," said Edgar Figueroa, President and CEO

of Wi-Fi Alliance. Additional IoT-related activities are underway in Wi-Fi Alliance that are helping to further proliferate Wi-Fi in the Smart Home and other segments. In particular, Wi-Fi Alliance is developing a new secure and simple way to connect and configure devices without a display or input mechanisms, as is the case with many Smart Home devices today. In addition to an expanding list of programs to address unique market needs, Wi-Fi Alliance recently announced a new membership category that will enable a wider variety of devices not historically thought of as high-tech, including vacuums and door knobs, to include certified Wi-Fi connectivity.

## 50 Gigabit States

It's been almost three years since former FCC Chairman Julius Genachowski set a goal of having at least one gigabit network in every state by 2015. The year is now over and by Telecompetitor's tally, we didn't quite make it – but we're close. We combed through our archives and other online resources and, by our tally, at least one network operator has announced plans to offer gigabit service in every state. Not all of these networks are actually deployed or supporting service yet. But generally network operators don't announce specific markets more than a year or two in advance of when they expect to deliver service. If, for example, a network operator simply said it would eventually upgrade its entire footprint beginning in 2016, as Cox Communications did, we didn't count the company's entire footprint, only the states it provided more details on. We also didn't count a deployment unless plans included residential users. Clearly Genachowski wasn't talking about gigabit Ethernet service to commercial buildings when he set the gigabit goal.

### Gigabit States

Even heavily rural states – states such as Wyoming, West Virginia, or Maine – made the list, thanks to a wide range of small locally-focused telcos, utilities, municipal network operators, and others. Even though deployment costs tend to be higher in rural areas, entities with a local focus often manage to find a way to make gigabit happen – and in the telco arena, many companies already had fiber-to-the-

home networks, making it relatively easy to upgrade to a gigabit. Another thing that helped put all 50 states on the gigabit map was that tier one or tier two telco and cable operators that had not previously announced gigabit plans decided to get in on the trend. On the cable side, Comcast in 2015 launched an FTTH-based 2 gigabit service dubbed Gigabit Pro in several states – albeit in limited parts of each market. Smaller cablecos such as Cable One, Suddenlink, Mediacom and Troy Cable also made gigabit plans. And we're likely to see a lot more from the cable companies in 2016 as they begin to deploy DOCSIS 3.1, which supports gigabit speeds.

### Telco Deployment Plans

On the telco side, Windstream, Consolidated and Fairpoint announced gigabit plans in 2015, joining brethren tier one and two telcos AT&T, CenturyLink, Frontier and TDS — all of whom made gigabit announcements in 2014 or earlier and have continued to expand gigabit service. Of the major tier one and tier two telcos, only Verizon has not announced gigabit plans. Unlike most of the other major incumbents, Verizon deployed fiber-to-the-home (FTTH) in many major metro areas within its service territory in years past. In those FiOS markets Verizon could upgrade to gigabit relatively easily, but for now the company hasn't felt the need to offer speeds greater than a few hundred megabits per second. That could change in 2016, though. As the cable companies make their DOCSIS 3.1 plans, they're likely to make FiOS markets one of their initial focus areas, which likely will generate a competitive response on Verizon's part. The upshot: We're probably no more than a year or two away from meeting Genachowski's goal of having a gigabit network in every state. Within that time it's also quite likely that we'll see gigabit service in all major metro markets – the markets that some people in telecom refer to as the "NFL cities."

## Ericsson, Telstra and Qualcomm partner on 4x4 MIMO demonstration

Ericsson, Telstra and Qualcomm Technologies have jointly carried out

a live demonstration of 4x4 MIMO technology, supporting peak downlink data speeds of up to 380 Mbps, in what they have termed 'a foundational step towards download speeds of 1Gbps in the commercial network'. The technology milestone was delivered by Ericsson Networks Software 16B for LTE and the Qualcomm Snapdragon X12 LTE modem, which supports 4x4 Spatial Multiplexing combined with 256 Quadrature Amplitude Modulation (QAM), and was tested over Telstra's commercial infrastructure. 4x4 MIMO with 256 QAM is, the Swedish vendor noted in a press release, expected to be supported on smartphones in 2016, with the technology said to be an ideal solution to boost indoor and outdoor app coverage for faster access to content and applications. Commenting on the development, Mike Wright, Telstra Group managing director (networks), was cited as saying: 'We are constantly looking to enhance our customers' user experience and 4x4 MIMO will be an important addition to our mobile network speeds and capacity. We initially demonstrated 1Gbps capability in an end-to-end network on 5 November 2015. Now, this next step in device evolution, achieved by Ericsson and Qualcomm, shows 4x4 MIMO with 256 QAM in combination. This brings us even closer to offering 1Gbps capabilities to our customers.'

## Turkcell cranks up 4.5G speed and carrier aggregation battle

Operator Turkcell claims to have demoed mobile broadband speeds of up to 1.2Gb/s, upping the ante in a 4.5G technology battle that once again features Chinese vendor Huawei. Turkey's largest operator is



preparing the launch of so-called 4.5G technology on 1 April 2016. In August it paid €1.62 billion for 172.4 MHz of spectrum in the country's

auction, a high-profile event that attracted global interest after the country's president earlier claimed Turkey could skip LTE technology and instead jump to 5G in just two years time (in the end, President Tayyip Erdogan managed to save face after regulator BTK promoted the tender as a '4.5G' auction). 4.5G has been heavily promoted by Huawei and the Chinese vendor last week provided the infrastructure for an outdoor "real-life" pilot from TeliaSonera that claimed to have reached "world record" download speeds of up to 1Gb/s in Oslo. It follows other Huawei 4.5G trials at China Mobile and Japan's SoftBank. And last month Hong Kong's HKT demoed four-band carrier aggregation from the vendor that achieved speeds of up to 1.2Gb/s. 4.5G technology has been claimed to bridge the gap between 4G and 5G, and standards body 3GPP officially approved it in October, giving it the moniker LTE Advanced Pro. Huawei claims 4.5G will reduce latency from the current level of about 40ms to 10ms and provide theoretical peak speeds of around 1Gb/s.

### Five-band carrier aggregation

Turkcell's 1.2Gb/s speed trumps TeliaSonera's effort. During the five-band carrier aggregation demo at the operator's Istanbul headquarters, Turkcell used 79.8 MHz of frequency consisting of 29.8 MHz (20 + 9.8) in the 1800 MHz band, 30 MHz (20+10) in the 2100 MHz band, and 20 MHz in 2600 MHz band – a configuration that includes use of the spectrum Turkcell had acquired in 1800, 2100 and 2600 MHz bands in Turkey's auction held 26 August. "With the 4.5G auction, we had set the bar high in terms of offering the fastest mobile broadband internet. We had announced that we would not only offer the country's fastest 4.5G upon roll-out on 1 April, but also go beyond that in order to match the current fiber experience on mobile," said Ilker Kuruoz, Turkcell's CTO. "With this speed demo, we are not only pushing the limits of 4.5G but also taking a major step towards 5G experience in terms of reaching speeds that exceed 1Gb/s." Turkcell expects to support theoretical peak download speeds of up to 375Mb/s at its commercial 4.5G launch in April, aggregating three carrier bands. It aims to push this up to beyond 1Gb/s "towards the end of 2016" using the five-band carrier aggregation technology from the demo.

However, smartphones supporting this deployment are unlikely to be available before mid-2017.

At present Turkcell claims its customers can receive peak 3G speeds of up to 63.3Mb/s "on supporting devices," meaning users will (in theory) see their mobile broadband speed experience increase by a factor of 19 in less than two years.

## Easier Access to Spectrum for Internet of Things

Australian operators of machine to machine (M2M) wireless communications links used in the Internet of Things (IoT) will find it easier to access spectrum under proposed changes to regulatory arrangements. Many current generation M2M and IoT devices access spectrum via the Australian Communications and Media Authority's class licensing regime (similar to a "spectrum commons"). The proposed changes will remove a technical barrier to the operation of narrowband low powered wireless networks in the Radiocommunications (Low Interference Potential Devices) Class License 2015 in the 900 MHz, 2.4 GHz band and 5.8 GHz bands. They support a variety applications such as data telemetry, machine data and monitoring, sensor networks, smart metering, security systems and industrial control-all across a variety of industries. "The changes should encourage innovations in the M2M and IoT spaces," said ACMA Chairman, Chris Chapman. "The proposals are a part of our work in looking at Australia's state of readiness for IoT and identifying areas where the ACMA can further assist IoT developments." Other proposed changes to current regulatory arrangements include the addition of the new frequency bands for radiodetermination transmitters used as industrial sensors; in-ground ultra-wide bandwidth transmitters used in automated parking management systems; building material analysis devices used for detection of objects in walls ceilings and floors; and to align for European arrangement for short range devices in the frequency bands 122.25-123 GHz and 244-246 GHz.



