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# SAMENA TRENDS

## BUILDING DIGITAL ECONOMIES

*Featured*

**Saleh Al Abdooli**
Group CEO
Etisalat

# REDEFINING DATA RULES FOR A DATA-DRIVEN BUSINESS ENVIRONMENT

# Beyond Connectivity 2017

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16th March, 2017
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Telephone: +971.4.364.2700, Fax: +971.4.369.7513
Email: info@samenacouncil.org, www.samenacouncil.org

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1st Forum on
Data Management
Transforming data into value

Expanding the IoT potential
with a special focus on smart cities

Dubai, United Arab Emirates
12 March 2017

# Redefining Data Rules for a Data-driven Business Environment

Moving from *big data* to *big analysis*, we are transitioning into a world of digital finished products. It truly is a world of data. Digital economy we all are striving to create and benefit from, rests on the flow of data, enabled by telecom networks, which are continually built and re-built by telecom network operators and integrated communications service providers.

In this data-driven digital environment, where doing business isn't just more challenging but more rewarding as well, many transitions are underway. Such transitions reflect how the digital communications industry is redefining itself and how all market players conduct business in it; how policy and regulatory frameworks evolving to become less regulative and more enabling; how trust in digital access and the Internet is created and fostered; how consumer rights are protected and consumers exercise their own ethical obligations when using digital access and tools; and how market players other than telecom operators also share with the latter responsibilities of operating in the digital space. Indeed, all of these requirements and challenges are just a few among many other obligations that fall on the shoulders of all the stakeholders and beneficiaries of the new data-driven business environment.

To enable good data-driven experience, telecom operators are creating next-generation communication capabilities, driven primarily by software technologies, applications, and systems, and the public-sector stakeholders are striving to find new paths to ensure balance in competition, innovation, and new investments in smarter infrastructure. It has become known to both of these stakeholders that the economics of regulation and the challenges presented by the implementation of next-generation technologies, and, indeed, by digital disruptions that are enabled by those technologies, have changed much in the industry, which has struggled to "prove" that, as other industries, it too has really evolved. Cost reductions, made possible through the mutual efforts of regulators and telecom operators, and to a considerable extent driven by innovation in digital communication, have made it possible for the general public to be included. This, it could be argued, is a way that the industry has indeed evolved. Regardless, new developments within the industry cannot be overlooked, and keeping up with the spirit of digital development goals requires changing rules, which would further accelerate digital development.

In the digital communications industry, all constituents of the digital ecosystem are seeking new value-additions to differentiate themselves from the competition in the consumer space they all share. While telecom operators still sustain a large presence, alternative communication services providers have significantly grown their role by giving strong competition on affordability, data-rich communications capability, and operating beyond terrestrial borders. Technology providers, having found new ways to enable and influence how consumers use and prefer different network operators (reference here is made to the eSIM technology), are the latest ones to become a key market player but, this time, in an altogether different form.

Keeping up with the pace of this market competition and its needs is one of the ultimate challenges for all of us to overcome in order to eliminate impedances of all types and forms, while ensuring the protection of interest for all, especially of those that continue to invest in building digital communications infrastructure. We need new rules that are compliant with the requirements of today.

We need to do everything to ensure we eliminate asymmetries in existing rules and completely eliminate those rules that no longer serve our purposes of operating in a data-driven environment. Open communication among the stakeholders, once again, will play a critical role in making this happen.

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

## SAMENA COUNCIL ACTIVITY



# Expanding the IoT Potential with a Special Focus on Smart Cities

The Forum on "Data Management: Transforming Data Into Value" will be held on 12 March 2017 (Dubai, UAE), preceding the meeting for ITU-T Study Group 20 on Internet of Things and Smart Cities and Communities (13-23 March 2017) and the Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C) that will take place in the afternoon of 16 March 2017.

This forum will provide a global platform to facilitate discussions on how data can be transformed into value and how international standards can facilitate that process. Participants will learn about the current state of data management, discuss ways to address interoperability and security issues, and explore the capabilities and protocols needed to manage IoT data in smart cities.

This Forum will bring together smart city and IoT stakeholders, managers and engineers working on big data and data analytics, service providers planning to delivering IoT solutions, and policy and standards makers.

SAMENA Council will moderate a session on Technology & Standards for Data Management.

*Attendance in this forum is free of charge and attendees can register at the following URL: https://www.itu.int/online/regsys/ITU-T/misc/edrs.registration.form?_eventid=3000943*

**This Forum will bring together smart city and IoT stakeholders, managers and engineers working on big data and data analytics, service providers planning to delivering IoT solutions, and policy and standards makers.**

# Moving into a Digital Future

**Saleh Al Abdooli**
Group CEO
Etisalat

Etisalat's journey in 2016 was complete with achievements at all levels, the network, infrastructure, technologies, setting the path for a digital future.

Today, Etisalat has moved from being a telecom operator to a comprehensive ICT provider. This was done by remaining ahead of the competition adopting new technologies in the telecom world by working on the required capabilities to meet the advancements in the industry.

On the infrastructure front, Etisalat made significant investments in the last few years to build a network that is the widest, fastest and most advanced in the region.

This is mainly due to the continuous investments made in the last few years amounting to more than AED 28 billion. Due to these investments, 3G network coverage has reached more than 99 percent while 4G LTE has covered more than 95 percent. Fiber to the home (FTTH) penetration has grown over the last year to reach 93.7 percent. This has helped position UAE with the highest FTTH coverage in the world last year among all its global counterparts.

Innovation is the key to growth and the focus of all future investments. This is one of the main reasons for Etisalat to take the lead in network and infrastructure deployment to be the first to launch every new technology and service to customers in the telecom field. Today, Etisalat is continuing this success by investing in 5G technologies to deploy in the network across the country.

These investments in the infrastructure have led to the implementation of the latest cloud computing technologies and solutions, setting the path for 5G network development.

Etisalat also established the ecosystem for futuristic technologies like Internet of Things (IOT) that will help manage all smart services and applications and are most integral to create smart cities on the 5G network in the country.

> **Innovation is the key to growth and the focus of all future investments. This is one of the main reasons for Etisalat to take the lead in network and infrastructure deployment to be the first to launch every new technology and service to customers in the telecom field.**

There are advanced standards and technologies being added to the existing networks paving the way towards the development of 5G network. Etisalat plans to make advanced field tests this year in partnership with leading technology providers to achieve higher efficiency in addition to the highest possible speed. Etisalat expects the initial pilot launch of the 5G network to take place during the second half of 2017.

**Digital capabilities is reflected in Etisalat's overall company strategy and our services and solutions. This is also reflected internally by adapting innovative skills and increasing agility in the organisation.**

Digital technologies play a significant role in our business and customer lives and Etisalat have put all efforts in paving the way towards a digital future.

The telecom sector is undergoing a radical change, industry reports indicate that between 2016 and 2022 the number of devices connected via Internet will grow by 10 percent every year. With technologies supporting IoT gaining popularity, there is a tremendous growth expected in devices being connected on this platform. It is expected that by 2022 out of the 29 billion devices connected 18 billion devices will be connected via IoT technology. This will automatically lead to a huge growth in the volume of data being processed on these networks. Today digital transformation is a strategic priority for most global companies and will open new revenue opportunities. This is also in line with Etisalat's overall strategy to realise our country's leadership vision of building smart cities and bringing in digital transformation.

The launch of Etisalat Digital business unit last year was to achieve these objectives and goals through our markets, and be responsible to implement digital transformation projects in UAE. Among the digital transformation projects currently being implemented in UAE, the recent partnership with Dubai Parks and Resorts to implement an advanced technical infrastructure is a step in this direction.

This project has set a benchmark and is one of the most successful projects in the entertainment space in the region. Etisalat Digital brings its unique value to these projects by combining the scale, strength and robust network with the agility, skills and platforms of a digital player. The business unit have access to global skills and expertise, state-of-the-art digital assets such as data centers, cloud, cybersecurity, M2M and Internet of Things (IoT) platforms, analytics, big data engines and digital payment gateways. This is in addition to 24x7 Cloud, Security and IoT Command and Control Centers in Abu Dhabi and Dubai for fully managed solutions and proactive monitoring.

Digital capabilities is reflected in Etisalat's overall company strategy and our services and solutions. This is also reflected internally by adapting innovative skills and increasing agility in the organisation.

With the global landscape rapidly changing in the ICT arena, it is essential to move ahead and make these changes in the organisation and our services.

In order to meet the growing challenges in the business, Etisalat will work in 2017 and 2018 to engage more in digital transformation projects in the country and across our markets. This is part of our strategic vision to lead the company into a digital future.

This is in line with the national agenda of the government to achieve digital transformation driven by our strong presence in the digital space. Our recent partnerships with Dubai Parks and Resorts and Expo 2020 are a prime example.

Etisalat is also actively working on projects related to health and education that bring a direct impact to the citizens and will help increase the happiness index in the country.

These initiatives will bring added value to customers and shareholders in conjunction with the continued investment in the future of the company. This will also meet the needs of the new age digital customer and help meet the objectives of the government. The digital strategy will contribute to the overall economic growth and increase competitiveness of the country.

Looking at the future, we will continue to invest in developing our business and key customer experience by making the right partnerships, continue to invest in innovation, smart platforms and big data. These initiatives in the long run will also enhance operational efficiency and profitability of the company.

**30ᵗʰ April, 2017**

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# TELECOM LEADERS' SUMMIT 2017

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## Aligning visions to meet the Demands of the Digital World

SAMENA Telecommunications Council's Telecom Leaders' Summit is a Collaborative, Meeting, Gathering and Communication-centric industry-wide experience, created for and annually offered to the leaders of the Public Sector and Private Sector of South Asia, the Middle East, North Africa, Asia, Europe and beyond. In its material form, SAMENA Council's Leaders' Summit is the congregation of Chairmen and Chief Executives of leading communications service providers, Heads of regulatory authorities, Ministers, Influencers, and Professionals that are driving digital development both regionally and internationally.

**For More Information:** ☎ +971 4 364 27 00    ✉ LS2017@samenacouncil.org    🖥 www.samenacouncil.org

## MEMBERS NEWS

## STC the Most Valuable Brand in the Middle East

Brand Finance announced an 11% increase in STC's brand value from 2016 to become US $6.2 billion. With this increase, STC has now become the most valuable brand in Saudi Arabia and in the Middle East. Brand Finance CEO David Haigh has commented on this increase by saying, "STC is embarking down a path of 'humanization', re-engaging its many stakeholders with a fresh, personable outlook. A clear indication of its success in this regard is a 5 point increase in its brand strength index score, reflecting improving customer perceptions on metrics such as consideration, preference and satisfaction. The financial value of its strategy is even more apparent however; STC's brand value has risen 11% to US$6.2 billion. This means that it is now not just the most valuable brand in Saudi Arabia, but across the entire Middle East. A major coup for both STC itself but also for Saudi Arabia, which can now lay claim to the top spot in the region after years' of dominance by Emirates." Recently, STC "Customer Experience" won two of the "Gulf Customer Experience Awards" for having the best application "MySTC". Ziad Elbatal, VP of Customer Care & Experience and Turki A. Al Naim, acting GM of Customer Experience, received these awards on behalf of STC during the event that organized by "Awards International Company" in Dubai.

## Dr. Biyari: STC supports 2030 Vision in Digital Transformation

Dr. Khaled H. Biyari, STC Group CEO participated at KAUST Global IT Summit 2017 and presented STC vision about The State of Digitalization in Saudi Arabia. Dr. Biyari confirmed that digital transformation will help to enhance the competitiveness and productivity through the formation of economy based on digital knowledge in Saudi Arabia, and implementation tools for these task solutions are essential for telecom companies in the next phase. Dr. Khaled mentioned that the global economy is heading completely towards digitization and our nation and through the vision of 2030 and the national transformation plan in 2020 is heading to the same destination.

## Saudi Telecom Rated most Valuable Arab brand Comes in ahead of Emirates, while Google Secures top Spot in Global Rankings

Saudi Telecom Co. (STC) edged past UAE's leading names to be rated as the "most valuable brand" in the region in the influential Global 500 rankings put out by Brand Finance annually. Emirates airline holds the top spot in the UAE, while Etisalat was able to record a 45 per cent gain in its brand value.

But, globally, there was a slight slip up for Apple, being edged out by after five years at the top spot. In its stead comes Google with a brand value of $109.5 billion, rising by 24 per cent (from $88.2 billion) while Apple's declined from $145.9 billion to $107.1 billion. (Google had occupied the top position back in 2011.) The Brand Finance rankings are based on factors such as the marketing investment, familiarity, loyalty, staff satisfaction and corporate reputation a brand has in its favor and then put a dollar value to that. This sets up the brand power valuation and the proportion of overall business revenue that is contributed by the branding itself. The choice of STC as the top name for the region might come as a surprise, given the environment in which it did so. The Saudi economy did not have one of its better years, with oil price levels forcing a change of emphasis by policymakers. STC was assigned a global ranking of 252, rising 11 per cent during 2016 to $6.2 billion, as per Brand Finance's calculations. "The increase was primarily driven by STC 'humanizing' its marketing campaigns, and reengaging with its stakeholders with a fresh, more personable outlook," it notes. Emirates homes in on the 264th spot with a brand value of $6.1 billion. The company retained its spot as the UAE's most

valuable brand "due to the carrier's breadth of service, customer centric approach and wide global network. The company's Brand Strength Index score even increased from 85 out of 100 in 2016 to 87 out of 100 in 2017, securing it a AAA rating once again." the report says. According to Andrew Campbell, Managing Director of Brand Finance M.E., said: "Middle Eastern brands continue to make their mark in the Global 500. The brand value of the four companies from the region represented in our 2017 ranking grew on average by 23 per cent year-on-year. "We expect more brands from the Middle East to enter our Global 500 in time as oil prices readjust and companies from the region continue to

expand into new geographic markets." Etisalat rose to 293, up from 404th place in 2016. In doing so, its brand value increased 45 per cent on last year to $5.5 billion. The rise came on the strength of "growing user numbers, innovation (i.e. Etisalat was the first Middle Eastern brand to trial 5G) and strong profit results in 2016". Interestingly, Qatar National Bank made the cut for the first time - in 441th place with a brand value of $3.8 billion. On the global stage, Lego regained its status as the "world's most powerful brand", led by gains from media licensing deals and partnerships that have driven growth, such as Lego Star Wars, Lego Harry Potter and Lego Batman. "A powerful brand can protect a

company's value during turbulent market conditions or challenging times for a business," said Campbell. "The share price resilience of Samsung and Wells Fargo, after a difficult year, is testimony to how a brand can help a company ride out a storm. "This is why a brand is such an important intangible asset and should be valued as such. Particularly during M&A scenarios, the fact that brand values are not factored into company accounts can mitigate against fair value being paid. Sellers ought to recognise the full worth of their brand, whilst buyers ought to factor in how far the asset of a brand can be stretched and monetized."

## STC Strikes Tower Aacquisition Deal with Atheeb

Saudi Telecom Company (STC) announced a deal to acquire tower assets from rival operator Atheeb Telecommunication for SAR230 million ($61 million). In a statement, STC said the deal would be financed by "internal resources", but did not reveal exactly how many towers would be included. STC made the move despite a growing trend by operators in Saudi Arabia to offload

tower transmitters by either merging or selling them off to private investors, and then leasing capacity back from the new owners. In August 2016, the company entered talks with rival Mobily about creating a joint mobile tower venture, although nothing official emerged as yet. Zain was also linked to a potential tower sharing agreement, but the company since said it expects to sell towers for

more than $500 million by mid-2017. STC added its acquisition from Atheeb is subject to regulatory approval. In early January, reports linked STC with a potential purchase of a direct stake in Otas, the majority shareholder of Turk Telecom, as part of a broader deal to cover missed debt repayments.



## Turkcell's Annual Group Revenues Climb 11.9%

Turkish mobile market leader Turkcell's quarterly consolidated group revenues rose 21.3% year-on-year to TRY4.044 billion (USD1.114 billion) in the three months ended 31 December 2016, with quarterly EBITDA boosted 29.6% y-o-y to TRY1.371 billion. For the full-year 2016, the group's revenues grew 11.9% to TRY14.286 billion whilst annual EBITDA climbed 11.6% to TRY4.620 billion. Full-year 2016 net income fell 27.8% to TRY1.492 billion, although Turkcell also reported its 'pro forma' net income (excluding certain non-operating and non-recurring items) as rising 7.4% to TRY2.5 billion. Turkcell's domestic operations accounted for 89.5% of annual revenues in 2016 — climbing by 11.4% to TRY12.788 billion, whilst Turkish EBITDA rose by 10.7% in FY16

to TRY4.161 billion (representing 90.1% of group EBITDA). Turkcell flagged up its 4.5G mobile investments as a key driver of this growth, as it achieved LTE population coverage of around 82.5% (in 81 cities across Turkey) by the end of 2016, while the average monthly data consumption of its 4.5G customers reached 5GB in December. Turkcell also registered its highest domestic mobile customer retention level since 2007, and in Q4 2016 it saw 291,000 net mobile additions, the highest level since 2013. At its fixed network operations, a Q4 net gain of 147,000 subscribers was its highest ever, whilst fibre-based subscribers now exceed one million. Internationally, Turkcell's Ukrainian mobile unit Lifecell registered 13.4% year-on-year revenue growth in local currency terms to reach

a record high quarterly net sales figure of UAH1.314 billion (USD48.3 million), helped by rising mobile data revenues on the back of its 3G+ network expansion, although EBITDA fell by 13.8% in local currency terms leading to an EBITDA margin of 27.6% (down from 36.3% the year before) largely due to higher costs resulting from the 3G+ rollout. Turkcell's Belarusian division BeST also saw a gain in local currency revenues — up by 14.2% y-o-y in 4Q16 to BYN26.5 million (USD14.1 million) — driven by subscriber base expansion along with increased voice and device revenues on higher smartphone sales. BeST also registered a y-o-y EBITDA margin improvement to 6.1% (3.7%) in the fourth quarter.

# Zain Group Full Year 2016 net Profit up 2% as Company Records Revenues of US$3.6 Billion

Zain Group, a leading mobile telecom innovator in eight markets across the Middle East and Africa, announces its consolidated financial results for the year 2016, and fourth quarter ended December 31, 2016. Zain served 47 million customers at the end of 2016, reflecting a 3% increase year-on-year (Y-o-Y). For the full-year 2016, Zain Group generated consolidated revenues of KD 1.1 billion (USD 3.6 billion), down 4% Y-o-Y, while consolidated EBITDA for the period grew by 3% Y-oY and reached KD 512 million (USD 1.7 billion), reflecting a healthy EBITDA margin of 47%. Consolidated net income reached KD 157 million (USD 519 million), up 2% and reflecting Earnings Per Share of 40 Fils (USD 0.13). For the full-year 2016, foreign currency translation impact, predominantly due to the 60% currency devaluation in Sudan from 6.4 to 15.9 (SDG / USD) in the beginning of November 2016, cost the company USD 92 million in revenue, USD 38 million in EBITDA and USD 44 million in net income. The Board of Directors of Zain Group recommended a cash dividend of 35 Fils per share subject to the Annual General Assembly and regulatory approvals. For the fourth quarter of 2016, Zain Group recorded consolidated revenues of KD 261 million (USD 860 million), a decline of 8% on the same period of the previous year (Q-o-Q). EBITDA for the quarter reached KD 122 million (USD 400 million), reflecting a healthy EBITDA margin of 47%. Net income for the quarter reached KD 32 million (USD 106 million), reflecting

Earnings Per Share of 8 Fils (USD 0.03). Specifically, for the fourth quarter of 2016, currency translation impact cost the company USD 83 million in revenue, USD 33 million in EBITDA and USD 42 million in net income, again predominantly due to Sudan currency devaluation from 6.4 to 15.9 (SDG / USD), a 60% decrease. Substantial investments in 3G and 4G LTE network expansion and upgrades continue to pay off as Group data revenues (excluding SMS and VAS) increase 6% during 2016, representing 23% of the Group's consolidated revenues. The 60% currency devaluation impact in Sudan affected both Zain Group's full-year and Q4 2016 financial results. In December 2016, Zain Iraq entered into a negotiated settlement with the country's Finance Ministry for USD 93 million related to an imposition of a capital gains tax on its acquisition of Iraqna in 2007. This resulted in the lifting of restrictions on the trading of Zain Iraq's shares, access to the company's bank deposits and also waived penalties and interest on taxes. The continued political instability in Iraq during 2016 saw the operator endure frequent temporary network interruptions and associated higher network operational costs. These unavoidable occurrences coupled with heightened levels of price competition and a 20% sales tax on mobile services hit spending on mobile services. All these factors contributed to a negative impact on Zain Iraq's and consequently Zain Group's overall key financial metrics. In Saudi

Arabia, through a Royal Order on October 1, 2016, Zain received an extension of its telecommunications license by 15 Hijri years, effectively extending the license term from 25 Hijri years to 40 Hijri years in total (to expire on 18th January 2047). The impact of this extension for the company was the immediate reduction of its license fee amortization, which amounts to approximately SAR 433 million (USD115 million) per annum, in effect reducing Zain KSA's net losses by the same amount. Heavy investment in 3G & 4G network expansion upgrades across operations saw CAPEX spend for the year amount to USD 635 million (excluding Saudi Arabia), reflecting 18% of Group revenues. Commenting on the results, the Chairman of the Board of Directors of Zain Group, Mr. Asaad Al Banwan said, "The Board is pleased to record relatively stable financial results; an achievement by the management given the many socio-economic challenges facing all our operations. The currency issue in Sudan in the last quarter of 2016 had an adverse impact on the results, as did the settlement of cumbersome litigation in Iraq that resulted in a payment of USD 93 million. Nevertheless, we draw confidence from both the freeing of our cash deposits in Iraq and the favorable gesture by the Saudi leadership in extending our license in the Kingdom by an additional 15 years, which had a positive impact on the operation's financials and growth strategy."

# Ali Al-Zahid Appointed CEO of Zain Iraq

Zain Iraq, the country's leading mobile operator, announces the promotion and appointment of Ali Al-Zahid as CEO of the company, effective February 1, 2017. An Austrian national with Iraqi roots, Al-Zahid most recently held the position of Chief Commercial Officer of Zain Iraq, which he assumed in June 2015 having joined the organization as Director of Sales in September 2013. Al-Zahid brings 17 years of extensive experience with international telecom operators including

Orange Austria, O2 Germany (Telefonica), and Zain Iraq to his new role. He also has experience in management consultancy, working with two European based firms for five years. Al-Zahid combines broad and in depth experience in organizational leadership and development, brand, marketing and commercial strategies in fast growing telecom markets across Europe, Africa and the Middle East. Commenting on the appointment, the Chairman of Zain Iraq, Mohammed Al

Charchafchi said, "It is a pleasure to promote a young talented leader with Iraqi heritage to the role of CEO at an important stage of Zain Iraq's evolution. Over the last three years he has played a vital role within the senior management ranks and proven to be a very capable professional, exceeding expectations on multiple fronts. We have the utmost confidence that Ali Al-Zahid has the right skill-sets and leadership qualities to take the operation to next phase
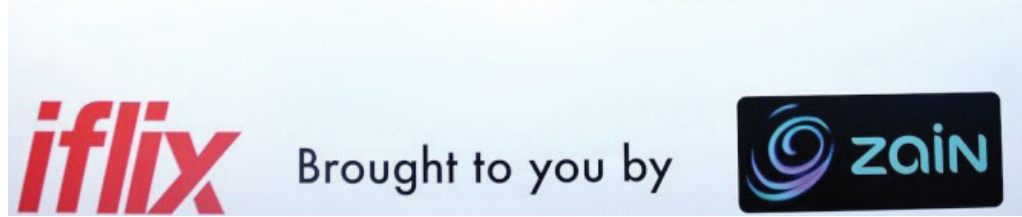
of growth." The Chairman continued, "The key shareholders and board of directors of Zain Iraq are committed to the continual investment and expansion of the 3G mobile network in providing vital telecommunications services to the communities we serve, playing our fundamental role in the economic and social development of the country." Zain Group CEO, Scott Gegenheimer commented, "Ali Al-Zahid has an outstanding track record in one of Zain's most complex and challenging emerging markets. He has a strong background in mobile technology, strategy and management, and in exploiting commercial data-related opportunities. Thus I share the Chairman's confidence that he is a good fit to take Zain Iraq to the next stage of the company's development to enhance customer experience and solidifying Zain Iraq's market leadership." Gegenheimer continued, "It is also a particular pleasure to promote an existing Zain talent, who has an impressive and successful track record to a senior position in one of our key markets, fulfilling our Group-wide human resources policy of capitalizing on and promoting our talented leaders from within." Ali Al-Zahid graduated with a MSc in Management & Communication, from Danube University Krems (Austria) in 2004 and is currently part of the TRIUM Global Executive MBA with the London School of Economics, HEC Paris and NYU Stern.

## Zain and Iflix Establish Joint Venture "Iflix Arabia"

Zain, a leading mobile and data services operator in the Middle East and Africa and iflix, the world's leading Internet TV service for emerging markets, today announced the establishment of their joint venture, 'iflix Arabia' to bring iflix's world class service to the Middle East and North Africa (MENA). iflix Arabia, will be headquartered in Dubai and trade commercially as "iflix", adding Zain's territories of operation to iflix's global footprint, including Kuwait, Bahrain, Iraq, Jordan, Lebanon, Saudi Arabia and Sudan, with the potential to further extend into additional regional markets. The commercial launch of iflix's Internet TV service across the MENA region is planned for the second quarter of 2017, at which time iflix Arabia will offer consumers across the region and Zain mobile customers its extensive range of thousands of TV shows, movies and more with Arabic and English subtitles, including many first run exclusives and award winning programs. In addition to having the best of Hollywood, Bollywood, regional and local programs, as well as over 2,000 episodes of children's content, the service will additionally offer an extensive collection of highly acclaimed Arabic shows and movies with iflix Arabia planning to introduce exclusive Arabic content series. Having first launched its service in May 2015, iflix quickly established its dominance in the Asian region, rolling out its world class service to nine markets in less than two years, acquiring over 4 million members over the period. With Zain's 47 million customers, the joint venture will benefit from and leverage the mobile operator's established market leadership in conjunction with learnings iflix acquired in consolidating its dominance throughout Asia. iflix Arabia will capitalize on the MENA's large youth population, rapidly growing internet and smartphone penetration, and huge appetite for digital content and entertainment.

# Cisco Posts Q2 Revenue of $11.6 Billion, Security Hottest Segment

Cisco reported Q2 revenue of $11.6 billion, net income (GAAP) of $2.3 billion or $0.47 per share, and non-GAAP net income of $2.9 billion or $0.57 per share. Total revenue was $11.6 billion, down 2%, with product revenue down 4% and service revenue up 5%. Revenue by geographic segment was: Americas down 3%, EMEA flat, and APJC down 3%. "We are pleased with the quarter and the continued customer momentum as we help them drive security, automation and intelligence across the network and into the cloud," said Chuck Robbins, Cisco CEO. "This quarter we announced our intent to acquire AppDynamics which, combined with Cisco's networking

analytics, will provide customers with unprecedented insights into business performance. We will remain focused on accelerating innovation across our portfolio as we continue to deliver value to customers and shareholders."
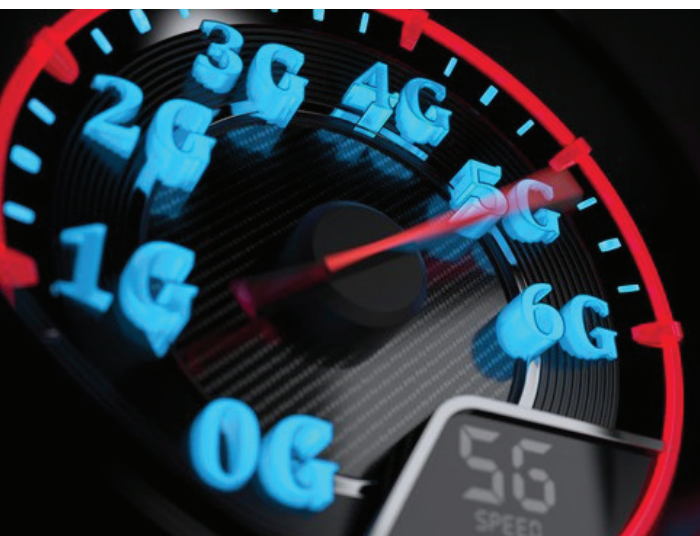
**Some highlights:**

- Product revenue performance was led by Security which increased 14%.
- Collaboration and Wireless product revenue increased by 4% and 3%, respectively.
- NGN Routing, Switching and Data Center product revenue decreased by 10%, 5% and 4%, respectively.
- Service Provider Video product

revenue decreased by 41%.

- Gross Margin -- On a GAAP basis, total gross margin and product gross margin were 62.8% and 61.1%, respectively.

Cash and Cash Equivalents and Investments -- were $71.8 billion at the end of the second quarter of fiscal 2017, compared with $71.0 billion at the end of the first quarter of fiscal 2017, and compared with $65.8 billion at the end of fiscal 2016. The total cash and cash equivalents and investments available in the United States at the end of the second quarter of fiscal 2017 were $9.6 billion.

# Cisco Predicts Rapid Growth in Global Data Adoption

Global mobile data speeds and traffic levels are set to dramatically increase by 2021, driven by the use of 4G and launch of 5G services, Cisco forecasted. In its latest annual trends forecast, the company said average global connection speeds would hit 20.4Mbp/s in 2021, up from 6.8Mbp/s in 2016. The increase will be driven by growing availability and use of 4G, which is tipped to become the dominant technology within four years accounting for 79 per cent of all mobile traffic and 58 per cent of all mobile connections – up from 26 per cent of connections in 2016. Cisco said 5G would become a contributing factor in 2020 and would

account for 1.5 per cent of all mobile data traffic by 2021. The new technology is forecast to generate 4.7 times more data than the average 4G connection, and 10.7 times more traffic than 3G. Its Cisco Visual Networking Index predicted a sevenfold increase in global mobile data traffic by 2021 with the fastest growth seen in the Middle East and Africa, where the company expects to see a twelvefold increase on the levels seen last year. The slowest levels of growth are expected to be in Western Europe and North America – but even these regions are anticipated to record sixfold and fivefold increases respectively.

**Driven by devices**

This rapid increase in mobile data use is expected to be driven by improvements in infrastructure, wider proliferation of smartphones and developments of new technological use cases. Cisco pointed to the growth of mobile video – expected to increase by 770 per cent over the forecast period – development

of AR and VR technology, and use of IoT applications as key trends for the next four years. In terms of device growth, the company said 5.5 billion people around the world would have a mobile phone by 2021, with 6.2 billion smartphones and phablets in use – up from 3.6 billion last year. This makes up over 50 per cent of all connected devices. M2M connections are expected to represent 29 per cent of all mobile connections. Wearables are also highlighted as a growth area, with 929 million expected to be used globally in 2021. Of these, 69 million are expected to have an embedded cellular connection. Discussing the forecast data, Cisco VP service provider marketing Doug Webster said: "With the proliferation of IoT, live mobile video, augmented and virtual reality applications, and more innovative experiences for consumer and business users alike, 5G technology will have significant relevance not just for mobility, but rather for networking as a whole." "As a result, broader and more extensive architectural transformations involving programmability and automation will also be needed to support the capabilities 5G enables, and to address not just today's demands but also the extensive possibilities on the horizon."

# Etisalat Data Center Receives Tier Three Gold Certification

Etisalat has received tier III gold certification from the Uptime Institute for operational sustainability, for its Khalifa City Data Centre in Abu Dhabi. With this, Etisalat joins the select league of 18 providers worldwide, who have been certified similarly. The certificate ensures that the Khalifa City Data Centre has high degree of mitigation against the risk of human error outage. Emergency plans and procedures are in place to guarantee rapid response by the operations team. The certification is being positioned by Etisalat as an evidence of its suitability as a good managed services partner.

## Etisalat Group's Revenues Rise

Etisalat Group's revenues rose by 2.01 per cent to Dh52.36 billion compared to Dh51.32 billion a year ago due to the strong performance from UAE and Maroc Telecom operations. In the UAE, revenue increased by 5.46 per cent as a result of an increase in revenue from data services, expanded the customer base of broadband usage and increased offerings of business solutions, digital and ICT services. Etisalat said that 2015 earnings had been restated. Net profit attributable to equity holders increased by 1.93 per cent to Dh8.4 billion compared to Dh8.26 billion a year ago, the company said in a statement on Abu Dhabi stock exchange. According to Brand Finance's Global 500 recent report, Etisalat had its brand value

increase by 45 per cent to $5.5 billion last year due to growing user numbers, innovation and a strong profit. Sukhdev Singh, vice-president at market research and analysis services provider Kantar AMRB, told Gulf News that growth for Etisalat, or for that matter any telco in the region is increasingly driven by data services adoption. In near future, one expects the trend to continue. Given the high penetration of smartphones, particularly in the UAE, he said that the increase in data services was expected. Unlike voice services where margins are more predictable and prices are broadly similar, what one pays out for data services in the UAE varies a lot by operators. "At times, for the same money, one operator offers twice the data

as compared to the other. This leads to considerable spend on marketing and promotion, often at the cost of sacrificed margins. This is also evident from comparatively lower growth in operating profit as compared to growth in revenues," he said. The telecom operator's net operating profit increased by 2.10 per cent to Dh11.63 billion compared to Dh11.39 a year ago. Etisalat operates in 18 markets in the Middle East, Asia and Africa with 167 million subscribers in 2015. Subscriber base for 2016 is not available. In August, the group completed the sale of its 92.3 per cent shareholding in Sudanese fixed line operator Canar to Sudan's Bank of Khartoum and received Dh349.6 million in return for the stake.

## Etisalat Group Reports Strong Performance in Annual Financial Results

Etisalat Group announced its consolidated financial statements for the 12 months ending December 31 2016.

**Financial Highlights for 2016**
- Aggregate subscriber base reached 162 million.
- Consolidated revenues amounted to AED 52.4 billion and increased year over year by 2%.
- Consolidated EBITDA totaled AED 26.3 billion, resulting in EBITDA margin of 50%.
- Consolidated net profit after Federal Royalty amounted to AED 8.4 billion resulting in a net profit margin of 16% and increased year over year by 2%.
- Proposed final dividend payout of 40 fils per share for 2016, representing a total dividend payout of 80 fils for the

full year and a dividend payout ratio of 83%.
- Credit Ratings by agencies S & P Global and Moodys affirmed Etisalat Group's high credit rating at AA-/Aa3.