## Mobile money

The proliferation of mobile money will be imminent in most countries in the next four years. This will come in many different forms and under many different product names. The end result will see different forms of money (other than cash) become ubiquitous, and an integral part of almost every economical ecosystem. Mobile Money, e-Money, Mobile Wallets to name a few promise many benefits to a wide range of consumers and businesses. Mobile money will be one part of an expanding umbrella that is termed Mobile Financial Services or MFS. Other flavours of MFS include mobile banking, mobile money transfer, and mobile payments, P2P payments, G2P payments, and even B2B payments. New technological innovations, service layers, and strategic partnerships are changing the conventional banking sector and allowing an expansion in the number of stakeholders. Ernst & Young (2009) predicted that contactless and proximity payments will grow and consumers will enjoy a variety of services that are managed by single platform.

I strongly believe that Mobile Financial Services are greatly influenced by consumer needs and behaviour. This demand for financial inclusion will

influence the development of different types of mobile money service layers. Therefore, mobile operators and financial institutions have to carefully consider their customers' requirements in order to build the right value proposition and business model. Equally important is the role of telecommunications and FI regulators. There is a great need for them to build the right regulatory frameworks that are built on a collaborative model that aims to maximize the rates of financial inclusion for the unbanked. Furthermore, those frameworks must address the risks of transactional fraud without affecting the customer experience and the cost of the service. All stakeholders (telcos, commercial banks and regulators) must find common grounds for the service to be successful and for all ecosystem members to benefit.

The ubiquity of mobile telecommunications services will greatly improve and transform the way people conduct their financial transactions, create new businesses, and ultimately benefit the overall economy specially in developing countries.



**Mr. Ammar Hamadien**  
Managing Director  
Chinguitel (Subsidiary of Sudatel)

To better understand the impact of government taxes and fees on the telecommunications industry, A.T. Kearney has conducted a study on the average price per minute (APM) and the volume of taxes and fees incurred by mobile operators across 30 European countries<sup>3</sup>. Across these economies, total tax burden usually accounted for around ¼ of the APM (from as low as 12% in Switzerland to as high as 40% in Hungary) and for most European countries, telecom specific-taxes had a negligible effect on average price per minute

The study has found evidence that telecommunications development and tax burden are correlated (Figure 2) and ultimately, economic development. In fact, 3G penetration supports GDP growth across Western and Eastern Europe but when taxes increase, 3G penetration growth rate decrease, along with GDP.

### Current state:

Mobile money as a technology has evolved over the past decade and now includes:

- Person-to-Person funds transfer (P2P): users are allowed to store virtual funds on a mobile wallet and transfer these funds to another user's mobile wallet.
- Consumer-to-Business funds transfer (C2B): a user can purchase goods and services from registered and qualified network of merchants and service providers, directly from their mobile wallets.
- Business-to-Business funds transfer (B2B): wholesale businesses can sell goods and services to retailers and receive their funds directly from the retailers' mobile wallet.
- Government-to-Consumer funds (G2C): governments can use mobile wallets as a medium to disburse social benefits and funds directly to the beneficiary mobile wallets
- On-network purchases: purchase of mobile network's airtime using funds from their mobile wallets.

### Proposed Operating Model:

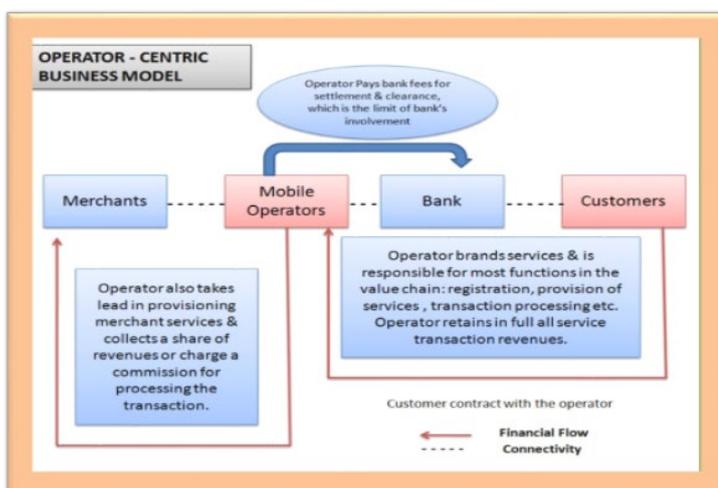
As of the beginning of 2016, there are 263 live mobile money services with more than 100 planned deployments in the near future (Source: GSMA). Most of the successful deployments so far have been lead by Mobile Network Operators in developing economies. This success is can

be linked to the accelerating adoption rate of all mobile services in societies with large unbaked populations. The below figure illustrates the essential role MNOs should play in Mobile Financial Services.

MNOs are currently in the best position to monetize the transactions from mobile money services as one of the Value Added Services (VAS) offerings. This is especially true as operators; especially in Africa increasingly embrace 3G and 4G technologies, which requires new data services to generate revenues.

The proposed ecosystem for mobile money in Sudan, and many of the West African countries will be composed of: (1) Mobile Network Operators, (2) Distribution Network, (3) Mobile Money Users, (4) Retailers, (5) Commercial Banks. The role of each entity is summarized as follows:

1. Mobile Network Operators: will host and operate the mobile money platforms that will enable the creation of the technical functionalities. They will act as the sole owners of the relationships with the end users. They will also provide technical and commercial support as well as enforce the mandated Anti-Money Laundering (AML) and Know-your-Customer parameters.
2. Distribution Channels: the various distribution agents across Bahrain will fund and replenish the system with virtual money by collecting cash (real money) from customers and crediting the amount to the customer's m-wallet. These distribution channels can be airtime distributors, or commercial bank branches.
3. Mobile Money Users: customers will buy virtual money from distributors by initiating a funds transfer from a bank to their own virtual accounts. Customers should be provided with user-friendly application, preferably a SIM Tool Kit (STK) to enable them to make account enquiries and other financial transactions in a safe and secure manner. The stored value of virtual money will be used to conduct everyday transactions while remaining fully available for:
  - a. Use within the system
  - b. Conversion into real cash
4. Retailers: Operators should approach and enroll retailers into the network to enable them to accept payments in the form on virtual money. They should be provided with Point-of-Sale terminals that are connected to the platform via a secure Internet connection.
5. Commercial Banks: they should bear the responsibility of the trust accounts that hold the equivalent of virtual money that will be circulating in the mobile money ecosystem. This will insure that customers' funds are secured and protected. They will also work closely with the network operators to generate reconciliation reports and prevent fraud.



It is highly recommended that financial regulatory authorities start building their frameworks to facilitate the building of robust ecosystems that will allow MNOs and financial institutions actively participate in helping the unbanked (current average is 96% in developing economies such as Sudan) to have access to financial services, utility services providers and many potential members of an expanding ecosystem.



## ▼ SATELLITE NEWS

### Successful launch for Eutelsat 9B

Leading satellite provider Eutelsat has confirmed that its EUTELSAT 9B craft has reached a geosynchronous transfer orbit after lift off from the Baikonur Cosmodrome. Bad weather had delayed the original launch of the craft from an ILS Proton rocket. Separation of Eutelsat's new satellite occurred after a 9-hour 12-minute Proton flight. Partial deployment of the satellite's solar panels, which represents the first critical post-launch operation, took place two hours later. Following further maneuvers and in-orbit tests, the five-tone Ku-band EUTELSAT 9B will now occupy the 9° East neighborhood and is attributed with being able to increase Eutelsat capacity to 50 physical transponders. It will address broadcast markets through one pan-European footprint delivering coverage for four regional footprints serving Germany, Greece, Italy and the Nordics, with the Baltics and Ukraine. It will assume broadcasting of over 350 TV channels currently served at this position by EUTELSAT 9A and provide expansion capacity for new services. Commenting on the launch, Michel de Rosen, Eutelsat chairman and CEO, said: "Our congratulations to ILS and Krunichev for a flawless launch that sees a new Eutelsat satellite propelled on its way to geostationary orbit. This

sophisticated satellite program reflects outstanding collaboration between Eutelsat, ESA, Airbus Defense and Space, ILS and Krunichev. We look forward to putting EUTELSAT 9B to work for the benefit of our broadcaster clients and to the inauguration of the ground-breaking European Data Relay System."

### Batelco's teleport positions Bahrain on global map of satellite operations

Batelco, the region's prime teleport services provider, continues to provide world-class teleport services to satellite operators, with the company's fully equipped teleport placing Bahrain on the global map of satellite operations. As a testament to this, ABS, a global satellite operator, has extended its agreement for teleport services with Batelco. The agreement, signed in 2011, saw the two companies forming a strong alliance, with ABS gaining a full suite of telecom services provided by Batelco at its Teleport. Batelco's teleport boasts a 30,000 square meter operational area with partners gaining access to the telecom's MPLS, SDH national, international networks and internet uplinks. The teleport presents an optimum choice for satellite and VSAT operators around the globe as it can run any application

## SATELLITE UPDATES

on any topology. The diverse and resilient facility also features seamless integration with terrestrial networks and provides full support for satellite and VSAT operators to streamline their operations efficiently. Batelco encourages these operators to diversify their service offerings, as the teleport allows them the ability to offer more services to end-users. Through this, Batelco aims to facilitate the operators' growth. Batelco Chief Global Officer Adel Al-Daylami said, that "The extension of the partnership is a testament to the strong relationship between Batelco and ABS." "This is a result of Batelco's reliable connectivity and bespoke solutions that fully support ABS' operations worldwide," added Mr. Al-Daylami. "We are extremely pleased to extend our partnership agreement with Batelco as we continue to build our operations in the Middle East and Africa regions," said ABS Chief Technology Officer Ken Betaharon. "The premises is one of the most impressive in the region and provides a high level of security and optimal operating conditions to ensure business continuity," he added.

## First Intelsat Epic High Throughput Satellite Launched into Orbit

Intelsat 29e, the first of Intelsat's EpicNG High Throughput Satellite (HTS) series, launched Jan. 27 from French Guiana aboard an Ariane 5 vehicle. With C- and Ku-band



coverage over the Americas and North Atlantic region, the satellite will be placed into service at 310 degrees east, where it replaces Intelsat 1R. The Boeing-built Intelsat 29e combines wide beams and spot beams with frequency reuse technology and an

advanced digital payload. The payload can digitally redirect a satellite beam to areas of greater demand, and brings improved security as well. Intelsat EpicNG is optimized to provide satellite connectivity for applications including the Internet of Things (IoT), enterprise, wireless infrastructure, aeronautical and maritime mobility, and government. The HTS platform is backwards compatible and fully interoperable with Intelsat's existing satellite fleet and terrestrial infrastructure. The platform's open architecture allows customers to have control over service offerings and hardware selection, providing differentiation of service offerings. Intelsat has customers for Intelsat 29e, including Harris CapRock, Panasonic, EMC, Axesat and leading national telecom operators in Latin America. The second EpicNG satellite, Intelsat 33e, is slated to launch in the third quarter of 2016, also aboard an Arianespace launcher. The next satellite in the series will serve Europe, Africa, the Middle East, and Asia.

## NSSLGlobal Adds New Beams from Gazprom and Intelsat

NSSLGlobal has upgraded its VSAT network by activating two new satellite beams, one from Gazprom Space Systems, and one from Intelsat, for maritime and land connectivity. From Gazprom, NSSLGlobal added a Ku-band beam from the Yamal 402 satellite at 55 degrees east, which covers Sub-Saharan Africa and waters around Madagascar and the Indian Ocean. The second beam, which is C-band, comes from Intelsat 23 at 53 degrees west, and is specifically targeted to give increased capacity and alternative look angles for vessels in the Gulf of Mexico. The beam also covers most of the North and South American mainland, coastal waters to the west of Mexico, and significant coastline around the South Americas. NSSLGlobal's VSAT network covers 95 percent of the Earth's surface, including all of the

world's major commercial shipping routes, mining areas, offshore oilrigs and fishing domains. These additional beams extend the network and provide greater availability through overlapping coverage in key areas of these markets.

## AT&T to Bundle Satellite with More Services this Year

AT&T is planning to incorporate video



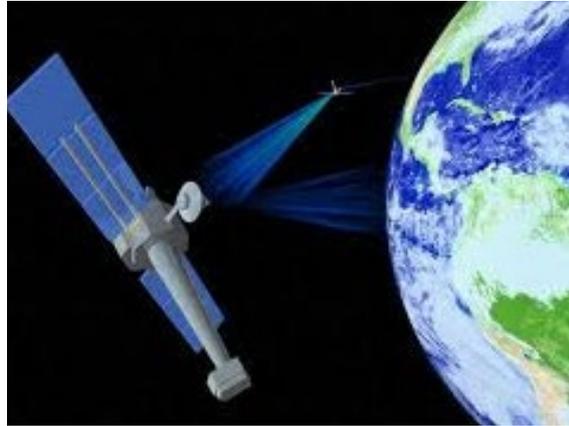
capabilities from the recent acquisition of DirecTV into more service offerings, finding that satellite, when bundled with other services, is drawing the attention of more customers. AT&T closed the acquisition of DirecTV during the summer of 2015, and is on track to deliver at least \$2.5 billion in annual synergies by 2018, according to company Chairman and CEO Randall Stephenson. As AT&T further grafts DirecTV products into its service offerings, Stephenson said satellite would shape the company into a more comprehensive telecommunications provider. "We can now deliver the best entertainment packages over traditional linear TV or streamed over the Internet to essentially any mobile device," Stephenson said Jan. 26, during AT&T's fourth quarter 2015 earnings call. "A couple of weeks ago we launched a nationwide solution that combines any of our TV entertainment packages with unlimited mobile data so our customers can now stream their video without incurring overage charges. And this is only our first move. You're going to see the offers and the customer experience continue to get better and better as we move through 2016." Stephenson described DirecTV

as accelerating AT&T's TV Everywhere capabilities. DirecTV had 214,000 net additions, compensating for a slight decline of 26,000 in AT&T's total video subscribers. AT&T added 192,000 total IP broadband subscribers as well during the quarter. Stephenson said AT&T intends to launch several new video entertainment packages this year, including more opportunities to bundle different services. This could encourage customers of one service to add another from the company. "We are seeing an increase in satellite customers in our wireline footprint bundling broadband with their video service," Stephenson said, adding that sales of satellite and broadband services together increased by 60 percent from the end of the third quarter this year. "It's still early, but we see a lot more opportunity to use video to drive sales and lower churn for all of our services," he added. UBS Analyst John Hodulik expects more of these synergies to come to fruition in AT&T's next quarter. "Satellite TV gross adds continue to ramp and management expects net video subs to grow starting in [the first quarter]. This growth should accelerate as the company is able to install bundled video and broadband customers with a single truck roll by mid-year," Hodulik wrote in a Jan. 27 research note. AT&T brought in \$42.1 billion in consolidated revenues for the fourth quarter, growing more than 22 percent compared to fourth quarter 2014, thanks mainly to DirecTV. The satellite acquisition also boosted Earnings Before Interest, Taxes, Depreciation and Amortization (EBIDTA) margins to 22.1 percent

## TRA grants public satellite service licence to Inmarsat

The UAE's Telecommunications Regulatory Authority has granted a public satellite service license to Inmarsat. The license grants Inmarsat permission to offer mobile satellite communication services to public and private sector users within the UAE, in the government, media, maritime and aviation sectors. Inmarsat's services will also be available to support humanitarian and emergency relief efforts in the UAE. The agreement granting the license was signed in a ceremony at the TRA's Abu Dhabi headquarters in the presence of

Hamad Obaid Al Mansouri, Director-General of the TRA, and Inmarsat's Executive Vice President, Alison Horrocks. Al Mansouri said the UAE is on the threshold of an era of unsurpassed innovation at all levels and particularly the space field. "The importance of this license stems from



its direct impact on the ICT sector and the rapid advancements in the UAE towards implementing smart cities. The license affirms our endeavors to elevate the telecommunications sector's competitiveness and position the UAE as a global ICT leader." He added that having Inmarsat operate in UAE will definitely open new frontiers for business, contribute to driving the sector to compete globally, and serve the TRA's strategy that aims at exploiting technology in saving lives and serving humanity. "These advancements also fall within the context of economic diversification and building a knowledge-based economy. The TRA's strategic plan entails many projects and initiatives that will play a major role in enhancing the quality of telecom services provided in the UAE," Al Mansouri added. Horrocks described the granting of a public satellite service license as a significant occasion for Inmarsat. "The UAE has been a key hub for us for many years and we recognize the importance of the UAE and the whole GCC as a growth region for us," he said. Inmarsat was founded in 1979 by the International Maritime Organization under the auspices of the United Nations to help save lives at sea and is the only authorized provider of the Global Maritime Distress and Safety System (GMDSS). Inmarsat has since evolved to provide global mobile broadband communication services to users on land, at sea and in the air.