**Financial Highlights for Q4 2016**
- Consolidated revenues for the fourth quarter amounted to AED 12.9 billion, representing an increase of 3% year over year.
- Consolidated EBITDA for the fourth quarter totaled AED 6.2 billion resulting in EBITDA margin of 48%.
- Consolidated net profit after Federal Royalty amounted to AED 2.2 billion resulting in a net profit margin of 17%

**Key Developments for 2016**
- The UAE, Etisalat's home market, ranked number one globally for the highest fibre network connectivity, with household penetration of 93.7%.
- Acquisition of the 4G Services license in Egypt, 3G in Togo, and universal license in Ivory Coast.
- Etisalat Group completed the sale of its shareholding in Canar Telecom in Sudan, as part of portfolio optimization.
- Launched a new Business Unit – Etisalat Digital that oversees the Group digital transformation agenda;
- Etisalat was the first in the region to conduct live 5G trials, and to launch a live and operational Telco Cloud infrastructure as part of its virtualization plans.

- Announced as Premier Partner for telecommunication and digital services for Dubai Expo 2020;
- Delivered integrated Smart City project Dubai Parks & Resorts, which opened in 2016;
- Etisalat launched commercially VoLTE service; featuring high definition voice and video browsing;
- Etisalat expanded its mobile commerce capability with the launch of its new 'Etisalat Wallet' service in the UAE;

**International Recognition**
- Etisalat Group won two Mobile World Congress Glomo awards, including the most prestigious title of overall winner and 'supreme' Connected Life Champion in 2016
- Etisalat Group received two special awards from GSMA for the work successfully executed in Pakistan and UAE with Digital Identity service – Mobile Connect for 2016.
- Etisalat Group Wholesale unit has won the Best Middle Eastern Wholesale Carrier in The Telecoms World Awards 2016, and the Best Middle Eastern Wholesale Carrier from Global Carrier Awards 2016.

**Chairman's Statement:**
Etisalat Chairman, Eissa Mohamed Al-Suwaidi, said: "Etisalat Group continues to strengthen its position as one of the leading operators in emerging markets. In the face of global economic pressure, Etisalat Group has, once again, demonstrated strong performance, evidence of a business that is both robust and resilient.

"In terms of achievements, 2016 was a very important period for 'Etisalat Group' as we laid key foundational steps in our journey towards digital transformation. We also continued our relentless efforts to provide our customers with a wide portfolio of innovative products and services, integrated solutions, and smart platforms.

"Etisalat Group will continue to rise to the challenge and deliver against its digital transformation agenda, which will entail a change in the way we do business, for the ultimate endeavor of enhancing our customers' experience and bringing more value to them. Etisalat will also

continue to leverage its portfolio and strong financial position to capture the opportunities and mitigate the challenges facing the sector."

"Etisalat Group has reached the position we are in today as a result of the support of the wise leadership of the UAE. I want to sincerely thank our leaders for their vision and continuous support of Etisalat, and to reiterate our commitment to lend our full potential in order to facilitate the realization of their strategic vision of delivering a smarter future."

"Our current and future success are a natural outcome of the long-standing relationship and support of our shareholders, loyal customers, hard work of our employees and strong commitment of our management team and their ability to translate our organizational goals into reality."

**GCEO's Statement:**
Engineer Saleh Al Abdooli, Group Chief Executive Officer, Etisalat Group, said: "Etisalat Group is in a stronger position today to seize the opportunities and overcome the challenges of our fast-evolving industry, and move forward with confidence as a leading provider in our operating markets. Our financial results are a testimonial of the Group resilience and ability to mitigate the pressures arising from the global economic slowdown."

He added: "Etisalat Group has maintained its high ratings with international credit agencies, and is serving a large and

strong customer base across its international footprint, with a considerable potential to grow further"

"In 2016 we have crossed another critical milestone in our journey as we started to pursue an ambitious agenda in the digital space; the same is a necessity in order to maintain our leadership position in local and international markets as digital becomes the next big thing. Our focus remains on providing governments, businesses and individuals with innovative, simple, and relevant solutions that harness the power of technology and maximizes their potential."

## Etisalat Group Financial Results for 2016

Proposed final dividend payout of 40 fils per share for 2016, representing a total dividend payout of 80 fils for the full year

**8.4** bn
Consolidated net profit after Federal Royalty
2% YoY increase

**52.4** bn
**CONSOLIDATED REVENUE**
2% YoY growth

**162** m
Etisalat Group subscribers

**12.9** bn
Consolidated Revenue in Q4
3% YoY increase

**12.3** m
UAE Subscribers
6% YoY increase

**30.3** bn
UAE revenue in 2016
5% YoY increase

**7.9** bn
UAE revenue in Q4
14% YoY increase

**0.97** AED
EPS for the full year

**0.26** AED
EPS in Q4 of 2016

**6.2** bn
Consolidated EBITDA in Q4
EBITDA margin of 48%

**26.3** bn
Consolidated EBITDA in 2016
EBITDA margin of 50%

* All figures mentioned above are in AED

"I am confident that Etisalat Group will enable a smarter future, by capitalizing on its knowledge, capabilities, talent, assets, and its strong financial performance. We will continue to support the communities we serve and add value to the markets we operate. In addition, customer experience remains a key area of focus in which we will strive to provide our customers with a superior service level on top of our high quality products."

"We are grateful to our government and shareholders for their unwavering support; to our customers for their continued loyalty and trust, and to our engaged employees who are translating our aspirations into reality with their hard work and dedication"

**Subscribers:**
- Aggregate subscriber base reached 162 million.
- In the UAE the subscriber base grew to 12.3 million subscribers in the fourth quarter of 2016 representing a year on year growth of 6%. Subscriber

growth continued to be driven by strong performance of mobile and eLife segments. The mobile subscriber base grew year on year by 7% to 10.4 million subscribers.
- Total broadband segment grew by 5% year on year to 1.1 million subscribers.

**Revenues:**
- Consolidated revenues amounted to AED 52.4 billion and increased year over year by 2%.
- Consolidated revenues for the fourth quarter amounted to AED 12.9 billion, representing an increase of 3% year over year.
- In the UAE, revenue in the fourth quarter increased year on year by 14% to AED 7.9 billion. For the full year, revenue increased by 5% to AED 30.3 billion.

**EBITDA :**
- Consolidated EBITDA totaled AED 26.3 billion, resulting in EBITDA margin of 50%.

- Consolidated EBITDA for the fourth quarter totaled AED 6.2 billion and resulting in EBITDA margin of 48%.
- In the UAE, EBITDA in the fourth quarter of 2016 was AED 4 billion increasing year-over-year by 3% leading to an EBITDA margin of 51%.

**NET PROFIT & EPS:**
- Consolidated net profit after Federal Royalty amounted to AED 8.4 billion resulting in a net profit margin of 16% and increased year over year by 2%.
- In the fourth quarter, consolidated net profit after Federal Royalty amounted to AED 2.2 billion resulting in a net profit margin of 17%
- Earnings per share (EPS) amounted to AED 0.26 in the fourth quarter of 2016 and AED 0.97 for the full year of 2016.
- Proposed final dividend payout of 40 fils per share for 2016, representing a total dividend payout of 80 fils for the full year and a dividend payout ratio of 83%.

# Sudatel Telecom Group Hosts ITU Telecommunication Development Bureau Director's Visit

In collaboration with the Ministry of Communication and Information Technology and the National Telecommunication Commission (NTC), the Telecommunication Development Bureau (BDT) of (ITU) organized in Khartoum the ITU Regional Preparatory Meeting for the Arab region (RPM-ARB) from 30 January to 1 February. The Preparatory Meeting was proceeded by (RDF-ARB), which was held on 29 January, 2017. All the telecom operators and the main players of the telecom sector were present at this event. As a part of the meetings, Director of the ITU Telecommunication Development Bureau (BDT), Mr. Brahima SANOU, visited the Telecom Museum of Sudatel, which is the only of its kind in Sudan, inaugurated in 2012. He paid a visit also to Sudatel Data Center, winner of the Best African Project of the Global Carrier awards in 2015. As one of the six centers of excellence of the ITU, Sudatel Academy was honored by the visit of Mr. SANOU who expressed his good impression about this institution. Dr. Ahmed HASSAN, the GM of Sudatel Academy, thanked him for his visit and the confidence extended to Sudatel Academy. Finally, Mr. SANOU met with Mr. Sami YOUSIF, Vice-President of Sudatel Group. They discussed the bilateral relations and what can be done in the future in terms of common collaboration. Mr. SANOU, who expressed his impression by the infrastructure of Sudatel, reiterated his

invitation to the top management of Sudatel to attend the coming World Telecommunication Development Conference, which will take place in Buenos Aires, Argentina, October, 2017.

# Ooredoo Kuwait Gets Payment Card Industry, Data Security Standards Certification

Ooredoo, Kuwait's fastest network, announced that it has officially obtained the Payment Card Industry (PCI)-Data Security Standards (DSS) 3.2 certification, making it the first telecom provider in Kuwait to be certified with this version. PCI-DSS is the global industry standard for compliance and security for personal payment card data, to which vendors and businesses must conform to in order to protect cardholders' personal data and prevention from credit card

fraud. Ooredoo's PCI-DSS compliance was validated in December last year, after an extensive audit conducted by ControlCase, a qualified security assessor. Ooredoo Kuwait was the first company in Kuwait to take that step, further solidifying its position in the local market. This step helps customers make safe transactions Ooredoo's web payment portal, in addition to using Ooredoo's payment kiosks, conveniently located in 45 locations across Kuwait for

customers' satisfaction. Commenting on this announcement, Ooredoo Kuwait stated "This accomplishment reinforces our commitment to ensure the best services to our customers, with safe online transactions to protect them against fraud and other privacy breeches. This step is reflective of the company's core values of caring and connecting. Ooredoo strives to provide its customers with the best services, while ensuring the safety of their privacy and information."

## Ooredoo Appoints New CFO in Oman

Ooredoo has announced the promotion of Abdul Razzaq Al Balushi to Chief Financial Officer. He takes over from Jorgen Latte, who has retired as 1 February 2017 as CFO. In his new post, Abdul Razzaq will have overall responsibility for managing the Finance function, which will involve strategic finance, budgeting and planning, revenue assurance, business control, accounts and financial control, investor relations, procurement contracts and supply chain. He will also be responsible for developing strategies for sustainable value creation and also risk management in relation to setting and achieving organizational objectives. Abdul Razzaq formerly served as the company's Deputy Chief Financial Officer and has more than 25 years of experience working in a wide variety of managerial positions in corporate planning, strategy, finance, banking, and risk management. Prior to

joining Ooredoo, he worked with Oman Trading International Operations in the UAE, HSBC, Oman LNG LLC, Oman Shipping Company SAOG and Aldersgate Partners. Abdul Razzaq is a graduate of Strathclyde University UK, and the College of Banking and Financial Studies Oman with a Masters of Business Administration, Abdul Razzaq is also a Certified Treasury & Finance Professional and holds Certificates in Accounts, Banking & Trade. His appointment reflects Ooredoo's dedication to grow talent within the company and provide them with opportunities to thrive. Through its Omanization programme, Ooredoo has dedicated resources towards the recruitment, retention and development

of talented Omanis to help fulfill their professional aspirations and contribute to the growth of the Sultanate. Today, Ooredoo has an Omanization rate of over 90%, with highly qualified and experienced Omanis working at every level within the company.

# Saudi Banks confirm their Confidence in Mobily Strong Credit Worthiness and its Future Prospects

Mobily announced today (01-02-2017) that it has concluded successfully with a group of Saudi banks (National Commercial Bank, Banque Saudi Fransi, Samba Financial Group, Saudi British Bank, Riyad Bank and Al-Rajhi Bank) a SAR 7.9 billion Murabaha facility to refinance

a significant part of its current debt. The new facility has 7 years maturity with 2 years grace period and 5 years repayment period. The facility is unsecured and ranks pari-passu with all other existing facilities. This facility will allow Mobily to re-profile its debt in a manner more

consistent with its cash flow generation and release any refinancing risk over the medium and long term. It reflects the increased confidence of the creditors in Mobily, its strong credit worthiness and its future prospects.

## VIVA Receives Prestigious ISO 27001:2013 Global Certification



VIVA, Kuwait's fastest-growing and most developed telecom operator, has received the ISO/IEC 27001:2013 certification for Information Security Management System, attaining global status by meeting applicable mandatory requirements from two leading entities International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). On this occasion, Eng Salman Bin Abdulaziz A-Badran, VIVA's CEO, said: "The ISO/IEC 27001:2013 standard provides a tried and tested framework for implementing and managing information security processes through a systematic approach, thus allowing us to continuously provide top notch service to all our customers. It is our duty of care to safeguard our customers and partners information and data and to meet or exceed their expectations, in an ever-evolving environment, which forms a core part of our long-term vision for security best practices. By achieving this internationally recognized certification, VIVA has demonstrated its commitment to data protection and continuous improvement." This certificate will foster VIVA's position as a leading telecom company in the Middle East region by adhering to the highest internationally accepted standard for Information Security Management Systems (ISMS). VIVA is one of the few telecom companies to earn this accreditation in Kuwait to date. In its endeavor to meet ISO 27001 standards, VIVA has shown its commitment by adopting a systematic and on-going approach to managing sensitive company and customer information. The certification is a key indicator of VIVA program to protect vital customer data from a wide range of cyber threats and vulnerabilities that can lead to data loss. It provides third-party verification that the company's ISMS conforms to a standard that helps protect the integrity of customer's information assets. This ISO 27001 certification is a reflection of VIVA's commitment to the quality of its information security management system. VIVA successfully completing the rigorous certification process demonstrates VIVA's effort to safeguard the information assets and intellectual property of our company and our clients. ISO/IEC 27001:2013 specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system within the context of the organization. It also includes requirements for the assessment and treatment of information security risks tailored to the needs of the organization.'

## Du Steps up Payment Gateway Security

UAE-based telecom provider Du has increased the security of its payment gateway with Payment Card Industry Data Security Standard (PCI DDS) compliance. This certification enables Du customers to process their payment transactions and cardholder data more securely than ever before. "PCI-DSS Compliance enables Du to tighten its already stringent security processes and procedures to offer customers peace of mind when processing online and remote payment transactions. This innovative operational software will benefit organizations across the UAE, accepting or processing payment transactions," said Fahad Al Hassawi, chief commercial officer, Du.

"Our customers' happiness and safety is our biggest concern and we continue to further develop our services and solutions to ensure transactional accessibility and security." "Maintaining payment security is a serious business and it is vital that every entity is responsible for their security of cardholder data and follows the PCI Data Security Standards," said Dr Kamran, Principal Consultant at UK-based GRC360, the PCI DSS Qualified Security Assessment Company who awarded the PCI DSS certificate to Du. The Payment Card Industry Data Security Standard (PCI DSS) applies to companies of any size that accept credit card payments. If companies within the UAE are looking to accept card payments, and store along with transmitting the cardholder data, they need to host their data securely with a PCI compliant hosting provider like Du. PCI DSS is a proprietary information security standard for organizations handling branded credit cards from the major card schemes including Visa, MasterCard, American Express, Discover, and JCB. The security standards set the operational and technical requirements for organizations in accepting or processing payment transactions, and for software developers and manufacturers of applications and devices used in those transactions.

![Omantel logo]

# Omantel Launches First Omani Open e-learning Platform Edlal

Omantel, the sultanate's most trusted telecoms provider, in partnership with 'Rudha' and 'Point' celebrated the launch of the first Omani open e-learning platform 'Edlal', in the presence of a large number of people interested in entrepreneurship and CSR and media representatives in Oman. The event highlighted visions and plans of the project in the coming stages, which will contribute towards



growing a knowledge-based economy built on innovation, engagement and new technologies. Laila Mohammed al Wahaibi, CSR manager, Omantel, said, "We are very proud today to launch Edlal, which is an innovative platform designed to share experiences, knowledge and skills between experts and young people. "This knowledge-based platform aims to contribute in preparing young Omanis to join the workforce by equipping them with the required skills and knowledge for the market. It also plays a role in enhancing the Arabic language content on the Internet with timely and reliable information. "On the other hand, the Edlal platform will contribute in highlighting young Omani talents, and present them to the Arab world. At Omantel, we are fully aware that the future will largely depend on innovation in information technology, which has been part of all aspects of our lives. Edlal will enhance youth capabilities and equip them with the needed skills to achieve success." Mohammed Salim al Wahaibi, CEO of Rudha Oman, said that Edlal will be one of the solutions to

enhance youth skills by focusing on areas that are important for the job market. He said, "The vision of Edlal is to help equip Omani youth with the necessary skills to enter the job market and to make the latest and best-practice learning materials in Arabic language available. "The materials on the platform focus on entrepreneurship and knowledge-based economy drivers, including majors in programming, computer science, economy and administration, among other relevant subjects. We expect that the platform will see a large turnout from the youth looking to boost its knowledge and skills in a way that they will benefit from in the future. "The platform is built to share knowledge, promote its utilization and the development of young talents to equip them for the future through video clips backed with features that contribute in making educational material fun and enriching for all. We are targeting from this platform knowledge seekers and students of universities and colleges as well as entrepreneurs and job seekers. The Edlal platform will contribute in highlighting the sultanate as a source of Arabic content knowledge and aspire to be the pioneers in this area. Laila added, "Omantel's 3.0 transformation strategy was launched at the beginning of 2016 and it aims at bridging the digital divide across all segments of society in the sultanate. With this goal in mind, we partnered with Rudha and Point to launch the Edlal platform, which will

translate Omantel's strategy in reality and contribute in equipping today's youth with the required skills to make their way in the future and for the nation to achieve sustainable and continuous development. "Omantel staff will participate in the Edlal platform by providing a range of practical workshops and seminars to enrich them by experiences of those employees in several areas of leadership, management and specialist technical areas in the telecommunications sector." Highlighting the essential partnership which underpins the success of Edlal, Wahaibi added, "Omantel is one of the leading companies that support innovation in the sultanate. We are pleased to partner with Omantel in this ground-breaking project, which will allow us to offer greater opportunities for the Omani youth to achieve success and develop their knowledge and skills, for the betterment of everyone in the sultanate. "Oman is considered as one of the nations with the highest percentage of youth among the general population, and with Edlal, we work to develop this enormous potential in the best possible way." One of the significant added features for Edlal is that it presents knowledge content in Arabic, which is important as it is trying to solve a vital weakness in the scarcity of Arabic e-content in the Middle East generally, which does not exceed three per cent, according to an international study in this field. Edlal approves Arabic as the main language of the platform which is an added feature, increasing the importance of this initiative and enhancing the levels of participation by Omani youth, while at the same time highlighting the Omani contribution in boosting the Arabic content on the Internet. Joining hands with the community is an integral part of Omantel's strategy to achieve success, while investing in social development is an integral part of achieving economic success for everyone in Oman. Therefore, the company has through the years consistently allocated part of its annual budget for CSR, which is selected carefully to ensure sustainability of the institutions in need. In 2016, Omantel's CSR investments exceeded RO2mn.