## OneWeb and Airbus Defence and Space form OneWeb Satellites Joint Venture

OneWeb and Airbus Defence and Space, in preparation for OneWeb's constellation of 648 small telecommunications satellites in Low Earth Orbit (LEO), have created a joint venture named OneWeb Satellites to handle spacecraft manufacturing. OneWeb Satellites is equally owned between both companies, and will design and build 900 satellites for OneWeb to provide global high-speed Internet from space. Brian Holz will be CEO of the joint venture. OneWeb Satellites will undertake design activities for the entire satellite fleet and the manufacture of the first 10 flight models will take place in France, with mass production of the operational satellites planned for North America. Each satellite will have a mass of less than 150 kilograms. Arianespace and Virgin Galactic are the launch providers for the satellites, starting from 2018. The spacecraft will reach their orbital positions using electrical propulsion. Additionally, OneWeb Satellites will be able to build satellites, platforms and equipment for other operators. Airbus Defense and Space will have rights to market these products.

## ABS Wins Multi-year C-band Contract with Bluesky Pacific Group

ABS has signed a multi-transponder contract with Bluesky Pacific Group for satellite services on ABS 6. The multi-year capacity deal will offer expanded satellite connectivity services across the Samoan islands and the Pacific. ABS is providing its On C-band (OCB) platform for Bluesky for Internet, telephony and video content delivery services to Samoa and American Samoa. Additionally, Bluesky will provide bandwidth to outlying islands where little or no Internet access is currently available. Bluesky is a Pacific regional telecommunications operator delivering mobile, broadband, Internet Protocol Television (IPTV) and landline

services in American Samoa, Samoa and Cook Islands and mobile services in New Zealand. The OCB leverages the resiliency of C band to rain fade, which can be more prevalent in the Pacific where typhoons and cyclones are common. According to ABS, the company's OCB service is affordable and aims to provide 99.9 percent uptime service that will not be affected by rain degradation. "OCB is an example of our commitment of combining high quality-and cost-effective satellite services to a market that has not been well served by the incumbents, who have managed to keep prices high in the region that could least afford it. ABS aims to reset both the quality and affordability expectations in the Pacific region," said Tom Choi, CEO of ABS.

## LoRa Alliance Encourages Satellite Companies to Help Define IoT Standards

The LoRa Alliance, a fast growing industry organization in the Internet of Things (IoT) space, is interested in having satellite companies join its ranks to help set standards for this emerging sector. Founded 10 months ago, the LoRa Alliance started with 11 members, and has since grown to more than 200. The non-profit organization is focused on standardizing Low Power Wide Area Networks (LPWAN) for IoT applications through the LoRa protocol (LoRaWAN), which aims to become a global, interoperable standard. In an interview with Via Satellite, Geoff Mulligan, chairman

of the LoRa Alliance, said the organization is very open to including satellite operators in the mix to help develop the best possible standard. The LoRa Alliance focuses on networks for rural areas, mainly the last 10 to 30 kilometer hop, to efficiently aggregate data and deliver it to its intended source. Mulligan said satellite could play a role in this environment by backhauling data after it has been collected from a large area. "At the end of the day [a] rural network still needs to get connected back to the cloud or its servers, wherever they happen to be. I think that the really unique portion of the LoRa design is that that connectivity from the edge devices to the access point gateway device can both aggregate, do some smart filtering of the data, and then use the satellite network as a backhaul between that point and the rest of the Internet, the cloud, or whatever it happens to be," he said. Mulligan said LoRa Alliance networks are designed to enable low power battery operated sensors, and arguably also controllers, to be spread over wide areas that are not easy to build with other low power radio technologies. For many such devices it would be either too costly economically or from a power consumption standpoint to employ most major telecommunications infrastructure, including satellite. But in the absence of fiber, satellite can fill the backhaul void; and given that remote and rural areas are a primary market opportunity for satellite players, this makes sense as a potential role for the technology. Mulligan said the LoRa Alliance recently unveiled its 1.0 specification, and later discovered it faced an issue with roaming between various network operators. The early specification lacked some key feature functions that operators felt were necessary in order to build robust networks from their point of view. Mulligan described the participation of such operators as critical in augmenting the 1.0 specification. The LoRa Alliance is soon to produce its 1.1 specification based on their feedback. This, said Mulligan, is why the organization is very receptive to including satellite operators too.

## SpaceX to Launch Amos 6 Satellite in May

Spacecom, operator of the Amos satellite fleet, announced that SpaceX

has scheduled the launch of the Amos 6 satellite for May aboard a Falcon 9 rocket from Cape Canaveral, Fla. Amos 6, to be collocated with Amos 2 and Amos 3 at the 4 degrees west prime orbital position, will provide services to Western, Central and Eastern Europe, Africa, and the Middle East. Amos 6 features 39 Ku-band segments and 24 Ka-band beams. Facebook has selected Amos 6's Ka-band beams to be the satellite backbone of its initiative to bring broadband Internet to Sub Sahara Africa with Eutelsat. The new satellite will be larger than Amos 2 and Amos 3 combined and will incorporate new technologies such as high throughput Ka-band spot beams for improved broadband Internet access. The Ka-band spot beams will cover Europe and Africa as well as Ku-band technologies for new and existing clients.

## Telenor Satellite to Further Expand Portfolio with New Name

Telenor Satellite Broadcasting (TSBc) announced it is changing its name to Telenor Satellite. The name change seeks to reflect the company's broadening of its satellite-communications portfolio, which includes its expansion into the maritime and energy sectors. Telenor Satellite's investment in new satellites — including its latest satellite Thor 7, which launched in 2015 — has provided the additional growth capacity needed to expand the company's overall business and to extend its services capability within the mobility Very Small Aperture Terminal (VSAT) market, according to Telenor. The new name comes into effect immediately and will be implemented across the company's products, services and communications throughout 2016. "Telenor Satellite has undoubtedly established itself as a key provider of satellite services throughout Europe and the Middle East, with an increasing international focus and a broader customer base," said Morten Tengs, CEO of Telenor Satellite. "Following the launch of Thor 7, the new name is well-timed as it allows us to develop our wide-ranging satellite-communication services and look forward to further extending our position in the market and expanding our regional coverage."



## Paradigm Providing VSAT for Urgent Africa Project

U.K.-based Paradigm is in the process of rapidly shipping multiple Very Small Aperture Terminal (VSAT) systems out for a European Union (EU)-funded project that will serve more than 50 countries in the African market. The African program has been setup to enable improved management of the environment at continental, regional and national levels throughout the region. The project requires multiple complete terminals consisting of 2.4m and 3.7m antennas, along with spare components and specialized RF components to enhance signal reception. The remaining order will be dispatched over the next few months as per the project rollout specification.