## Orange Business Services Strengthens Cloud Strategy

Orange Business Services is accelerating its international cloud strategy with a new global public cloud offering that includes advice, auditing, integration and managed services for cloud infrastructure and applications. The services, delivered in partnership with Huawei, complement the existing Orange private cloud portfolio and will help enterprises in their digital transformation initiatives. The principal aim of the international cloud strategy is to help multinational corporations (MNCs) migrate their legacy enterprise applications to the cloud and ensure that their infrastructure and applications are available in all geographic regions in which they need to be hosted. The new cloud services will roll out across Western

Europe and Southeast Asia in April 2017, followed by the US in October 2017. The Middle East and Africa are scheduled for 2018. The partnership with Huawei capitalizes on the strengths of OpenStack technology, an open-source software platform for cloud computing. Open standards and interoperability are key to meeting the demands for large, scalable public cloud solutions by delivering economies of scale and avoiding the danger of proprietary lock-in. Orange has partnered with Huawei because it is a leading player in the OpenStack arena and at the epicenter of the platform's ongoing development. The new public cloud services will complement the existing Orange private cloud portfolio.

This provides a further opportunity to provide high-performance integrated hybrid cloud services. To guarantee maximum levels of security of their cloud infrastructure, customers will be able to rely on the services and expertise of Orange Cyberdefense. In terms of service delivery, Orange will provide the data center facilities, network and security infrastructure, customers' infrastructure and applications management, and professional services to support cloud migrations. Huawei will provide the hardware, develop the technology platform and OpenStack OS, and provide level-three support.
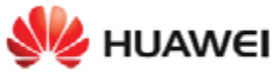
## GBI Seminar Equips Team with Career-advancing Tools for Performance Edge, Leadership Success

GBI, a global shared and managed services provider that owns and operates a multilayer carrier neutral network bridging the world to the Middle East, hosted a leadership development workshop for its team that addressed the team's dynamics and different personalities styles, and identified development strategies within the context of the company's needs. Amr Eid, Chief Executive Officer of GBI, said, "Our people are our greatest asset and we are determined to continue to inspire, nurture and attract talent. Being on a transformational journey, it is essential for our organization to gain insight into how to establish team cohesion and effective action plans when adapting to the changing corporate landscape. I am confident that our agility and adaptability will help build future leaders." The workshop called "Awareness to Action Personalities @Work Workshop" was conducted by two executive coaches from Awareness to Action International

(ATAI) - Mario Sikora, President and Tamer Zanaty, VP, Global Strategy and Business Development and head of Middle East Operations. The two-day event demonstrated the impact of different personality styles on leadership and teamwork and how the understanding of those personality styles can be used to improve individually and collectively. The next phase of the workshop will see the team in action as GBI plans to bring its leadership team for a "strategy workout session." Mario Sikora said, "At Awareness to Action International we are always excited to work with dynamic and fast-growing companies like GBI." He added, "During the Personalities @at Work program, the GBI leadership team demonstrated why they will continue to be successful. They showed intelligence, a bias for action, and a hunger for meaningful insights and cutting-edge leadership knowledge. We are proud to be partnered with them in their efforts to

continue to be the best at what they do." Tamer Zanaty said, "The Personalities @ Work workshop delivered to GBI's Leadership team is the first ATAI project in the Middle East to be considered as that is part of a long-term strategic partnership with leadership teams in this market". Tamer added, "The world is going through unprecedented changes - and this region is not an exception. There are major challenges that are facing leadership teams everywhere, but they can represent new and exciting opportunities for those with the adaptability and leadership skills to capture them. At ATAI, we are focused on helping our clients prepare by developing their leadership teams with our unique Awareness to Action Leadership Model, a model that weaves together the most useful insights from cognitive and evolutionary psychology; time-tested leadership and management practices and personality studies."

# Huawei Defines ROADS to Value-Driven New Growth

At Mobile World Congress 2017 (MWC 2017) which officially kicked off today in Barcelona, Spain, Huawei is leading a number of activities including joint exhibitions, keynote speeches and industry forums, under the theme of "Open ROADS to a Better Connected World". During the event, more than 100 operators and partners from around the world will demonstrate new innovations and ideas jointly developed with Huawei. The company is also engaging in a dialogue with industry partners about the

driven" business model, where they are prioritizing the user experience, and the delivery of innovative services and greater value to their customers. Huawei helps its carrier customers maximize the value of their existing networks to drive greater efficiency, increase revenues, and sustainable business growth. Moving forward, Huawei will help operators leverage their strengths in data transmission to expand into new areas, such as offering video as a basic service, and cloud services to enable other

and strive to become their business partner." To fulfill its mission of "Building a Better Connected World", Huawei is encouraging the industry to adopt a Real-time, On-demand, All-online, DIY, and Social (ROADS) experience as a key standard for success in digital transformation. The company has helped advance the industry's digital efforts firstly on technology and architecture, then to the user experience, and now to the commercial value of digitization.

future of the telecoms industry and best practices to help operators achieve new value-driven growth.

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

To compete in this new era, global operators are shifting from an "investment-driven" to a "value-

industries, opening up new opportunities in markets worth trillions of dollars.

To help operators lead in the digital age, Huawei is also delivering All Cloud solutions, enabling them to transform to a dynamic and on-demand approach that will allow them to rapidly expand and meet customer demands. Huawei is dedicated to working with partners to build a sustainable digital business ecosystem.

Huawei deputy chairman and rotating CEO Eric Xu said, "Huawei has remained customer-centric for many years. We create solid value for our customers

At its main exhibition booths, Huawei will showcase its growth plans, business models and latest developments in themed areas: 'Maximizing Network Value', 'All Cloud to Support 5G', 'Agile Digital Operations' and 'Cloud-based Digital Services', including a complete range of All Cloud solutions (All Cloud core/wireless/bearer network solutions etc.). Furthermore, customers and partners can visit the Huawei Consulting & Services VIP Showcase, Digital Transformation Dialog Center, Innovation City Exhibition and the Huawei Consumer Area to exchange views with Huawei or to experience Huawei's products and services.

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# Batelco Group Announces 2016 Financial Results -Profits of BD37.6 Million (US$99.7 Million)

Batelco Group, the regional Telecommunications Group with operations across 14 countries, today announced its results for the twelve-months ended 31 December 2016 ("the year"). Despite competitive pressure, the Group grew its customer base to 9.4M, an increase of 4% over the previous year.

**Financial and Operational Highlights**
- Gross Revenues of BD367.1M (US$973.7M) for the year;
- EBITDA of BD135.2M (US$358.6M) representing a 37% margin;
- Consolidated net profit of BD37.6M (US$99.7M) for the year;
- Markets outside of Bahrain contribute 59% of revenues and 52% of EBITDA;
- Subscriber base of 9.4 million, an increase of 4% YoY;
- Substantial cash and bank balances of BD172.4M (US$457.3M); and
- EPS of 22.6 fils and recommended dividends of BD41.6M (US$110.3M) for the full year, equivalent to 25 fils per share, marking the Group's ongoing ability to deliver strong value and returns to shareholders.

For the full year 2016, Batelco Group reported Gross Revenues of BD367.1M (US$973.7M), a marginal decrease of 1% over the prior year. Q4 2016 Gross Revenues showed a 1% improvement on the fourth quarter of 2015 and 4% improvement over Q3 2016 despite competitive pressures across the Group.

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EBITDA for the year was BD135.2M (US$358.6M), a decline of 2% year over year. EBITDA decreased by 3% in the fourth quarter of 2016 compared to Q4 2015 and 12% since Q3 2016. The Group continues to concentrate on its cost containment programmes and sustained a robust EBITDA margin of 37%.



**Shaikh Mohammed bin Khalifa Al Khalifa**
Chairman
Batelco Group



**Ihab Hinnawi**
CEO
Batelco Group

Results from operating activities for the year were BD65.4M (US$173.5M), reflecting a 7% decrease year-over-year and 8% decrease QoQ compared to Q4 2015. This decline is attributed to increased depreciation charges for higher capex as a result of significant network expansion throughout the Group.

The Group ended the year with Net Profit of BD37.6M (US$99.7M) compared to BD49.5M (US$131.3M) reported in 2015, a 24% year over year decline. Q4 2016 net profit reported a decrease of 40% over Q4 2015 and 47% over Q3 2016. The reduced net profits for the period are mainly impacted by an impairment loss on goodwill related to the Group's operation in Jordan.

The Group's balance sheet and financial position remain resilient in spite of the difficult operating environment. As of 31 December 2016, net assets were BD537.0M (US$1,424.4M) with substantial cash and bank balances of BD172.4M (US$457.3M). Earnings per share for the full year in 2016 stood at 22.6 fils, compared with 29.8 fils reported in 2015.

The Group also reported that the Board of Directors would recommend to the Annual General Assembly of Shareholders a full year cash dividend of BD41.6M (US$110.3M), at a value of 25 fils per share, of which 10 fils per share was already paid during the third quarter of 2016 with the remaining 15 fils to be paid following the AGM in March.

Batelco Group's new Chairman Shaikh Mohammed bin Khalifa Al Khalifa, who was appointed in December 2016, announced the 2016 financial results following a meeting of the Board of Directors on 22nd February at the Group's Bahrain Headquarters.

Shaikh Mohammed began by extending grateful appreciation to Shaikh Hamad bin Abdulla Al Khalifa, Batelco's Chairman from 2006 until December 2016, stating that Shaikh Hamad's vision and dedicated leadership was unmatched and all at Batelco Group are indebted to him.

"We owe Shaikh Hamad our sincere thanks for his efforts which saw Batelco grow from a regional operation into an internationally reputed organisation and a leader in the local communications industry."

Shaikh Mohammed also stated that he was honoured to join the Batelco Board of Directors as its Chairman and looked forward with enthusiasm to working closely with both the Board and executive management to push forward with strong strategic plans designed to meet the specific requirements of each of the Group's operations in addition to well-considered plans that encompass the Group as a whole.

"Market conditions in Bahrain and across a number of the Group operations are challenging due to the world's economic climate in general and also due to the vibrant nature of the communications industry which is experiencing a powerful shift as all players strive to gain a strong foothold in the world of digitisation," said Shaikh Mohammed.

"However, in spite of decreased profits, we are encouraged to note that subscriber numbers are up by 4% over Q3 2016 and YoY. The upswing in customer numbers is attributed to our investments in new networks including fibre and our efforts to strengthen our digital solutions portfolio. We are responsive to changes in our environment which helps us shape a flexible and sustainable business model and accordingly, we are optimistic that our subscriber base will continue to grow and ultimately boost the bottom line as a result of our plans going forward."

"Throughout the Batelco Group, our aspiration is to achieve operational excellence. That is central to our goal to drive sustainable revenue growth and deliver value for our stakeholders," Shaikh Mohammed added.

**Group Operational Review**

Batelco Group CEO Ihab Hinnawi stated that competitive pressure and the conversion of growing demands into enhanced revenues combine to challenge the Group daily.

"However, the outcomes of Batelco Group's operations are far reaching and not only financial as across the Group each operation adapts to market trends in order to make the right investments and deliver the products, services and solutions that their customers demand. We create possibilities by delivering the most up to date services and solutions in each market of our operation, enabling the best-in-class connections and delivering the best value for individuals and businesses. We want each of our customers to enjoy an incomparable service experience wherever they are located," he said.

"To attain our goals we are focussed on a number of key pillars such as the development and growth of our Digital Solutions throughout the Group, improving the efficiency of our Op-Co's and the training and development of our own people to ensure the skills sets we need going into the future are readily available."

During 2016, we continued to invest in strategic projects across our different operations such as our Mobile Network expansion, acquiring 4G licences and rolling out 4G solutions and unified communications. The results of our investments mean that our main operators can provide end-to-end communications solutions for all sectors of customers," Mr. Hinnawi added.

**JV Highlights**

At year-end 2016, 59% of revenues and 52% of EBITDA were sourced from overseas markets compared to 59% of revenues and 55% of EBITDA in 2015. Overall performance across the Group was supported by increased customer numbers in the majority of the Group's operations.

Jordan – Umniah: Umniah continues to be impacted by the difficult operating environment in Jordan due to high taxes and increased utility charges. In addition, the company's competitors launched their 4G network ahead of Umniah which resulted in reduced mobile subscriber numbers for the year 2016. The company ended the year with a mobile subscriber base of 2.8 million, 12% lower than the prior year. However, Umniah's fixed broadband subscriber base made significant gains throughout the year with a 24% year- over-year increase.

Kuwait - Quality Net: Batelco Group holds a 90% shareholding in Qualitynet, which remains the clear market leader in the fixed Data Communications and Internet Services industry in Kuwait. The company was able to retain its broadband market share despite tough competition from fixed and wireless service providers.

Maldives - Dhiraagu: Dhiraagu ended 2016 with strong financial results driven by roaming, mobile data and enterprise data growth. Dhiraagu has pursued its network expansion and coverage enhancement, ending the year with widest 3G and 4G coverage in the Maldives. The company also announced the nationwide rollout of 4G coverage in line with its aim to improve customer experience and provide the best value propositions. Fibre broadband rollout continued with services launched in additional islands, offering the fastest broadband speeds in the country. Both mobile and broadband

subscribers witnessed a 7% and 13% increase year-over-year respectively. Channel Islands & Isle of Man – SURE: 2016 has seen continued significant investment in SURE's 3G and 4G mobile networks across the Channel Islands and Isle of Man, which has delivered enhanced indoor penetration and coverage whilst also improving uplink and downlink speeds for customers. The fixed broadband network in Guernsey has also been greatly enhanced with a record number of access nodes being deployed. Subscriber numbers continue to grow with 1% and 3% year-over-year increases in mobile and broadband subscribers respectively.

SURE and the Batelco family were saddened that Eddie Saints, Chief Executive Officer of SURE (CIIM), passed away suddenly in early January 2017. Eddie had been CEO since 2008 and made a significant and long lasting contribution to the company. He will be sorely missed by SURE, Batelco and across the wider business community in the Channel Islands and Isle of Man.

South Atlantic & Diego Garcia – SURE: It has been a challenging year for Sure S&D due to the end of the oil exploration phase in the Falklands, the delay in the launch of commercial flight operations in Saint Helena and an overall reduction in visitors across all operations. Despite the recent challenges, the South Atlantic businesses were able to grow mobile and broadband subscribers by 26% and 3% YoY respectively.

Other JVs: Sabafon, in which the Group has a 26.94% shareholding, was able to grow its subscriber base by 17% year over year despite the difficulties operating in an environment with increased political challenges. Atheeb, in which Batelco holds a 15% stake, reported an impressive 102% YoY improvement in subscriber numbers.

**Batelco Bahrain – Investing to Deliver Superior Solutions**

Batelco Group CEO Ihab Hinnawi continued by stating that Bahrain remains at the forefront of digital communications in the region with a vibrant internet economy supported by the progress that Batelco is making in the field of digitisation.

"In spite of operational difficulties due to the overcrowded communications market in Bahrain, Batelco has not stopped with its bold plans to deliver Fibre access to all areas of Bahrain, always keeping in mind the aspirations of the Kingdom's leadership and the 2030 vision to ensure internet connectivity for all residents."

"Demand for fibre and its adjacent services is strong and our teams are working at full capacity to meet the huge number of orders for faster speeds and higher capacity that suits the ever growing usage of OTT applications."

"Our investment in new networks continued during 2016 to deliver the most reliable cutting edge technology including the first in Bahrain 500Mbps Broadband, to ensure superior customer experience. The service, over our fibre networks, features the highest dedicated, superfast download speed in Bahrain," Mr. Hinnawi said.

Another major achievement during 2016 was the launch of Bahrain WiFi which provides WiFi access at all major public locations throughout Bahrain. The launch demonstrates Batelco's commitment in developing relevant Smart City solutions and further supports Bahrain's vision to be a leading regional communications hub.

Batelco additionally built on its Cloud Services portfolio by launching a number of new solutions throughout the year and established new partnerships with well-known

security providers to meet the specific needs of different organisations and implement scalable, flexible and cost-effective security solutions.

"Mr. Hinnawi also said that in line with its Global provisioning goals, Batelco Bahrain completed a major global network expansion project which will serve to ensure network diversity, avoid single points of failure, provide better country resiliency, and efficiently use international capacities. These aggressive expansion plans allowed Batelco to deploy new Points-of-Presence (PoPs) around the world.

"We understand that the availability of full digital services will enable a superior customer experience and offer a new set of customised and innovative services and solutions. During 2017 we will continue to focus on delivering top quality products, services and solutions for both the business and consumer sectors, with all our products and services intended to improve people's lives in welcome, relevant and affordable ways," Mr. Hinnawi added.

**A Year of Achievement**
Across the Group, Batelco's operations added major achievements to their list of successes and additionally were recognised for their efforts through winning a raft of internationally regarded awards.

Umniah, Jordan, was the winner of the tender for the Ministry of Education National Project, one of the biggest tenders in Jordan issued by the Ministry of Education. The project will see Umniah connect all public schools through their Managed Data Services including fibre network and microwave services. Both Batelco in Bahrain and Umniah in Jordan were recognised by Speedtest by OOKLA for their outstanding performances, with Batelco named Bahrain's Fastest Mobile Internet provider and Umniah as Jordan's Fastest Mobile Network. Speedtest by OOKLA is

the global leader in broadband and mobile speed testing and web-based network diagnostic applications.

Quality Net took home the award for Best Digital Experience in the Middle East region at the 5th Annual Customer Experience Management Summit in Telecoms, and at the Arabian Business Awards, Quality Net was named Kuwait's Best Internet Services provider.

In Bahrain, Batelco became the first telecommunications company in the Middle East to be awarded with ISO 9001:2015 certification from the BSI Group (British Standards Institution). Batelco also has the honour of being the first company across all industries in Bahrain to achieve this standard.

Outside of the Middle East region, SURE celebrated a decade in Jersey, having reached 10 years since the launch of its first high street store there in 2006.

Furthermore, Batelco's commitment in upholding sound corporate governance principles was recognised by World Finance who announced Batelco as the winner of the Best Corporate Governance award for Bahrain for 2016.

**Supporting our Communities**
Batelco Chairman Shaikh Mohammed continued by stating that alongside Batelco's investments that support the economic growth and development of the Kingdom of Bahrain, that the Company also invests in the local community through a highly reputable Corporate Social Responsibility programme.

During 2016 over BD1.6 Million was committed as part of Batelco's CSR programme with the aim of making a positive difference in the lives of all citizens. Among the sponsorships for 2016 was the Ironman 70.3 Middle East Championship, as part of Batelco's commitment to Sports

events. Extensive support is also given to Health, Education and Arts/Cultural programmes. Among the Health initiatives is annual support provided to Shaikh Mohammed Bin Khalifa Bin Salman Al Khalifa Cardiac Centre. The Crown Prince Scholarship programme is a major annual benefactor under the Education umbrella while Batelco's annual support towards Arts/Cultural initiatives includes support for the Bahrain Historical & Archaeological Society.

**Looking Forward**
Before concluding the meeting, Shaikh Mohammed extended his appreciation for the warm welcome and messages of support that he has received from the Board of Directors, management and staff throughout the Group.

The Batelco Group's executive teams and strong network of employees across all markets are the heart and soul of the organisation and their enthusiasm and commitment deserves much praise," he said.

"I am confident that all teams are fully prepared with solid plans in place to face all operational and competitive challenges in the months ahead of us. While we have a number of strategic plans that cross the whole Group, each operation also has specific plans in place to cater to the unique needs of its customers and geographic locations. In the Batelco Group, we operate globally in order to deliver locally," noted Shaikh Mohammed.

Going forward, our objectives are geared towards making substantial progress with our strategic plans in order to exceed customer expectations and enhance their experience while boosting profitability and positioning Batelco Group as a top tier and leading integrator of digital solutions in its chosen markets.

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## REGIONAL NEWS

# Mobile Technology Providing a Boost to Pakistan's Economy

Mobile phones market has been expanding ever further in Pakistan giving the economy a much needed boost. The users flock to the markets to buy new mobile phones due to the ever-changing designs and features, reported Dunya News. Pakistan is considered one of the biggest cellular markets in the world.

With mobile phones being imported worth around 750 million dollars every year, the nation is rightly called a cell phone crazy nation. Due to the selfie and video chatting fever, the phones are being sold in larger numbers now. New companies are also considering introducing their brands in Pakistan due to the ever-rising

demand. Experts say that the government can improve the investment opportunities in this sector by lowering the taxes and stopping smuggling. Moreover, the prices of the mobile phones will also come down when manufactured and assembled locally.

# UAE Telecom Firms Overcomes Challenges, Rise in 2016

The profits of listed telecom companies on the Dubai Financial Market (DFM) and Abu Dhabi Exchange (ADX) increased by 3.4% in 2016, backed by higher revenues. Net profits of Etisalat and du reached about AED 10.36 billion ($2.82 billion) in 2016, up from AED 10.016 billion ($2.73 billion) in 2015. The sector's total revenues rose by 2.3% last year reaching AED 65.08 billion, compared to AED 63.66 in 2015, according to Mubasher statistics. On the fourth-quarter level, the telecom firms' profits retreated 15.6% to AED 2.59 billion compared to AED 3.07 billion in the year-ago period. The financial results of UAE telecom firms are "good," especially amid

the currencies' fluctuations and the fierce competition after some customers tend to seek free calls through applications and programmes available online, technical analyst Amer Al Mohanady told Mubasher. Emirates Integrated Telecommunications Group (Etisalat) posted net profits of AED 8.42 billion attributable to shareholders in 2016, up 1.9% from AED 8.26 billion in 2015. The group's consolidated revenues increased by 2% to AED 52.36 billion in 2016, compared to AED 51.33 billion in the previous year. This was due to stronger performance from domestic operations, as well as Maroc Telecom's operations. Etisalat's revenues grew

by 5.5% on the back of higher revenue from data services, a wider customer base of broadband usage, and increased offering of business solutions, digital, and ICT services. Moreover, du generated profits of AED 1.75 billion in 2016, down 9.8% from AED 1.94 billion in 2015. The company's revenues rose by 3.16% to AED 12.72 billion in 2016, compared to AED 12.33 billion in the previous year. Al Mohanady added that despite the rising challenges in the sector, it is expected that both companies will see good annual profits through the continuation of a specific strategy for distribution, which may attract more investments.

# PTCL Partners with Icflix



The streaming service, Icflix, has partnered with PTCL to provide high-quality entertainment on PTCL Smart TV in Pakistan. Launched in 2012, Icflix is a Middle Eastern and North African (MENA) streaming and video-on-demand (VoD) platform. The company provides access to unlimited movies, TV series, documentaries and cartoons from Hollywood, Bollywood and Jazwood (Arabic). The users can enjoy the content in English, Arabic and French

languages. Icflix first partnered with the largest telecom and entertainment service provider of Pakistan, Pakistan Telecommunication Company Limited (PTCL) in 2014. Now the PTCL customers will be able to enjoy superior viewing experience on their Smart TV. The pioneer IPTV (internet protocol television) service of Pakistan, Smart TV, offers hundreds of TV channels and entertainment content in 150 cities of Pakistan. Smart TV delivers DVD quality television programs to households via a broadband connection and requires a subscription and a set-top box. It has features such as recording, pausing, rewinding, parental lock, search, etc. PTCL's Smart TV Mobile Application was nominated for the GSMA Global Mobile Awards (GLOMO) 2016 in the 'Best Mobile App (Media, Film, TV or Video)' category. Amine Lalami, Chief

Commercial Officer, Icflix, said, "We are excited at strengthening our partnership further with PTCL and look forward to providing high-quality movies and TV shows to Pakistani consumers," Adnan Shahid, PTCL Chief Commercial Officer, added, "We are excited with our ICFLIX partnership. Digital entertainment is PTCL's key priority and our partnership with ICFLIX is another step in this direction. We look forward to working with ICFLIX to offer world-class content to our customers in Pakistan." More and more entertainment service providers are finding their ways into Pakistan's markets. PTCL signed an agreement with world's leading television network, Netflix, last year. iFlix, Malaysian-based Netflix's competitor, also made a debut in Pakistan earlier this year.

# UAE's 5G Deployment by 2020 to Impact Every Sector

With the imminent arrival of 5G in the UAE, a time will come when these two sentences will be nothing more than a painful memory of the past, experts reassure. 5G is all about "ubiquitous computing", says Dr Ahmed bin Ali, senior vice president of corporate communication at Etisalat. What this means is that users will have the ability to access applications from any platform, anytime, and anywhere. It is the next step in the evolution of high-speed mobile broadband services, shaping the environment for growing the Internet of Things (IoT) and for smart cities to become a way of life for end users. Etisalat completed the Mena region's first 5G mobile technology live trial during Gitex 2016; the trial offered a peak speed of 36 gigabytes per second. In the lead up to the deployment of 5G in the UAE by 2020, Etisalat aims to build an infrastructure that will be one of the smartest, fastest and the best for



the global event. "Our field test in October last year is a significant step in validating the performance of 5G in high frequency bands," said bin Ali. "It has refreshed Etisalat's understanding to the capabilities of the technology, which Etisalat believes will deliver capacity and connectivity beyond anything we've even come close to today. The new 5G network will help Etisalat cope with the massive digital content explosion anticipated in the next few years." He elaborated that 5G technology

provides benefits on both the device and the network for subscribers. The efficiency in the 5G network will allow lower consumption of energy than what is used in 4G networks. There will be more disruptive capabilities on the network and the service level, improving services in terms of capacity, accuracy, reliability, availability and simultaneous connectivity among many devices. There is longer battery life for 5G based sensing devices that also consume less energy. 5G deployments will positively affect virtually every industry sector, with manufacturing set to see the largest share of 5G-enabled economic activity in 2035, a new study has revealed. Commissioned by Qualcomm Technologies, the study titled 'The 5G Economy', examines the potential economic and social impact of 5G around the world. According to the study, in 2035, when 5G's full economic benefit should be realized across the globe, a broad

range of industries - from retail to education, transportation to entertainment, and everything in between - could produce up to $12.3 trillion worth of goods and services enabled by 5G. Manufacturing will account for almost $3.4 trillion or 28 per cent of the $12.3 trillion in sales enablement. The study also found that 5G is expected to create 22 million jobs by 2035. In addition, the 5G value chain will invest an average of $200 billion annually to continually expand and strengthen the

5G technology base within network and business application infrastructure. "5G is definitely a new technology that will provide multiple use cases and will utilize a set of new technologies, including a new radio access technology, to cater for such use cases," noted Marwan Bin-Shakar, vice president of mobile access network and operations at du. However, he added that it is important to note that the 4G LTE will continue to evolve from today till beyond 2020 and will indeed be the main stream technology by 2020, until the introduction and commercialization of the 5G at a later stage. "Currently, we are at the stage of definition of technical performance requirements, evaluation criteria and methods, and submission templates. Next phase would be the submission of proposals for evaluation," BinShakar said. "At du, our experts have been working closely with all our technology partners, infrastructure vendors and standardization bodies to help shape, and clarify the 5G network requirements from now - especially from an operator perspective." Last year, the International Telecommunications Union (ITU) approved du's submitted contribution regarding 5G standardisation, titled 'Proposal to launch the 5G studies in SG13'. The contribution outlines du's research on the basic and most important requirements for the road to 5G, its current candidate technologies and architectures, and the concerns and issues that the telecommunications provider foresees with all the highlighted candidate technologies and architectures. Du also recently announced the establishment of UAE 5G Innovation Gate (U5GIG), which has been envisioned to be a consortium of technical and academic organizations in the UAE, as well as global telecom vendors to plan and use their expertise to define and develop a global 5G network that will radically change lives across the UAE. "We are taking the lead to build a UAE 5G Innovation Lab to prototype, test and validate early 5G and IoT equipment and services. U5GIG will also allow universities and technical organizations across the UAE to work together and participate in the development of the 5G ecosystem, and for academia and industry to test applications and technologies in a real-world setting," said BinShakar.

## Transpay Adds Global Payouts to Morocco



Transpay, a B2B/B2P cross-border payments platform, today announced that its service offering had expanded to include direct-to-bank deposits in Morocco. Transpay clients are now able to send local currency payments to individuals' bank accounts in Moroccan dirham (MAD). With one of Africa's highest internet penetration rates, Morocco is a burgeoning digital market for the freelance, travel and ecommerce industries. The export market for craftwork, valued at more than $41.5 million USD in 2014 according to the Financial Times, continues to grow as sellers leverage online marketplaces offered by Moroccan National Federation of e-commerce (FNEM), as well as private companies. "The efforts of both the private and public sector are helping to create the necessary infrastructure to grow the digital economy to Morocco," says Samish Kumar, CEO of Transfast, the parent company Transpay. "The addition of dirham payments by Transpay enhances these efforts by enabling a freer flow of funds into Morocco, fostering and supporting entrepreneurial growth." Through Transpay, businesses are able to send mass payouts to any bank in Morocco without the high fees and inefficiencies associated with traditional cross border payments. Moroccan dirham is now an available payout currency across the Transpay suite of products, including the MassPay API. Since 2012, Transpay's solutions and proprietary bank network have provided businesses with an alternative payment method for sending funds across 120 countries and 60+ currencies.

## E-commerce Becomes Popular in MENA

With the advancement in technology and due to the immense popularity of the Internet in the Middle East, businesses in the region need to invest in technology and to come up with innovative ideas to help boost the growth of e-commerce. Of the 246 million people living in the Middle East, 60 percent (147 million) have access to the Internet — up 15 percent from 2016 — 34 percent (93 million) are active on social media, representing a 47 percent year-on-year rise, and the mobile subscriptions in the region have reached 312 million. The statistics were revealed in a study conducted by Hootsuite and We Are Social. The study said that consumers in the region now demand online solutions they can access through their mobile phones on social media platforms — and the financial sector in particular needs to invest in the appropriate technology or risk being left behind. Chris Fountain, managing director of Turret Media, organizers of MEFTECH 2017, said: "The rise in digital use in the Middle East should not surprise anyone, but I think most people would be surprised at just how sharply it is rising and the figures on mobile use in the Gulf Cooperation Council (GCC) are quite incredible." Globally the amount of web traffic on mobile devices has soared in recent years, with just over half (50.3 percent) now being accessed this way, a significant rise from 2013 (35 percent) and from the first figure recorded in 2009 of 0.7 percent. The research also revealed some startling findings on e-commerce, with 1.61 billion people buying stuff online in 2016 (22 percent of the global population). This equated to a total business to consumer market of $1.915 trillion last year, $1,189 on average per person. The number of people using online shopping portals is also increasing in the region. In the United Arab Emirates (UAE) 62 percent of people have bought something online in the last month, a 25 percent year-on-year rise and 47 percent made a purchase using their mobile phones during the same period. In Saudi Arabia, 39 percent people have made online purchases, an increase of 57 percent from last year and 33 percent bought things using their mobiles, said the report. "What will be of particular interest to the financial sector and more specifically to those involved in financial technology is the huge rise in e-commerce. These figures highlight just how important it is that banks and other financial institutions are investing in the right technology that allows their customers and potential customers to carry out their transactions when and where they want. The firms who do not adapt and invest risk being left behind," Fountain said. The report also revealed interesting figures from the more affluent nations in the GCC



with 99 percent of people in the UAE using the Internet, 70 percent in Saudi Arabia and 93 percent in Bahrain. Qatar and the UAE have the highest social media penetration in the world (both 99 percent), while Saudi Arabia has seen the highest growth in penetration with a 73 percent rise resulting in 59 percent of the Saudi population using social media platforms. Highlighting the importance of MEFTECH 2017, to be held in Abu Dhabi in March, Fountain said that the event would showcase various innovative technologies, such as Facebook Finance.

# Sharjah Placed 6th Globally in Connectivity

An independent survey covering the most powerful and dynamic global economies has placed Sharjah (UAE) as one of the top 10 cities in the world for connectivity. The city is ranked sixth and this reflects its superb regional infrastructure and attraction as a business destination for foreign investors, said a statement. According to the report, the top 10 cities for connectivity are: 1. London, 2. Singapore, 3. Hong Kong, 4. Amsterdam. 5. Paris, 6. Sharjah, 7. Frankfurt, 8. Manchester, 9. Miami, and 10. Dubai. Announcing the findings, Sharjah Investment and Development Authority (Shurooq) said the key connectivity criteria were internet penetration and the capability and ease of movement of goods, areas in which Sharjah has made unprecedented progress. Having established itself as an essential Middle East hub of modern continental trade, the report, conducted by FDi Intelligence Magazine, a division of London's Financial Times, concluded that Sharjah's logistics, seaports and airport capabilities had the qualities and capabilities to secure them a place in the leading global connectivity cities. In terms of internet speeds and use, Sharjah scored highly due to the concerted and consistent efforts to increase access and penetration. The latest statistics show that 71 per cent of the population use the internet, the statement said. Mohammed Al Musharrkh, director of the Sharjah FDI Office (Invest in Sharjah), said: "This is a great endorsement of the strides Sharjah has made in recent years and the progress that we continue to make in terms of internal achievements and international investments. Connectivity is the cornerstone of good business and with the right infrastructure in place, the world becomes a more accessible market and Sharjah plays a more influential role." In international infrastructure and logistics facilities, with 29 scheduled airlines, and direct connections to more than 65 destinations around the globe, Sharjah International Airport is the second largest air freight hub in terms of cargo tonnage in the Middle East and is ideally placed both strategically and geographically to connect East and West. It is also a gateway to the northern emirates, with access to vital emerging markets such as India, Iran, Iraq and Saudi Arabia. The emirate also has three deep-water ports, providing vital access to the Indian Ocean and the Arabian Gulf. Port Khalid, Hamriyah Port and Khorfakkan Port have a combined capacity of 2.4 million containers and are fully equipped to handle a wide range of vessels, from break-bulk to containers. They have attracted a growing number of shipments to and from East Asia and the Gulf Region. The emirate's Hamriyah Free Zone, Sharjah Airport International Free Zone and Sharjah Healthcare City also offer a business-friendly environment and connectivity through their locations and the opportunity of 100 per cent foreign ownership, it said.