## Europe Prepares for Start of SpaceDataHighway

With the launch of the first European Data Relay System (EDRS) payload only a week away, the European Space Agency (ESA), Airbus Defense and Space and other partners are preparing for the implementation of a first-regional, then global laser communications system. EDRS, also known as the SpaceDataHighway, is a Public-Private Partnership (PPP) between ESA and Airbus Defense and Space, with ESA and the European Commission as the system's first customer and Airbus Defense and Space responsible for commercialization. EDRS is capable of beaming 1.8 Gbps using Laser Communications Terminals (LCTs) developed largely by Tesat Spacecom in Germany under funding from DLR, the German aerospace center. The new telecommunications system is designed to speed up access to imagery collected by Earth Observation (EO) satellites that, situated in Low Earth Orbit (LEO), often have limited access to their associated ground stations. At a Jan. 15 press conference, ESA EDRS Project Manager Michael Witting said that an EO satellite in a 90-minute orbit typically only has visibility with its own ground station for about 10 minutes, meaning it can only transmit data during that brief window, limiting the amount of data collected and introducing latency between the time of observation and

when images are accessed on the ground. EDRS works by connecting with EO satellites from Geostationary Earth Orbit (GEO), where the telecom satellite can see the EO spacecraft. Data from the observing satellite is transferred to the EDRS payload using lasers, and an RF beam retransmits the information to the ground. "The data relay satellite, depending on where it sits on the geostationary arc, has visibility of the imaging satellite for a very large part of the orbit — at least half of the time if you have one relay satellite," said Witting. "If you have several of them, we can achieve situations or configurations where you have 100 percent of the time visibility, so you can have access to the data immediately, you can get it to the ground in what we call near-real time, and because of the high speed of the link, we can get much more data down than we can get down with the classical scenario." EDRS-A, the first node in the SpaceDataHighway, is scheduled to launch Jan. 29 (GMT) aboard an International Launch Services (ILS) Proton rocket as a hosted payload on the Eutelsat 9B satellite. The second node, EDRS-C, is planned for launch in 2017, with OHB of Germany integrating the payload into its satellite platform now. By slashing the time between observation and access, EDRS is expected to enhance services such as Information, Surveillance and Reconnaissance (ISR) disaster response and more. ESA Director of Telecommunications and Integrated Applications Magali Vaissiere, pointed to maritime as the market with potentially the greatest demand for SpaceDataHighway services. Vaissiere said a joint study conducted between ESA, the European Commission and Airbus found that of an estimated 400 LEO launches between now and 2030, 20 percent would include candidates for EDRS services. Based on this study, SpaceDataHighway partners estimate that the commercial value of quasi real time data — i.e. accessed within one hour — is two to three times higher than near real time, which is accessed in less than three hours. Commissioning tests with EDRS are planned for May using the Sentinel 1A and 2A satellites and EDRS-A. Volker Liebig, director of EO programs at ESA, said Sentinel 3 will not use EDRS because it carries multiple payloads with an emphasis on radar, which creates much less data, compared to the other Sentinel imaging satellites. LCT payloads are on,

or are planned for, Sentinel satellites 1A, 1B, 2A and 2B. Evert Dudok, head of Communication, Intelligence and Security (CIS), at Airbus Defense and Space, said the ground segment and mission operation center underwent successful testing in December 2015. EDRS will use three ground stations: one in the United Kingdom, one in Germany, and one yet to be built in Italy. He also said Airbus Defence and Space is seeking out international partners to expand EDRS. The first two payloads provide coverage primarily over Europe and Africa. With partners, the aim is to expand the system globally to include the Americas and the Asia Pacific. "We are looking for partners to deliver the system. It can be a dedicated payload, [or] it can also be a hosted payload as we have it on EDRS-A. We are very much open to that. We want to have that system operational by 2020," said Dudok.

## Orbit Gains Second Ka-band OceanTRx 7 Maritime Satcom Systems Order

Orbit Communication Systems has received a new \$2.1 million order for OceanTRx 7-500 Ka-band systems, its maritime satellite communications solution, from a global Non-Geostationary Satellite Orbit (NGSO) service provider. The systems will be installed on cruise ships for continuous broadband connectivity. Orbit's OceanTRx7-500 2.2m antenna systems provide broadband data communication and support Ka-band High Throughput Satellite (HTS) communications. The company has supplied similar antenna systems to some of the largest global cruise ship operators for maritime connectivity.



## KSAT Launches 20 Ground Station Network for SmallSats

Norway-based Kongsberg Satellite Services (KSAT) is adapting its ground network to cater to the growing small satellite market. The company has launched 20 ground station sites across the globe through its KSAT Lite services, which aims to reduce cost and up utility for SmallSat customers who need everything, including costs, to be, well, smaller. "Smaller satellites are sometimes using different frequencies, such as UHF or VHF, instead of traditional S- or X-band. Some of them are flying in lower orbits so they can use smaller antenna dishes. On the other hand, there are more of them so they sometimes need more antennas. We call it the ten-times game: 10-times smaller, 10-times cheaper, 10-times faster and they are looking for 10-times lower cost," KSAT President Rolf Skatteboe told Via Satellite. Over the last year or so, the company noticed that the small satellite market was expanding and Skatteboe felt it was important to have a service offering that is tailored to that market and scaled to the actual requirements of SmallSat operators. "We saw that a number of the new comers were trying use whatever technology was available," said Skatteboe. "You don't necessarily take the big truck out of the garage when you only need a small electric car." The company sat down and looked to work out what those specs might be, to standardize the system and propose a network with a common interface that would be more efficient to build. Already, lead-time to build a new site or antenna is down to about 12 months for a large system to three months for a smaller system. "We are trying to standardize everything and simplify the interfaces. We are using 3.7-meter antennas, and sometimes 4.2 meters," said Skatteboe, speaking to the KSAT Lite offering for SmallSats. And while the company has received skepticism surrounding the size of the antennas, KSAT finds this has been sufficient thus far to capture downlinked data from SmallSats. "Our experience is that this gives sufficient G/T margins. In general, there are a lot of margins in space and our experience is that you can get by with smaller systems than anticipated. We are encouraging our partners to standardize as well. X and S are great frequencies, but licensing might be

a problem. We are suggesting Ka, but are trying to avoid UHF and VHF due to local interference." world and is communicating with more than 70 satellites approximately 22,000 times every month. Skatteboe says that about one in every 10 operational contracts they have is with a SmallSat operator and they are working with around 15 to 20 small satellite users. Currently, the company tries to support the most common SmallSat orbits by minor augmentations of the existing KSAT network, hence the stations are polar and optimized toward the International Space Station (ISS) orbits since a lot of small satellites are released from the ISS, according to Skatteboe. These tend to be around the mid-latitude There are also ground stations that offer access to pole-to-pole support for users that require more frequent access.

## SIS Live Leases New Capacity on Eutelsat 10A for Middle East Market

SIS Live has increased the amount of capacity it has from the Eutelsat 10A satellite, which offers connectivity in C and Ku band, to increase its resources in the Middle East. SIS Live is targeting customers from the major events and news sectors with demand for occasional use services. The company recently sold seven of its LoStow vehicle mounted antennas, designed and manufactured in-house, into the Middle East and North Africa (MENA) region.



## Palau Telecoms completes second O3b satellite network capacity upgrade

Global satellite service provider O3b Networks has announced that

Palau Telecoms has completed a capacity upgrade – the second since it launched the O3b service in January 2015 – allowing it to continue the deployment of mobile internet and wireless TV services throughout the island nation via its 'Fiber in the Sky' satellite network. The vendor's statement confirmed: 'Palau Telecoms first provided its subscribers high throughput, low latency connectivity over the O3b link in January 2015. But an immediate and sustained surge in data usage signaled additional capacity would quickly be needed, and the company upgraded in September 2015, followed by yet another upgrade in December.'

## Nilesat eyes African opportunities

Middle East satellite operator NileSat is expanding its operations from its Egyptian base to exploit the migration to digital broadcasting across Africa. Nilesat will increase its investment budget by about US\$50 million to cover Tanzania, Uganda, Rwanda, South Sudan, South Africa, Angola and Nigeria, marketing manager Mohamed El-Sawy told The East African Weekly. Nilesat is applying for new licenses from the International Telecommunications Union (ITU) to enable its roll-out of satellite locations in the new markets, the newspaper reported. NileSat currently operates three satellites and plans to launch two more in 2017 and 2019. The Egyptian company offers satellite hosting services for television and radio stations, Internet connections and satellite navigation services deployed for security surveillance activities and weather forecasting.