# Pakistan Set to Enter Digital Revolution with Smartphones

Pakistan is undergoing a digital revolution as the number of active users of social media is fast on the upward trajectory in today's digitized world especially in the country, according to a recent research published on a social media website. According to a research study published by social media website Hootsuite, from January 2016 to the same month 2017, number of the active social media users burgeoned with staggering 35 percent that amounts to eight million users; whereas mobile phone subscriptions are up by 11 percent as 14 million users subscribed to the digital revolution during the last year. Similarly, the social media revolution is right on the trail with a blistering speed of 47 percent raise of 9 million active users during the last year. As regards the Facebook usage, there were 31 million active users of Facebook; of them, 90 percent used mobile phone. In Pakistan, Facebook is being used by 22 percent female users and 78 percent males. A total of 39 percent users do Facebook on daily basis. Amongst 194.8 millions of Pakistanis, at least 35.1 millions are internet users with active social media users at 31 million and mobile subscribers



at 140.2. Of 35.1 million internet users, 28 million people use mobile phone to gain access to social media platforms. An important aspect of the research sheds light on the importance of mobile phone and its enhanced use as a gateway in the amazing world of internet. According to the study, 27 percent people use laptops/ desktops to browse worldwide web that stands 22 percent below in comparison with the last year. Whereas people are increasingly using mobile phones to access internet that accounts for 70 percent increase during the last year—a 13 percent hike in comparison to the previous year. Use of tablet devices are being used for internet with 3 percent increase this year, though with 8 percent slump compared with the previous year.

# China Mobile to Plough $200m into Pakistan

China Mobile will invest US$200 million in its Pakistani operation this year in order to add 3G and 4G mobile sites to its network. The Chinese telco, which operates in Pakistan as Zong, issued a statement confirming the investment, according to Pakistani media outlet The News International. Zong aims to increase the number of 3G and 4G sites on its network to 10,500 by the end of 2017, it said. The expansion will see it extend 4G coverage to rural as well as urban areas. As it stands, Zong's 4G network covers 300 cities with customers numbering 2 million. This year's network spend comes on top of the $3 billion the operator has invested in Pakistan to date, the paper said. Zong became Pakistan's first licensed 4G operator almost three years ago when it 1800-MHz spectrum earmarked for the latest generation of mobile services. 4G services are now available in the market from a number of players though. And China Mobile is not the only operator spending heavily in Pakistan. Vimpelcom in July confirmed to Total Telecom that it will invest $1 billion in the market over five years. The announcement came shortly after the telco group completed the merger of its Pakistani operation Mobilink with smaller player Warid Telecom. Mobilink and Warid Telecom lead the market with a combined 51.5 million customers as of the end of last year, according to the latest figures from the Pakistan Telecommunication Authority. Telenor, which launched its 4G service in Pakistan last summer, is the second largest player with 39.5 million at the same date, while Zong comes in third with 26.9 million. Pakistan Telecommunications Company Ltd's (PTCL's) mobile arm Ufone trails with 18.6 million.

# Zain Saudi, Huawei sign five-year Managed Services Deal

Zain Saudi Arabia and Huawei Tech Investment Saudi Arabia have signed a five-year managed services agreement, which will enable the Saudi operator to enhance its customer experience. Company CTO Sultan Abdulaziz AlDeghaither said: 'Competition to deliver high-quality voice and data services has become increasingly important to operators in their strive towards market leadership and success. By partnering with a global ICT solutions provider like Huawei, Zain Saudi Arabia can ensure that its critical infrastructure and operation management is taken care of, while we are creating innovated products to achieve customers' expectations.' Under the deal, Huawei will partner with German IT consulting firm P3 Communications to improve Zain Saudi Arabia's existing network, using advanced technologies and solutions, and to improve data services in the busiest customer areas of the capital Riyadh.

# Pakistan Government Vows 'Internet Connectivity for all

The government is vigorously engaged in guaranteeing the most favorable environment for the promotion of mobile applications so that the underserved population of the country can benefit from them, a statement said. "Development of telecom sector is among the top priorities of the government, evident from the fact the sector has witnessed exponential growth in different areas," Minister for Information Technology and Telecommunication Anusha Rehman told the attendees of 'Pakistan Mobile App Awards 2016' ceremony. "Pakistan has emerged as one of the leading markets in telecommunications with over 140 million mobile phone users touching a 77 percent penetration rate." Addressing the ceremony, organized by Pakistan Telecommunication Authority (PTA), Ms. Rehman expressed her satisfaction over telecom policy, terming it a landmark achievement to provide a level playing field that will further boost the sector's growth. "We are also working to provide communication services in underserved areas and the key element of this approach is to make telecommunication services affordable and within the reach of the common man," she said. The minister added the Universal Service Fund (USF) projects have also been launched at a cost of Rs 20 billion in this regard. "Mobile application award will go a long way in developing a strong relationship between the academia, industry, and the relevant government organizations. It will also turn out to be exemplary for the rest of the sectors of our economy," Ms. Rehman commented. These mobile applications, she remarked, would prove of great assistance for special persons. "It will enable them work/communicate with other people for day-to-day affairs in a better way and thus improve the qualities of their lives." Moving forward, the minister highlighted steps and initiatives for3G and 4G technologies opening a whole new era of innovative mobile services and apps in the country. "Pakistan's IT industry has been booming for the last decade with a 41 percent growth in IT exports during 2014 15, whereas it has a global ranking in top 5 countries for freelancing," she said adding, the government has provided a package of incentives to both foreign and local investors for growth and development of the ICT industry.

# MEA IoT Spending to Reach USD 7.8 bln in 2017

The Middle East and Africa (MEA) internet of things (IoT) market is forecast to defy the region's moderate economic outlook by growing 19.6 percent year on year in 2017 to total USD 7.8 billion, according to a recent update to the Worldwide Semi- annual Internet of Things spending Guide from International Data Corporation (IDC).

# Mobily Signs a USD2.1bn Loan with Six Banks

Saudi Arabian telecoms provider Etihad Etisalat (Mobily) has signed a SAR7.9 billion (USD2.1 billion) Murabaha (Sharia-compliant cost-plus-profit) facility agreement with the National Commercial Bank (NCB), Banque Saudi Fransi (BSF), Samba Financial Group, Saudi British Bank (SABB), Rayed Bank and Al-Rajhi Bank. The unsecured seven-year loan has a two-year grace period and will be repaid in five years. Mobily will use the financing to re-profile its existing debt, the company said in a statement on Tadawul. The operator reported an 81.4% improvement on its net loss to SAR203 million for FY 2016, mainly due to booking a SAR800 million doubtful debt provision towards Zain Saudi Arabia in the previous period, in addition to lower general and administrative expenses.

# UAE's EITC to Launch Virgin Mobile Brand in Country



Emirates Integrated Telecommunications Co (EITC), the holding company for United Arab Emirates phone service provider du, will launch Virgin Mobile as a new brand in the UAE, EITC's chief executive Osman Sultan said on Tuesday. EITC will have full ownership, management and operation of the Virgin Mobile brand in the country, Sultan told a news conference, adding that services under the brand would start "within weeks" and focus on a consumer customer base. Virgin Mobile will use EITC's network and infrastructure in the same way that du does, and EITC has created an internal business unit to handle the brand in the UAE, he said. Karim Benkirane has been appointed managing director of Virgin Mobile UAE's operations, reporting to Sultan.

# Qatar to Launch 13 New e-Projects

Thirteen new e-projects will be implemented this year by the General Directorate of Information Systems at the Ministry of Interior (MoI). Last year, the department accomplished 20 projects for the ministry and its visitors. Captain Abdul Aziz Al Rweili, Assistant Director of General Directorate of Information Systems, said: "The Department achieved 20 projects last year, and is working currently to accomplish 13 new projects to serve the MoI and its visitors". The services provided by General Directorate of information systems crossed more than 250 e-services. About 96 services were added last year. About 7 million e- inquiries were registered last year, an increase of 32 percent compared to previous year. And the number of MoI website's visitors reached 12 million. The number of traffic accidents registered through Metrash2 mobile application was 20,352 last year. Among the most important projects accomplished last year was the new financial system project, in addition to development of the MoI website with new e-services. Regarding the prominent projects which the department is currently working to accomplish, Al Rweili said: "We are working to accomplish the security permit system, which aims to serve all MoI sites, and through it the security permits will be done. Among the sites is Hamad International Airport, and Hamad Port". He also said that the number of transactions accomplished through Metrash2 last year was more than 2 million, registering an increase of 54 percent compared to previous year. The average number of Metrash2 users daily is more than 16,000. Al Rweili added that over 250 e-services are accessible at the ministry's website and Metrash2, and more than 1 million transactions done through the MoI website.

# Pakistan is one of Asia's Fastest-growing Internet Markets

There are over one million people coming online via their phones every month in Pakistan, but that's just the tip of the iceberg. The total number of internet users in the South Asian country currently stands at 35.1 million, representing 18 percent of the 194 million population. That means large swaths are still offline and are likely to be brought into the fold as broadband coverage expands across the country. For perspective, the entire population of Australia is 23.1 million. Malaysia and Singapore stand at 30 million and 5.4 million respectively. In terms of sheer population density, Pakistan is the fourth-largest country on the Asian continent – behind Indonesia, India, and China.

# Cloud Technology to Play a Vital Role in Qatar SMEs Development



Internet-based solutions like cloud services are beneficial to the development of Qatar's small and medium-sized enterprises (SMEs), and could help address issues like cost and increased productivity, according to industry experts. The market is rife with innovative products and services that could help promote and develop Qatar's SME sector, said Mohamed Arif, Windows & Devices Business Group Lead at Microsoft Gulf. Some of the issues encountered by

SMEs cloud services can address are cost efficiency and increased productivity, Arif pointed out, adding that Microsoft offers a range of products that provide SMEs access to enterprise grade solutions. "Instead of paying $50,000 upfront, entrepreneurs can pay only $10 for every use per month – that's the kind of buying model that cloud enables. We actually have solutions that are already built into Windows, which eases a customer's buying pattern. "Whatever the size of the company, your payment for cloud services is proportionate to how you use it, almost like a 'pay-as-you-go' model. That kind of model has really enabled SMEs to focus on spending not only in security but in IT in general," Arif told Gulf Times in an interview. Paula Januszkiewicz, CEO and security consultant at CQURE, also told this paper that cloud technology "is a fantastic introduction" for SMEs. "There are different types of solutions for

every company. A lot of our customers are using cloud-related solutions and it has one major benefit – they do not have to buy a server. Sometimes companies do not even have the space for it. And even if they do, it is not cost efficient to change hardware every one or two years. "Companies invest on servers to optimize performance but on the other hand, the value of the equipment depreciates. In the case of cloud, it doesn't, so that's the benefit out there," she explained. Arif added, "Without a doubt, we want to ensure that we enable SMEs who are budget conscious, who have to manage many things and at the same time drive innovation. We have a lot of programmes which enable that." In a workshop held in 2014, the Ministry of Transportation and Communications (then ictQatar), Microsoft Qatar, and Enterprise Qatar encouraged SMEs from all over the country to maximise the potentials of cloud technology and its uses. Speaking at the event, Microsoft International president Jean-Philippe Courtois said the software giant wanted to empower some 10,000 small and medium-sized enterprises (SMEs) in Qatar with cloud technology. Aside from cloud technology, Courtois said Microsoft aims to create a family of devices that will enable businesses to virtually engage with other industry players like banks, clients, and other stakeholders through seamless communication.

# Viva Kuwait Reports Net Profit of KWD40m in 2016

Kuwait Telecom Company (Viva), which was listed on the Kuwait Stock Exchange (KSE) in December 2014, has reported net profit of KWD40 million (USD130.9 million) for the twelve months ended 31 December 2016, down by 7.0% year-on-year from the KWD43 million reported

in the corresponding period of 2015. The Kuwaiti company disclosed that its revenues amounted to KWD279 million in 2016, marginally up by 0.7% y-o-y, while its customer base reached 2.4 million, unchanged y-o-y. Viva's Chairman Mahmoud Ahmed Abdulrahman

commented: 'Despite the high competition witnessed in the Kuwaiti telecoms market, Viva was able to achieve growth in revenues, good profitability levels, in addition to sustain the operational efficiency that led to generating positive return to our shareholders during 2016.'

## ARTICLE

# Fostering Innovation and Agility: 7 Steps to Digital Transformation

Whether Uber, Airbnb, Booking.com, WhatsApp or Netflix, in almost every sector digital transformation is bringing companies to the fore that are turning conventional processes, behaviors and market mechanisms on their heads. As Internet-based platforms and services, they are wedged between provider and consumer and can, with unimaginable speed, revolutionize established business models and industries with the help of self-reinforcing network effects – often without producing or owning something themselves, and especially without having to give up something that already exists.

**Digitalization as a growth opportunity**
Most companies are still not adequately prepared for this development. Especially traditional providers – whether energy suppliers, media houses or financial institutions – are faced with the challenge of proactively dealing with these changes, because they have to give up something: their current, and still profitable business models with their tried and tested structures. To address this challenge, they have to answer some key questions: How do we find new areas of business for growth? Can my existing business model continue to exist or can it be undermined? How can costs be reduced? What requirements do today's connected customers have, and how can I service them in a more targeted manner? How can I communicate digitalization, with its changed market and working conditions, to my employees – and what conditions must I create as a company?

Two interdependent and mutually influencing aspects are always decisive to answering these questions: the ability to create something new (innovation) and the flexibility and adaptability of the organization (agility). Both are at the heart of the seven steps to successful digital transformation:

**In terms of governance, there is widespread agreement that digitalization is a top-level priority and belongs on the board agenda.**

1. Create awareness and set the course: Your own employees are a primary driving force behind innovation and the successful development of new business models. Classic top-down management approaches are insufficient for digital transformation. Instead, companies need to free up capacities, which requires more decentralization and a bottom-up approach. The first step should therefore be to create an appropriate

**Sebastian Olbert**
Partner
goetzpartners

**Erik Almqvist**
Managing Director - Middle East
goetzpartners

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awareness of opportunities and risks within the company and among employees. This can be achieved, for example, through digital boot camps where the basic mechanisms of digitalization, such as platform thinking, self-reinforcing network effects and the power of (customized) information, are demonstrated to employees using concrete examples. In addition, right from the start it's important to define a digital vision with clear strategic objectives that can be used to measure all ideas and business approaches that are generated.

2. Develop business models: Ideas alone do not constitute a digital business model – it is also important that these ideas can be directly tested without jeopardizing the existing core business. Making mistakes in the process is likely – and, according to the norms of the digital world, even desirable, even if this type of trial-and-error culture itself is revolutionary for many

**Change management must be initiated as early as possible to develop employees' willingness to change. Classic activities such as workshops, training and coaching are not wrong, but are not enough.**

companies. Both brainstorming and testing are supported by activities such as innovative workshop formats, internal "hack days," external prototyping, design thinking, participation in accelerator and incubator programs, or even the support of startups through corporate venturing. Especially the latter approach offers an opportunity to benefit from testing digital and disruptive business models from the startup community, with established companies providing startups with investment capital and existing assets such as customer data or technological expertise.

3. Create a digital strategy: Following the development and testing phase, promising business models should feed into a digital strategy that is closely meshed with the company strategy over the long term. Strategic patterns of action amid the diversity of the newly emerging business models are difficult to identify, especially for companies with a traditional focus. They range from selling products with additional digital benefits to information as a stand-alone business; it is important here to understand the basic taxonomy of the business model.

4. Initiate a transformation program: If the focus prior to defining the strategy was primarily on innovation capability, then business agility is more important in the following steps. First of all, digital roadmaps should be implemented using digital playbooks. In addition, a comprehensive transformation program should be initiated to engage or recruit employees with the appropriate capabilities and competencies as well as to define partnership and technology concepts.

5. Expedite the implementation: The subsequent roll-out phase of implementing the transformation includes activities ranging from training and continuous development of employees to changing the structures and processes that were affected. Implementation is only successful if operational responsibilities are established and prototyping is allowed and carried out in a decentralized structure that allows employees to gain autonomy in their work.