## UK Space Agency Discusses New Space Policy

In December last year the United Kingdom released its first national space policy, outlining the country's political approach to space. Already an advanced nation in the space domain, the U.K. aims to grow its portion of the global space industry to 10 percent by the year 2030, and reach 40 billion pounds (\$56.6 billion) by the same date. Alice Bunn, director of policy at the UK Space Agency, describes the national space policy as a strong

statement that the U.K. is serious about being in space. "What we tried to do was produce a document that is very high level and simple," Bunn told Via Satellite. "We have a number of more detailed strategies, but what we were really missing was that overarching piece." Bunn said the U.K.'s national space policy aligns different government departments behind the same objectives. The document lists more than 20 different organizations — ranging from transport, to defense, justice and even medicine — that have ways to benefit from space. To create the U.K.'s first national space policy Bunn said the country drew heavily from the United States' space policy, and has common threads with Japan's Basic Plan for Space Policy. Japan, she said, was less of a direct influence and more a reassurance that the U.K. was headed in the right direction. Industry was also influential in creating the document. Bunn said that, because space can be advantageous for improving public services like weather forecasting, national security, and the economy, ensuring the policy supported a strong industrial base was paramount. The U.K. government intends to incorporate benefits from space where possible. For example, the national space policy describes satellite broadband as the best way to bridge the digital divide for the last 5 to 10 percent of the country's population, and companies such as Avanti, and BT in partnership with Satellite Solutions Worldwide, recently received contracts to deliver such services. "It's principle-based," explained Bunn. "The first principle is that we recognize that it is of strategic importance. By that I mean we don't do space for reasons of national prestige; we do space because we recognize that it can be very often the most cost-effective solution. Whether you are trying to find your place in the universe, enable global telecommunications, or monitor the planet's changing climate, very often space is the most effective and unique environment to do that." Another important development related to the space industry in the U.K. is the recent publication of the "strategic defense and security review." Bunn said this document classifies the space sector as critical national infrastructure for the first time, boosting the recognition of its importance. "It's about identifying our critical national infrastructure, either

for national security or for delivering essential public services — or, in the case of space, for both. We need to ensure that infrastructure is resilient, and we need a complete picture of how we use the infrastructure and what we would do in terms of backup or alternative sources if for any reason that infrastructure was unavailable. The government will take a number of steps to make sure we can rely on the infrastructure, and recognition of it is now deemed critical," she said. From a national security standpoint, the U.K.'s national space policy emphasizes a commitment to protecting against non-malicious threats such as space debris and space weather, and malicious threats such as counter-space technologies. The document mentions the U.S. as a close international partner in the defense realm. The U.K. national space policy also addresses the highly anticipated spaceport. The document describes launch as important and mentions sub-orbital space tourism and micro gravity science services as means to build up crucial technical and operational know-how, leading up to launch capabilities for small satellites from the U.K.

## ISRO Orbits Fifth IRNSS Navigation Satellite

The Indian Space Research Organization (ISRO) launched the fifth of seven satellites in the Indian Regional Navigation Satellite System (IRNSS) today aboard a Polar Satellite Launch Vehicle (PSLV). The satellite entered an elliptical orbit very close to its intended orbit, separated from the PSLV fourth stage and automatically deployed its solar panels. ISRO's master control facility at Hassan, Karnataka has control of the satellite, and will conduct four orbit maneuvers to reach geosynchronous orbit at 111.75 degrees east longitude with 28.1 degrees inclination in the coming days. ISRO launched the first four IRNSS satellites between 2013 and 2015. Following IRNSS 1E, the agency has two more navigation satellites launching this year to complete the constellation. Ground stations in 18 locations throughout India support IRNSS. The complete navigation system is designed to provide position information in the Indian region and 1,500 km around the Indian mainland.

## Belarusian Telecom Satellite Belintersat 1 Launched Aboard Long March 3B Rocket

Belintersat 1, the first satellite of Belarus' new national operator Belintersat, launched January 16 aboard a Long March 3B rocket from China's Xichang Satellite Launch Center's LC3 pad. The satellite's orbital location is 51.5 degrees east, where it covers Europe, Africa and much of Asia to provide telecommunication services such as TV and radio broadcasting, and broadband Internet access. Belintersat 1 is based on the DFH-4 satellite platform from China Great Wall Industry Corporation with Thales Alenia Space supplying payloads. The satellite carries 20 C-band transponders and 18 Ku-band transponders. Belintersat intends to use the satellite heavily for commercial purposes in addition to meeting the domestic needs of Belarus. Shortly ahead of the launch, the operator entered a partnership with NigComSat to manage the satellite for its 15-year lifespan.

## NASA Awards CRS 2 Missions to Orbital ATK, SNC and SpaceX

NASA revealed Orbital ATK, Sierra Nevada Corporation (SNC) and SpaceX as the winners of the long-awaited Commercial Resupply Services 2 (CRS 2) contract on January 14. With a maximum potential value of \$14 billion from now until 2024, the contract guarantees a minimum of six missions for each supplier to deliver and remove cargo from the International Space Station (ISS). Though principally important for civil space, the CRS 2 contract has significant implications for the satellite industry as well. The contract is a major catalyst for the U.S. launch industry, providing consistency for a sector where long-lead times can drive up costs without a regular mission cadence. Orbital ATK's upgraded Antares rocket and Cygnus module, SpaceX's full-thrust Falcon 9 rocket and Dragon capsule, and United Launch Alliance's (ULA) Atlas 5 rocket with SNC's Dream Chaser spacecraft are all slated for use in resupplying the ISS from late 2019 until 2024. Continued resupply launches from the

U.S. also means more small satellite deployments from the ISS. In recent years, companies such as NanoRacks and Spaceflight Inc. have leveraged the space station to launch CubeSats and other small spacecraft for a range of customers. And the contract could also breathe new life into in-orbit servicing. In a 2015 interview with Via Satellite, SNC Space Systems Corporate VP Mark Sirangelo, said that using Dream Chaser, "on the way home from dropping cargo off at the ISS as an example, [could] fix or move something," such as a damaged or derelict satellite. In a Jan. 14 press conference, Kirk Shireman, ISS program manager at NASA's Johnson Space Center, said the agency learned valuable lessons from the CRS 1 contract with SpaceX and Orbital ATK. The new contract includes some significant changes such as a requirement to measure not only mass, but also volume when filling cargo missions. Shireman said previous missions

award. He declined to state the value of individual missions, though in a Jan. 14 press release, Orbital ATK said its six missions are valued at about \$1.2 billion to \$1.5 billion. Shireman said the cost of specific missions depends on the type of mission ordered. For example, while each servicer has the ability to deliver and dispose of cargo, only SNC and SpaceX can return cargo to Earth, and thanks to Dream Chaser's runway landing capability, SNC can return cargo the fastest.

## Eutelsat 9B with EDRS Hosted Payload Set for Proton Launch

International Launch Services (ILS) is scheduled to launch the Eutelsat 9B satellite on Jan. 28 aboard a Proton rocket from the Baikonur Cosmodrome. Built by Airbus Defence and Space, the satellite also carries the first European Data Relay System node, EDRS-A, as a hosted payload. Eutelsat 9B is a high-capacity Ku-band satellite for the 9 degrees east position that increases Eutelsat's overall capacity to 50 physical transponders (47 equivalent 36Mz transponders). The satellite replaces Eutelsat 9A, which distributes more than 350 channels, of which 100 are in High Definition. Eutelsat 9B will target high-growth broadcast markets through one pan-European footprint and four regional footprints serving Germany, Greece, Italy, and the Nordics with the Baltics and Ukraine. It is the first of three Eutelsat satellites to launch in 2016, with Eutelsat 65 West A and Eutelsat 117 West B to follow by year's end. EDRS-A, part of Airbus Defence and Space and the European Space Agency's (ESA) new SpaceDataHighway, will significantly speed up the flow of information between low-orbit satellites and their ground stations, improving reaction time for a wide range of operations such as disaster monitoring, emergency operations and coastal and maritime surveillance. The payload carries a laser communications terminal and a Ka-band inter-satellite link that will retrieve high volumes

of data sent from low orbit satellites as well as airborne platforms. It also carries a Ka-band antenna to transmit the data from geostationary orbit to EDRS ground stations.