6. Change management and communication: Steps 6 and 7 both accompany a large part of the previous steps. Change management must be initiated as early as possible to develop employees' willingness to change. Classic activities such as workshops, training and coaching are not wrong, but are not enough. What matters is to make digitalization "experienceable" by each individual; different fears need to be addressed appropriately and the entire process

must be communicated and organizationally supported, because digitalization cannot be implemented just by talking about it.

7. Digital governance: In terms of governance, there is widespread agreement that digitalization is a top-level priority and belongs on the board agenda. As mentioned, however, a top-down approach is not enough. The company must be perceived as an agile biotope; self-regulating systems must be created (e.g. Scrum, waterfall model), and energy must be released for use and made available to the company from the bottom up.

**Fostering innovation and agility in your own organization are key elements of every digital transformation. Success depends only partly on whether the right external ideas were taken up and the strategy was correctly initiated and implemented the first time.**

**Continuous development**
Fostering innovation and agility in your own organization are key elements of every digital transformation. Success depends only partly on whether the right external ideas were taken up and the strategy was correctly initiated and implemented the first time. There's more: digitalization's winners to date are not standing still; instead, they constantly question their own business models, product ranges and structural organizations and develop them continuously. They do not see the digital transformation as a one-time event, but a long-term disruption in which they are embedded. They might derive their initial motivation for digital transformation from the outside, but it must be kept going from within.

## SATELLITE NEWS

# China to Provide Communication Satellite to Pakistan

China Academy of Space Technology will soon provide communication satellite



to Pakistan under bilateral exchange agreement to help in building a large capacity telecom network. According to the Academy's sources, it has made seven communications satellites for overseas users, including Pakistan. They are implementing export contracts for more than 10 such satellites, said Zhou Zhicheng, head of the Institute of Telecommunication Satellite. However, he said the country still needs to catch up with the top developers of

communications satellites in the United States and Europe, such as Boeing and Thales Alenia Space, when it comes to satellite technology and capacity. Meanwhile, China will launch its most advanced communications satellite in April as it builds a large capacity network that will enable passengers on jetliners and high-speed trains to use the internet. Shijian 13, developed by the China Academy of Space Technology, will be lifted on a Long March 3B carrier rocket from Xichang Satellite Launch Center in Sichuan province. The satellite, which weighs 4.6 metric tons, will stay for 15 years in a geostationary orbit about 36,000 kilometers above Earth, the academy said. The satellite features a Ka-band broadband communications system capable of transmitting 20 gigabytes of data per second, making it the most powerful communications satellite the nation has developed.

Shijian 13 will use electric propulsion after it enters orbit, which will extensively reduce the chemical fuel the satellite carries. Moreover, it will conduct space-to-ground laser communications experiments, the academy said. In June, the Shijian 18 communications satellite, the first developed based on China's new-generation DFH 5 satellite platform, will be lifted by a Long March 5 rocket at the Wenchang Space Launch Center in Hainan province, according to the academy. It said the transmission capacity of the satellite to be launched in June is double that of current Chinese communications satellites, allowing more television channels and clearer programs to be transmitted. The new satellite will also improve internet connectivity and accessibility as well as reduce users' costs. Wang Min, deputy head of the academy's Institute of Telecommunication Satellite, said China plans to establish a constellation of advanced communications satellites based on DFH 4 and DFH 5 platforms by 2025 and, after the plan is fulfilled, people will be able to use high-quality WiFi service anywhere and anytime, including on bullet trains and planes.

# Iridium Selects Target Date for Second Launch of Iridium Next

Iridium Communications has announced a targeted launch date of mid-June for the second mission of 10 Iridium Next satellites. Originally anticipated for mid-April 2017, the date has shifted due to a backlog in SpaceX's launch manifest as a result of last year's anomaly on Sept. 1. This second launch will deliver another 10 Iridium Next satellites to Low Earth Orbit (LEO) on a SpaceX Falcon 9 rocket. SpaceX is targeting six subsequent Iridium Next launches approximately every two months thereafter. "Even with this eight week shift, SpaceX's targeted schedule completes our constellation in mid-2018," said Matt Desch, chief executive officer at Iridium. This announcement comes as

Iridium has successfully connected the first Iridium Next satellite via its crosslinks into its global LEO constellation. The new satellite is expected to begin providing service to Iridium customers in the coming days. The testing and validation phase is ahead of schedule and, according to the company, the satellites are working well. The upcoming mid-June launch will mark the second mission of eight Iridium Next launches with SpaceX, including the recently announced satellite rideshare with NASA and GFZ's Gravity Recovery and Climate Experiment Follow-on mission (GRACE-



FO). In total, Iridium currently has plans to launch 75 Iridium Next satellites — 66 to serve as operational satellites and nine as on-orbit spares.

# Hughes Completes In-Orbit Testing of EchoStar 19



Hughes Network Systems has announced the successful completion of in-orbit testing and handover of Ka-band High-Throughput Satellite (HTS) EchoStar 19 from manufacturer Space Systems Loral (SSL). Placed into geostationary orbit at 22,236 miles (35,786 kilometers) above the Earth, the satellite was successfully launched on a United Launch Alliance (ULA) Atlas 5 from the Kennedy Space Center at Cape Canaveral, Florida, on Dec. 18, 2016. Designed with Hughes' Jupiter System, EchoStar 19 offers 138 beams covering the continental United States, Alaska, Mexico, and parts of Canada and Central America. It will power HughesNet Gen5, the company's next generation of high-speed satellite internet service in the U.S., delivering more speed, data, and features to its consumers and small businesses, according to Hughes. EchoStar 19 joins EchoStar 17, which has been in service since 2012, and will enable Hughes to more than double its current capacity.

# Indian PSLV-C37 Launches Record 104 Satellites in a Single Flight

In its 39th flight, the Indian Space Research Organization's (ISRO) Polar Satellite Launch Vehicle (PSLV) successfully launched ISRO's 714-kilogram Cartosat-2 satellite along with 103 co-passenger satellites from the Satish Dhawan Space Centre in Sriharikota, India. This is the 38th successful mission for PSLV in a row. PSLV-C37 lifted off at 9:28 a.m. Indian Standard Time (IST), as planned. After a flight of 16 minutes and 48 seconds, the satellites achieved a polar sun synchronous orbit of 506 kilometers inclined at an angle of 97.46 degrees to the equator. In the succeeding 12 minutes, all 104 satellites successfully separated from the PSLV fourth stage in a predetermined sequence, beginning with Cartosat-2 series satellite, followed by ISRO NanoSatellite-1 (INS-1) and INS-2. Cartosat-2 will provide remote sensing services using its panchromatic (black and white) and multispectral (color) cameras. INS-1 and INS-2 are technology demonstration satellites. The total number of Indian satellites launched by PSLV now stands at 46. The remaining 101 co-passenger satellites carried were international customer satellites. 88 Dove CubeSats from Planet (collectively known as "Flock 3p") formed the majority of the U.S. satellites. With this constellation, Planet has achieved the ability to image all of Earth's land mass every day. Eight

Spire Global Lemur satellites also flew atop the rocket, tasked with gathering weather data for forecast models. PSLV also carried a CubeSat developed by Israel Aerospace Industries to take pictures of clouds from space and measure



atmospheric background radiation; the Piezo Electric Assisted Smart Satellite Structure (PEASSS) built by a group of Dutch companies and institutes;

Swiss company SpacePharma's DIDO 2, tasked to host miniature microgravity research experiments; and the student-built Al-Farabi 1 and Nayif 1 CubeSats from Kazakhstan and the UAE, testing a communications system and carrying an amateur radio transponder, respectively. This launch marks a total of 180 customer satellites from abroad launched by India's workhorse launch vehicle, PSLV.

# HiSky Reveals Ka-band Phased Array Antennas for MSS and IoT Markets

HiSky has announced the successful measurement and testing of its Ka-band antennas arranged in an 8×8 array. The antennas are an integral component of a small portable terminal developed by hiSky, which makes satellite calls and data more affordable, according to the company. The fully integrated phased array antennas include 64 active elements and frequency conversion. Their specified frequency range is 17.7 GHz to 20.2 GHz for the receiving antenna and 27.5 GHz to 30 GHz for the transmitting antenna. Angular coverage of the antennas is between 35 to 90 degrees above the antenna plane in elevation, and 360 degrees in azimuth. Both antennas support on-the-fly, left-hand/right-hand switchable circular polarization. The antennas have been calibrated and their performance, including radiation pattern at different scan angles, has

been successfully tested at an antenna range, hiSky announced. The integrated frequency conversion includes the Local Oscillator (LO), mixer and additional amplification. The up/down converters support a range of Intermediate Frequency (IF) from 1 GHz up to 5 GHz, depending on filter configuration. This enables direct interface to the modem IF. To minimize the frequency error, a precise reference is supplied to the antenna. The antenna's digital interface supports fast beam switching and easy control over the LO. The antennas have low power consumption of about 20W for the transmitting antenna, which measures 73mm x 73mm and weighs 65 grams, and 5W for the receiving antenna, which measures 87mm x 79mm and weighs 75 grams. HiSky designed the antennas to be integrated in a low data rate mobile satellite communication

terminal for Mobile Satellite Services (MSS) and Internet of Things (IoT) applications. Using the integrated modem and satellite tracking, with internal Microelectromechanical (MEMS) sensors, the terminal can enable on-the-move automatic satellite search and tracking capabilities, with minimum user assistance. The integrated modem supports frequency spreading and power control, which is required to meet the spectral density standards. The modem further supports fast synchronization, even at low data rates, to accelerate signal detection during satellite search. System reliability and robustness is increased by the construction of a satellite communication terminal using the phased array antennas without any mechanical moving parts.

# NASA Awards Suomi NPP Engineering Services Contract to Ball Aerospace

NASA has awarded the Suomi National Polar-Orbiting Partnership Sustainability (SNPPS) contract to Ball Aerospace of Boulder, Colo. This is an Indefinite-Delivery/Indefinite Quantity (IDIQ), cost-plus fixed-fee contract with the ability to issue task orders. The contract is a five-year effort with a minimum ordering value

of $50,000 and maximum ordering value of approximately $9.5 million. Under this contract, Ball Aerospace will continue to provide sustaining engineering services to the Joint Polar Satellite System (JPSS) Flight Project and NOAA's Office of Satellite and Product Operations for the mission operations systems

and subsystems, and deactivation of the Suomi National Polar-orbiting Partnership (NPP) satellite. This effort will maintain the current operational phase of the satellite through the Suomi NPP mission life, including deactivation and contract closeout.

# Addressing the Spectrum Traffic Jam at WSBR Expert Panel

One of the major points of contention for satellite operators in this rapidly evolving industry is how companies from all over the world must collaborate to share limited spectrum bandwidth. The Washington Space Business Roundtable (WSBR) hosted a panel on Friday, Feb. 10 featuring Valerie Green, executive vice president and chief legal officer of Ligado Networks, Victoria Samson, the Washington office director for the Secure World Foundation, and Russ Matijevich, vice president of sales for Hawkeye 360, to discuss some of the biggest challenges that come along with sharing spectrum. Ligado in particular is no stranger to the scuffle for limited bandwidth. The company, formerly known as LightSquared, recently rebranded after emerging from bankruptcy last year. Back

in 2010, the Federal Communications Commission (FCC) revoked its conditional license to operate in the L-band after concerns from aviation companies regarding Global Positioning System (GPS) interference came to light. But now, Green said, operators in the L-band have collaborated to maximize satellite assets and thus make the best use of the L-band spectrum. Unfortunately it isn't always easy, as each independent company has its own capabilities, needs and customer services. The issue only gets muddier as you expand the scope to include government entities as well, Matijevich noted. The commercial satellite industry operates at a much quicker clip than government programs, which makes collaboration difficult when one must slowly navigate through the thorny thicket

that is government regulatory processes. An attendee who queried about any countries outside the U.S. that could be good examples of managing spectrum was met with an unsatisfactory answer: put simply, there is no good way to handle spectrum management, said Samson. "We're trying to divide a finite resource among an infinite number of users, and everyone is under pressure to make it as available as possible." Matijevich also noted that the evolution of the smartphone industry is expanding what spectrum is now publicly available. But the democratization of technology introduces yet another kink: transmissions from amateur broadcasters, who sometimes toe the line of what is legally permissible. "If you know someone is broadcasting interference, what can you do? You can

make a complaint to the International Telecommunication Union (ITU), but the ITU has no enforcement mechanism," Samson said. While the community is trying to establish a sort of "naming and shaming mentality" of those who take advantage, the limited authority of the ITU makes it difficult to enforce regulations. Furthermore, as Samson noted, regulations may have to adapt to meet the needs of the evolving industry.

"When we look at spectrum management and regulations, we look at all satellite operators the same. But should we?" Samson wonders if a mega constellation should be paying more fees, for example — an issue that will only become more prevalent with the proliferation of small satellites and larger constellations. Still, the overall tone of the panel was one of general optimism. Green believes satellite can take cues from sectors like the

airline industry, which is built on having a shared infrastructure to do business. The panelists agreed that as long as regulations are able to keep up with innovation and demand, companies can and will civilly collaborate to accomplish their respective goals across spectrum. But as Matijevich points out, "There will definitely be growing pains."

## New Satellites to be Launched Arianespace



Rocket Company Arianespace is in the final pre-launch countdown ahead of its planned heavy launch February 15th when it will loft a pair of satellites into orbit. This Ariane 5 was transferred on February

13th from the Spaceport's Final Assembly Building to the ELA-3 launch zone, readying it for departure during a launch window that opens at 6:39 p.m. in French Guiana (21h39 UTC). The two passengers are to be deployed into geostationary transfer orbit. Sky Brasil-1 is located in the launcher's upper payload position, and will be released first during the flight. Developed for utilization by AT&T/DirecTV via its DirecTV Latin America subsidiary, the 6,000-kg.-class satellite is to expand direct-to-home high-definition programming for Brazil. It was produced by Airbus Defense and Space

in Toulouse, France, using the spacecraft manufacturer's Eurostar E3000 platform. Riding in the lower payload slot, Telkom 3S will be deployed at just under 40 minutes after Ariane 5's liftoff. This 3,550-kg. relay platform was designed for the delivery of high-definition television services, as well as mobile communications and Internet applications for Telkom Indonesia – providing coverage over Indonesia and Southeast Asia. It will be orbited in the framework of a turnkey contract with Thales Alenia Space, which produced it at Toulouse and Cannes, France, based on the Spacebus 4000B2 platform. The launch, designated Flight VA235 in Arianespace's launcher family numbering system, is one of up to 12 Spaceport missions planned this year with Arianespace's heavy-lift Ariane 5, medium-lift Soyuz and lightweight Vega.

## Pakistan Eyes Using Azerbaijan's Telecom Satellite

Pakistan is currently studying the possibilities of using the resources of Azerbaijan's telecommunications satellite Azerspace-1, Azerbaijani Ambassador to Pakistan Ali Alizade told a foreign media outlet. "This issue was previously considered in 2016 during a meeting of the intergovernmental commission on trade and economic cooperation. Azerbaijan offered Pakistan to use the resources of the national telecommunications satellite," the diplomat said. He added that the issue was currently being considered by relevant bodies of Pakistan and there is a plan to establish cooperation in this sphere. Alizade also said that Pakistani businessmen were considering investment in Azerbaijan's technology

parks and industrial districts. "A number of technology parks and industrial districts have already been created in Azerbaijan. They offer favorable conditions for business, tax exemption, simplified procedures for entrepreneurial activity and attracting foreign investment, which is also interesting for Pakistani business circles," he added. Currently, work is underway in Azerbaijan to create plants and enterprises in the Sumgait Chemical Industrial Park, Balakhani, Garadagh, Mingachevir and Pirallahi industrial parks, Mingachevir High Tech Park, Sumgait Technologies Park, as well as in Neftchala and Masalli industrial districts.Residents of Azerbaijan's industrial parks are exempted from real



estate, land, profit taxes, as well as value-added tax on import of equipment for a period of seven years.

# Inmarsat, Actility Deliver Global LoRaWAN IoT Network for Business Applications

Inmarsat announced that its LoRaWAN-based network developed in partnership with Actility, is delivering on its strategy to bring the Internet of Things (IoT) to every corner of the globe. Early applications in asset tracking, agribusiness and oil and gas are helping businesses in remote regions of the world become more efficient, reduce costs and drive new revenue through IoT-based solutions.

Inmarsat and Actility's three early applications cover:

- Asset tracking: Tracking the location, movement, health and other key statistics of cattle on a remote ranch in Australia, replacing the manual process of sending an employee to look for cattle that have strayed. An alert is sent out to the ranch manager when an animal is at risk of being lost, is behaving erratically, or is nearing the perimeter of the ranch, enabling the owner to take immediate action.

- Agribusiness: Monitoring the water levels in reservoirs and soil moisture at the roots of plants across the breadth of a large, remote palm oil plantation in Malaysia to deliver water to where it is most needed and achieve maximum crop yield. This enables smarter resource management in an area and reduces the amount of land required for production.

- Oil and gas: Remote monitoring of oil platform processes where cellular coverage is patchy or non-existent to identify potential failure points so that they may be addressed and costly downtime avoided. An upstream production site continuously measures operational parameters and transmits them to a control room where a Supervisory Control and Data Acquisition System (SCADA) adjusts set-points and provides control settings.