## Thailand to classify orbital slots as national assets

The committee drafting Thailand's new constitution has revealed plans to use it to classify orbital slots and spectrum assigned for broadcasting as national assets. By classing orbital slots and spectrum this way, any companies making use of the assets would need to act in the best interests of the people of Thailand and national security, the Bangkok Post reported. The move is aimed at prohibiting use of the asset by operators in a way designed to take advantage of the public, such as by charging unreasonably high fees or blocking public access to accurate information. Companies making use of the slots would need to use it under a concession which would include paying a fee to the government.

## Qualcomm and TDK Form Joint Venture to Provide RF Front-End Solutions for Mobile Devices

Qualcomm and TDK announced an agreement to form a joint venture to enable delivery of RF Front-End (RFFE) modules and RF filters into fully integrated systems for mobile devices and fast-growing business segments, such as Internet of Things (IoT), drones, robotics, automotive applications and more, under the name RF360 Holdings Singapore. The agreement is subject to receipt of regulatory approvals and other closing conditions and is expected to close by early 2017. The joint venture will draw upon TDK's capabilities in micro-acoustic RF filtering, packaging and module integration technologies and Qualcomm's expertise in advanced wireless technologies to serve customers with RF solutions into fully integrated systems. In addition to creating RF360 Holdings, Qualcomm and TDK will expand their collaboration around key technology fields, including sensors and wireless charging.



would often "volume out," without using all the available mass. Balancing both metrics enables NASA to reduce the number of missions needed and lower costs. CRS 2 also includes an insurance requirement for damage to government property, which became a sticking point in the aftermath of Orbital Science's Orb-3 Antares failure that damaged the Wallops Island, Va. launch facility. Shireman said NASA weighed the 2014 Antares explosion and the 2015 Falcon 9 explosion when considering winners for CRS 2. Both incumbent providers won against competition from Lockheed Martin and Boeing. NASA has not yet ordered any missions from the three winners, but Shireman said the fixed-price, Indefinite Delivery, Indefinite Quantity (IDIQ) contracts began upon

## Satellite Brings Aircraft Surveillance to Africa

South African airlines are seeing growth on the horizon, but the continent still operates with relatively sparse air traffic surveillance. With the South African Air Navigation Service Provider (ANSP), Air Traffic and Navigation Services (ATNS), recently signing on with Aireon to enable space-based Automatic Dependent Surveillance-Broadcast (ADS-B) capabilities across the Johannesburg Flight Information Region (FIR) and the Cape Town FIR, the country could gain access to more complete air traffic surveillance capabilities by 2018. "The implementation of space-based ADS-B will supplement the current terrestrial surveillance network in South Africa in those areas where there is either no coverage or where terrestrial systems are uneconomical to install. Furthermore space-based ADS-B will provide a backup surveillance service in the event of terrestrial surveillance system outages," ATNS CEO Thabani Mthiyane told Via Satellite Magazine. Currently, terrestrial surveillance systems are limited in Africa as a result of socio-economic circumstances in the region and the relatively sparse air traffic that operates across the continent. As of now, Africa operates a small commercial fleet, with just 690 aircraft reported in 2014 according to Boeing's Current Market Outlook (CMO). The scarcity of aircraft can increase the financial burden each operator must carry when implementing surveillance, limiting the amount of radar technology ANSPs in the region are able to install. "Operating radar in general is an expensive thing to do and South Africa has a pretty well established surveillance coverage in their airspace. But if you don't have a lot of flights going through there, that's where the traffic density kicks in, the cost per flight of operating that infrastructure becomes much higher and in the end those costs are directly linked to the rate that an ANSP charges the airlines," Cyriel Kronenburg, vice president of aviation services at Aireon, told Via Satellite Magazine. Technology and cost aside, the continent has also seen issues in bulking up terrestrial surveillance as radar equipment tends to "disappear" shortly after it is installed. "There are areas of Africa where even if they were to put up surveillance equipment, it lasts for a very short period of time

because the security of those sites is such a big problem that it just disappears," said Kronenburg. "You put the radar in and then a couple of months later the radar is gone because it is difficult to maintain all of those sites due to the remote nature of the continent." Space-based ADS-B, requiring little ground infrastructure, could offer an alternative to the terrestrial equipment that seems to be walking away and "allow surveillance coverage to be rapidly extended across the continent without the necessity of having to fund, develop, operate and maintain numerous green field terrestrial surveillance systems," said Mthiyane. This increased surveillance is something the continent will need in order to increase flight efficiencies and streamline operations as the in-service fleet of aircraft grows and air traffic volumes rise. Africa is set to see delivery of 1,170 aircraft between now and 2034 as airlines look to replace aging and obsolete aircraft alongside some anticipated air traffic increases, according to the Boeing CMO.

## Engineers build third Dubai satellite

Dubai is preparing to send a third new satellite into earth's orbit in 2018. Mohammad Bin Rashid Space Centre (MBRSC) officials told reporters on Wednesday that the UAE's most technologically advanced image satellite, dubbed KhalifaSat, is now under assembly by a team of Emirati engineers. The final design of the KhalifaSat engineering model along with the software and systems contained in the satellite has been completed.

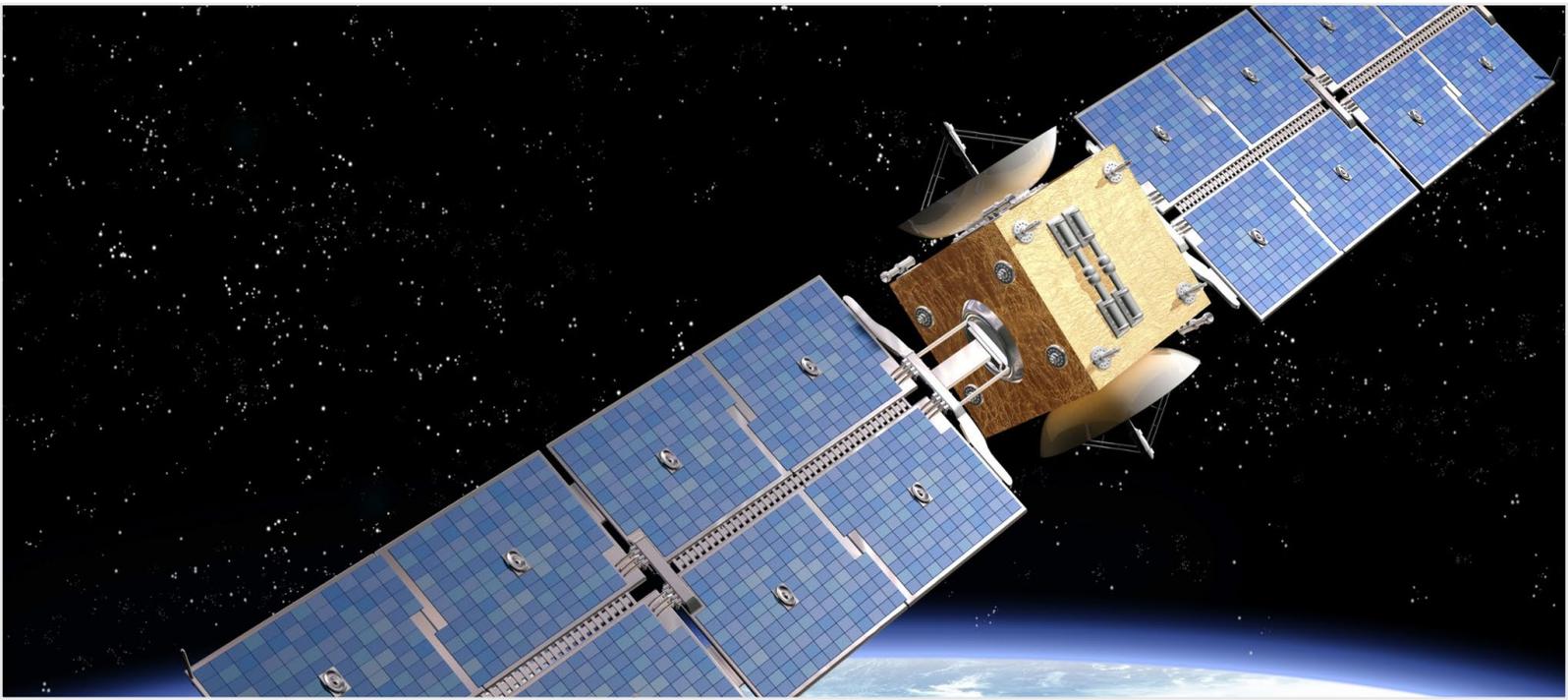
## TCS Expands Location-Based Services in the Middle East

TeleCommunication Systems (TCS) has added two of the largest mobile network operators in the Middle East to its customer portfolio. With more than 22 million mobile subscribers combined, the two mobile network operators are using TCS' Location-Based Services (LBS) solutions to meet the rapidly growing demand for mobile Internet in the region. The combined value of the two contracts is approximately \$3 million. Both operators are deploying TCS'

Xypoint Gateway Mobile Location Center (GMLC), Xypoint Serving Mobile Location Center (SMLC), and Standalone SMLC for their 2G, 3G and 4G networks. They are using the LBS platforms for value-added services such as mobile advertising, workforce management, and safety and security. With one of the two mobile operators, TCS has also deployed its Location Gateway product with Middleware functions, as well as its Operations Support System (OSS). With the second mobile operator, TCS has partnered to deploy a Passive Location Based Services system, and Enhanced Cell ID (eCID), A-GPS, and Observed Time Difference of Arrival (OTDOA) position engines. GSMA Intelligence, the research division of the Groupe Speciale Mobile Association (GSMA), predicts in its 2014 report that Middle East and North Africa will become the fastest growing market in the world for mobile data traffic with an anticipated 70 percent compound annual growth rate from 2013 to 2018.

## India Readies to Open Space Park in Bangalore

The Indian Space Research Organization (ISRO) will be opening a 100-acre space park in Bangalore, according to reports. Private industry players will be able to use the facilities, likely to open later this month, to manufacture subsystems and components for satellites. In the past few years, ISRO has increased its launch capacity significantly and it is planning on conducting 10 to 12 launches per year in the near future. This means the demand for subsystems and vital components has increased significantly as well. The space park will allow the industry to manufacture and supply these systems and components faster. The space park will also allow the private industry to manufacture satellites from beginning to end, including integration and testing for launching them from ISRO's spaceport at Sriharikota in Andhra Pradesh. The space agency outsources about 80 percent of its requirements for rockets and satellites to the private industry, according to reports. "The Space Park will also contribute to the government's 'Make in India' initiative, as the private industry and (state-run) firms like HAL (Hindustan Aeronautics Ltd.) have been helping us in making rockets and satellites over the years," ISRO Satellite Center Director M. Annadurai told IANS.



## Low earth orbit satellite broadband makes a comeback

It's 1994, the year the Channel Tunnel opens, Nelson Mandela is elected president and O. J. Simpson is arrested. A company called Teledesic, set up by cellular pioneer Craig McCaw and Bill Gates, files a plan with the FCC for the 'Internet-in-the-sky', a USD9 billion project to build and launch 840 Ka-band satellites into low Earth orbit (LEO) to provide global data connectivity. A demonstration satellite was launched in 1998 but the commercial failure of other LEO projects including Iridium and Globalstar meant that Teledesic was ultimately unfinanceable (as were other similar projects such as Celstri). Construction of Teledesic's satellites was officially suspended in October 2002.

Fast-forward to 2015, and the hot topic of conversation at the Satellite 2015 conference and trade show in Washington, DC was a series of rival proposals from OneWeb, SpaceX and LeoSat for new LEO constellations designed to provide global broadband connectivity (see Figure 1). What has changed in the industry to revive the

concept of delivering broadband via LEO satellites and what are the key challenges that these new projects need to address?

Firstly, it's worth pointing out that while the original investors in Iridium and Globalstar lost their money, these two constellations did actually get built and have been operating effectively for 15 years. Both companies have been able to raise money for second-generation constellations (Globalstar's was launched last year and Iridium should start launching its NEXT satellites in October). Consequently, there are now commercial precedents for LEO communication services.

Secondly, the broadband market is vastly more developed than it was in Teledesic's day. Back in 1994, less than 0.5% of the world's population was online and most connections were narrowband. By 2002, the year that Teledesic shut up shop, penetration exceeded 10% but even in the USA narrowband connections outnumbered broadband by three to one. Today over 40% of the world's



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Figure 1: Overview of selected LEO broadband projects [Source: Analysys Mason, 2015]

	OneWeb	SpaceX	LeoSat
<b>Champion</b>	Greg Wyler, ex-CEO of O3b Networks (pioneer of MEO satcomms)	Elon Musk, founder of SpaceX	Vern Fotheringham, ex-CEO of Kymeta (solid-state satellite antenna company)
<b>Partners and backers</b>	Virgin Group Qualcomm	Google	None announced
<b>Number of satellites</b>	650	4000	80-140
<b>Proposed operating band<sup>[1]</sup></b>	Ku band	Ku or Ka band	Ka band
<b>Satellite manufacturer</b>	To be selected from Airbus, Lockheed Martin, OHB, SSL and Thales Alenia Space	SpaceX (in new factory)	Not yet announced
<b>Other details</b>	Aiming to procure satellites for USD400 000 each; mass-market fixed terminals for USD250. Also planning specialised terminals for aeronautical and first responder markets	Appears to be aiming at mass market. Press reports indicate system cost of USD10 billion-USD15 billion	Aiming at high end users, 'top 3000 rather than other 3 billion'. Will use high-speed inter-satellite links to provide fixed point-to-point connections at up to 1.2Gbit/s. System cost stated to be USD2.5 billion-USD3 billion

population is online and almost all users enjoy some form of broadband.<sup>[2]</sup>

Thirdly, new entrants such as earth-observation companies Skybox Imaging and Planet Labs have shown that LEO satellites can be built at low cost: Skybox (bought by Google in 2014 for USD500 million) developed its dishwasher-sized satellite and built the prototype in house, although manufacture was subsequently outsourced to SSL. Planet Labs, whose system uses larger numbers of very small satellites (offering lower resolution but more frequent updates) built all of its satellites in house. Launch costs are also coming down, largely as a result of competition from new players such as SpaceX.

Finally, there have been some advances in the design of antennas for LEO satellite terminals, which need the ability to track a satellite as it moves across the sky and transfer seamlessly to a new one when the first satellite approaches the horizon. Most commentators agree that solid-state antennas will be essential to meet the cost and reliability needs of the new systems. Two companies, Kymeta and Phasor, were exhibiting prototype low-cost solid-state antennas at Satellite 2015, though at present both companies need to deploy separate antenna units for transmit and receive, and manufacturing costs are in the thousands of dollars rather than the low hundreds.

The cost of user terminals therefore remains a major challenge to the viability of LEO broadband. Similarly, it remains to be seen whether the satellites can really be built for a few hundred thousand dollars apiece. Co-ordinating the spectrum for global constellations of LEO satellites with the operators of existing geostationary satellites in the same band is also a complex undertaking. Lastly, the key to running a profitable telecommunications satellite business is the fill factor: all of these projects will therefore need to set up effective global distribution targeting customers on land, at sea and in the air. Such challenges should not be underestimated, but then neither should the drive and tenacity of the new LEO broadband pioneers.

Analysys Mason works extensively with satellite operators and service providers and their investors on market forecasting, business planning and transaction support projects. For further information please contact Philip Bates.

<sup>1</sup> Ku-band systems are likely to use spectrum at around 12GHz for downlink and 14GHz for uplink while Ka-band systems are likely to use spectrum at around 20GHz for downlink and 30GHz for uplink

<sup>2</sup> Source: Internetlivestats.com and Internetworldstats.com



## ▶ SAMENA Council moderating smart city and connectivity - providing dense mobile access to support smart city applications @SCWS MENA conference on the 18 January 2016 in Dubai, UAE

SAMENA Council participated in panel discussions in the Wifi and Small Cell Conference, specifically addressing smart cities and connectivity through the provision of dense mobile access to support smart city applications, and preparing networks for IoT by ensuring constant and reliable mobile connectivity across the network by utilizing small cells and Wi-Fi.

SCWS MENA conference brought together the regional small cell and Wi-Fi communities to share trial and deployment experiences, build new business relationships with qualified industry stakeholders and provided a platform to witness new products and technological developments. Specifically targeted at the mobile carrier and end user community, SCWS MENA offered practical advice to CTOs, engineers and senior managers, helping them select the strategic and technology partners.



Key stakeholders included two of SAMENA Council's valued members, Etisalat and Microsoft, and the Dubai Silicon Oasis Authority.





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