The Inmarsat LoRaWAN network, powered by Actility's ThingPark Low Power Wide Area (LPWA) platform, allows customers and partners to bring to market IoT solutions that can be delivered anywhere in the world, to any type of business, with LoRaWAN-based connectivity on the ground and satellite connectivity as the network backbone. The integrated platform provides an end-to-end solution that transmits site-specific data to applications in the cloud for analysis, delivering insights and supporting decision making, and creating value for the end customer, according to Inmarsat. Inmarsat and Actility last year announced a partnership that combines Inmarsat's global L-band satellite connectivity platform with Actility's ThingPark IoT management platform to deliver an integrated solution for IoT, linking connectivity, services and IoT devices from a single application and service management point, to connect objects deployed anywhere on the planet. Actility is also now part of Inmarsat's Certified Applications Provider Program (CAPP), which allows third-party companies to develop applications and solutions that are compatible with Inmarsat's satellite communications network.

# Comtech Releases Evolved High-Performance Satellite Modems

Comtech Telecommunications announced the release of the VersaFEC-2 High-Performance Low-Density Parity-Check (LDPC) option board and version 1.5 for the CDM-570A/Large Internet Packet (L-IP) satellite modems. The VersaFEC-2 waveform is an evolved version of the VersaFEC waveform. VersaFEC-2 was designed to provide optimal performance for latency sensitive applications that require the highest coding performance at the lowest latency, according to Comtech. It features 74 modulation and coding combinations (ModCods) and a new family of constellations that allows better operation on non-linear satellite channels, outperforming the Digital Video Broadcasting-Satellite-Second Generation (DVB-S2) standard. This new innovation provides two operational modes: Long-Block and Short-Block. VersaFEC-2 is available as an optional plug-in board for the CDM-570A/L-IP satellite modems. Presence of the VersaFEC-2 board enables VersaFEC-2 operation up to the modem's purchased data rate and symbol rate. "End-to-end latency significantly affects connection-oriented and interactive applications, either severely reducing the speed and quality of the application or, worse, causing the application not to operate at all," said Naresh Jain, vice president of product management for Comtech EF Data. "VersaFEC-2 was purpose-built to support these applications at the low-to-medium data rates." In addition to VersaFEC-2, version 1.5 also provides CarrierID support for the CDM-570A/L-IP satellite modems. CarrierID is based on Comtech EF Data's MetaCarrier spread spectrum technology, which embeds a unique carrier identification sequence for the transmitted carrier to help identify interfering satellite carriers. CarrierID is a software option that can be ordered with the modem or enabled in the field using a FAST code. The CDM-570A/L-IP with MetaCarrier is used in tandem with the Comtech EF Data's MCDD-100 MetaCarrier Detection Device to provide a complete MetaCarrier embedding and decoding solution.

# Mobile Satellite Provider Pivotel installing 4G Towers for Farmers

Mobile satellite solutions provider Pivotel has announced its broadband and Internet of Things (IoT) solution for rural areas using a combination of 4G and satellite. The network offering, named ecoSphere by Piovtel, involves installing 4G base stations on farms that are solar and battery powered, with connected sensors tracking information across the entire farm. This enables farmers to access long-range connectivity to video, data, tracking, and monitoring of assets

including gates, pumps, machinery, and employees over a private network. Pivotel said its technology could also be used on mining sites. "Australian businesses operating in remote parts of the country have been at the mercy of telecommunications giants who offer little flexibility or targeted business and safety-enhancing coverage," Pivotel Group CEO Peter Bolger said. "Pivotel Group is one of only four licensed mobile carriers in Australia, and the only carrier dedicated to solving the communications struggles that come with living, working and travelling in remote Australia." Pivotel's solution comes as Australia's three major telecommunications providers argue over the issue of rural coverage. Vodafone, Telstra, and Optus are currently butting heads on the wholesale mobile domestic roaming issue -- whereby Vodafone would be permitted to piggyback off Telstra's existing mobile infrastructure -- as well as taking part in the discussion surrounding reform to the universal service obligation (USO) and competing against one another to take part in the federal government's mobile blackspot program. The first two rounds

of the blackspot program are delivering new or additional coverage to 765 rural or under-served sites across the country by combining government and private funding to build out or upgrade mobile towers. In addition, Optus is installing small cells across Australia, which utilise satellite services rather than expensive mobile towers having to be built out, while Vodafone is investing AU$9 million of its own funding in constructing 32 new mobile base stations across the country. The Productivity Commission's draft report into the USO, released in December, showed that although Vodafone claims to have 96 percent of the Australian population covered by its mobile network, or 23 million people, only 7.5 percent of the continent's landmass is covered. Optus' population coverage is 98.5 percent while its geographic coverage is 15.6 percent, and Telstra's population coverage stands at 99.3 percent, which amounts to 31 percent of the landmass. In terms of providing fixed-line services to remote areas, the Australian government's National Broadband Network (NBN) is also providing Sky Muster satellite services to the remotest 3 percent of the

Australian population via the projection of 101 spot beams -- however, it has faced complaints concerning connectivity and service faults. NBN recently revealed that there have been 520 complaints since the launch of Sky Muster: 206 in NSW; 103 in Queensland; 94 in Victoria; 42 in Western Australia; 31 in Tasmania; 23 in South Australia; and 21 in the Northern Territory. "Over the past two months, there have been issues with the software responsible for managing various aspects of the satellite network," NBN explained in response to Senate Estimates questions on notice. "The root causes are understood, fixes have been identified, and we are in the process of rolling out new software to the network to improve stability and reliability. "The total number of network faults since launch is 325, with an average restoration time of 1.5 hours. The total number of service faults raised by RSPs on behalf of end users since launch is 2,984; however, it should be noted that this is likely to include multiple reports relating to the same network fault or issue."

## Inmarsat Completes First Satellite Test for European Aviation Network



The initial testing for the satellite connectivity portion of the European Aviation Network (EAN) is complete. According to Inmarsat, testing for the first Satellite Access Station (SAS) that will be part of EAN has been completed in Greece. The SAS is located in the Greek town of Nemea and operated under an agreement with OTE, the largest telecommunications provider in Greece and member of the Deutsche Telekom Group. Engineers undertook rigorous performance and stability tests to verify the SAS' capabilities to serve as a reliable and robust gateway between Inmarsat's S-band satellite and the Internet. EAN is an integrated satellite and Air-to-Ground (ATG) network dedicated to providing a true in-flight broad-

band experience for the European aviation industry. Inmarsat is managing the satellite portion of the network, while its partner Deutsche Telekom will manage the ATG portion. In November, Inmarsat and industry partners Thales and Nokia completed the first test flights for EAN within United Kingdom airspace. Inmarsat partnered with OTE and Cobham Satcom to complete the initial testing. The mobile satellite communications service provider will launch its first S-band satellite for EAN in the middle of 2017. The SAS consists of a 13-meter antenna that provides feeder links to the satellite, a radio frequency subsystem and a radio access network provided by Cobham Satcom. EAN's service introduction is on track to begin in late 2017, according to a statement released by Inmarsat Aviation Senior Vice President of Strategy and Business Development Frederik van Essen.

# Agreement Signed for Global Ku-band Network

SES S.A. announced that Satcom Global, a leading provider of global satellite communications services to the maritime and land sectors, will become a key partner for SES. The differentiated mobility solution will form a crucial part of Satcom Global's new Ku-band VSAT service, Aura, providing seamless, reliable and high-speed connectivity to hundreds of maritime, offshore and land customers. The agreement provides Satcom Global with seamless access to SES's satellite fleet and upcoming next generation hybrid satellites with high throughput payloads. SES will also provide a robust ground network infrastructure, enabling multi-satellite access and service integration solutions. SES will provide Satcom Global with an open and scalable VSAT platform that allows flexibility to deliver customizable, always-on broadband connectivity. SES delivers high-value performance with minimal initial investment cost and enables Satcom Global to scale-up service for customers without delay. "SES is the ideal partner for Satcom Global. The current footprint, augmented by a series of high throughput beams over the next two years, makes SES the logical choice to support Aura, our global VSAT service offering. The coverage, capacity and flexibility provided by the SES service is the perfect platform for Satcom Global to develop the type of VSAT offering our customers have been waiting for," said Ben Swallow, General Manager, VSAT, at Satcom Global. Ferdinand Kayser, Chief Commercial Officer at SES, said: "From providing access to entertainment for crew welfare to driving operational efficiencies, connectivity needs across a wide variety of sectors are growing, and SES aims to help meet that demand across the world. Leveraging SES's global satellite fleet, upcoming HTS capacity, and extensive ground infrastructure, Satcom Global will benefit fully from customisable bandwidth and coverage, and ensure efficient utilization of satellite capacity."

# Taqnia Space to Provide In-Flight Connectivity Via Eutelsat HTS

Eutelsat Communications and Taqnia Space (TSC), owned by the Public Investment Fund (PIF) of Saudi Arabia, have signed an agreement to enable email, social networking and live streaming at 36,000 feet for passengers connected to Taqnia Space Aero services' platform. The multi-million dollar, multi-year deal covers spotbeam capacity on the Eutelsat 3B satellite in order to provide High Throughput Satellite (HTS) connectivity services to Taqnia Space Airline clients over the Middle East, North Africa, Mediterranean and Europe regions. Bandwidth on Eutelsat 3B will support live TV, on-board voice/GSM and broadband connectivity from third quarter 2017 on commercial aircraft connected to the TSC Aero platform. Taqnia Space will use four high throughput Ka-band spotbeams on the Eutelsat 3B satellite that Eutelsat has steered to cover flight paths extending from London to Saudi Arabia and from Casablanca to Oman. Saudi Arabian Airlines (Saudia) will be the first commercial airline to connect to the platform. The airline will equip its entire fleet, enabling passengers to access the Taqnia Space Connectivity package through their devices — laptops, tablets, smartphones — on domestic flights in Saudi Arabia and international flights over the Middle East, North Africa, the Mediterranean and Europe.

# Satellite Capacity to Receive a Boost in EMEA, APAC

Global satellite operator Intelsat has brought its latest Epic high throughput satellite (HTS) Intelsat 33e into service, following the completion of in-orbit testing. Operating from 60° East, the Boeing-built satellite extends Intelsat's HTS services in C-, Ku- and Ka-band to Europe, the Middle East, Africa (EMEA), Asia Pacific (APAC), Mediterranean and Indian Ocean regions. The satellite, which was launched in August 2016, offers what Intelsat terms the 'most advanced digital payload on a commercial spacecraft'. Intelsat 33e's spot beams are designed to enable media customers to distribute regionalized content, and will also provide broadband services to fixed and mobile network operators, aeronautical and maritime mobility service providers and government customers. "Mobile operators will be able to give customers fiber-like experience using satellites, and this will both drive market expansion and increase data use per customer," said Arsene Sol-Loza, Intelsat's senior principal regional marketing manager, Africa, explaining what the new craft could do. "Expanding and increasing the performance of the terrestrial network, using satellite-based solutions, supports the growth of content delivery. The delivery of over-the-top (OTT) content is thriving in Africa, driven by Smartphone penetration and the rollout of 3G and 4G networks. With Smartphone ownership expected to double to 550 million users by 2020, media companies are delivering content formatted both for traditional TV sets and for on-the-go mobile viewing." Broadcast customers already lined up for Intelsat 33e include South African pay-TV operator MultiChoice and Armenia's TV & Radio Broadcasting (formerly Television and Radio Broadcasting of Armenia), with satellite capacity also leased to telcos Telkom South Africa, Orange Cameroon, IP Planet, Vodacom, Djibouti Telecom and Africell RDC SPRL. With fewer than half the population having large TV screens, Africa offers "tremendous opportunities" for mobile operators and content distributors to reach new markets, added Sol-Loza. Intelsat Epic services began in March 2016 with Intelsat 29e, located at 310° East and covering the Americas, Caribbean, Eastern US and the North Atlantic. Four more Epic satellites will be launched by 2018.

# Arabsat to Hold its Ninth Telecom Forum in Tunis

Arab Satellite Communication Organization (Arabsat) is holding its ninth Telecom Forum in Tunis during the period of 14th -15th February 2017. This event will provide a platform for Arabsat Customers, Industry experts, technology and service providers to share their views on latest technological trends. Mueid Al-Zahrani, Arabsat CTO said: "This occasion will be a great opportunity to present our reliable high powered capacity to deliver connectivity services to different verticals over extensive coverages in Middle East, North Africa, North West Africa, Central Asia and South Africa. Our Future High Throughput Satellites (HTS) that planned to be launched in 2018 will complement existing capacities and supply adequate bandwidth and coverage" The 9th Telecom Forum will have various discussion panels, attended by worldwide experts where they will explore, in-depth, a range of issues pertaining to the market needs for Satellite capacity to fulfill the growth of satellite-based broadband solutions, Aeronautical in flight Entitlements, HTS applications and GSM Backhaul.
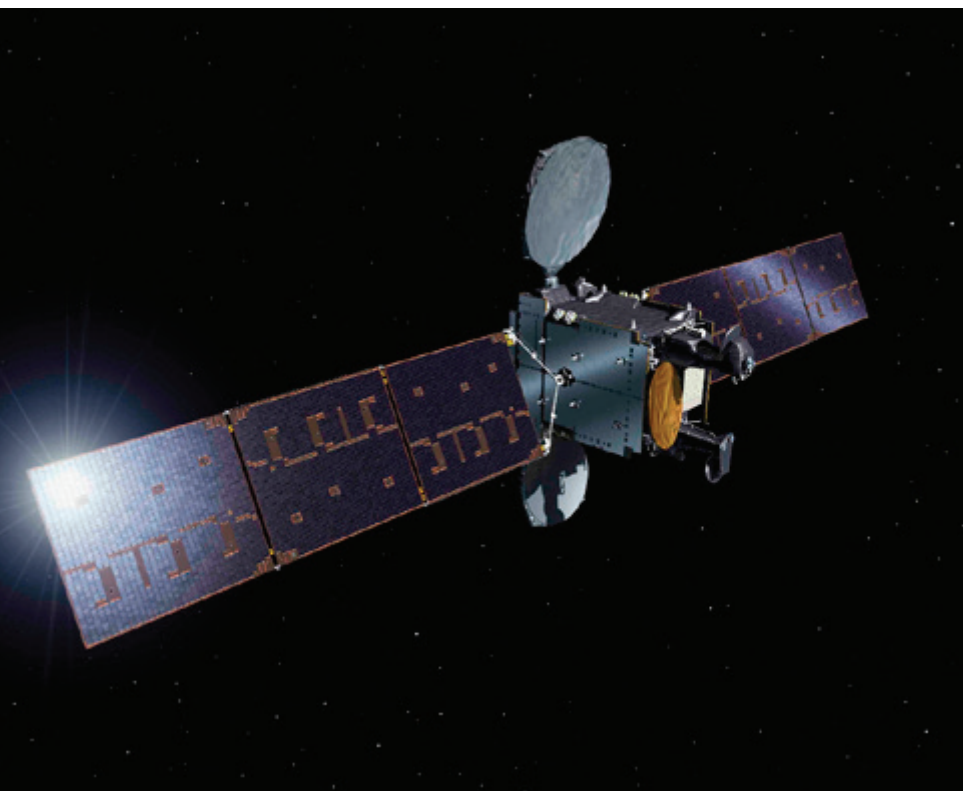
# Angosat-1 Launching in 3Q17 to Save Local Telcos a Packet

Angola will launch its first satellite, Angosat-1, in the third quarter of this year, telecoms minister Jose Carvalho da Rocha confirmed, in a statement reported by Agence Ecofin. The official stated that both the satellite and its Angolan control centre are 'ready', whilst local technicians are currently undergoing training. The Russian-provided satellite, with a 15-year lifespan, will replace leased bandwidth on other regional satellites currently used by Angola. According to the International Telecommunication Union (ITU), Angolan telecoms companies currently spend approximately over USD30 million per month renting foreign satellite capacity, whilst the implementation of the Angosat-1 project will 'attempt to address some of the most challenging problems in communication access: prices, connecting Angolan cities and provinces across a large landmass, where copper or fibre telecommunication networks would be cost prohibitive.'

# Hispasat Successfully Launches 36W-1 Satellite



Spanish satellite communications operator Hispasat has announced the successful launch of its latest 36W-1 satellite developed with the European Space Agency. The launch took place aboard a Soyuz GTO rocket on 27 January from Europe's Spaceport in French Guiana and, once in its orbital position, Hispasat 36W-1 will provide a wide range of communications services for continental Europe, the Canary Islands and South America. The satellite is built on Europe's new SmallGEO geostationary platform, developed by OHB System of Germany, and will offer 20 Ku-band transponders and additional capacity for up to three Ka-band transponders. This is the first time a German-built telecommunication satellite has been launched into geostationary orbit for 20 years, according to the German Ministry for Digital Infrastructure and Traffic. The H36W-1 received support from Germany's ESA programs. The satellite platform will be used to transmit data streams and power AV applications, as well as carry out Earth observations.

**ARTICLE**

# Leading the Charge in the Next Era

There are a few discoveries and inventions that forever changed humanity as we know it today, such as fire and electricity. Another great invention that is equally transforming our lives in an increasing fashion every day is connectivity. Connecting man-to-man, machine-to-machine, man-to-machine, and machine-to-man has forcibly catapulted the human race into a new era of communication, work, process and identity.

It began with the first call made by Alexander Graham Bell, inventor of the telephone, when he called his assistant, Thomas Watson, on March 10, 1876. Since then, connectivity has continued to evolve; we've come a long way with over 10 Billion connections made around the world today. We expect 100 Billion connections in the next 10 years, thanks to the Internet of Things (IoT), and to the increasing speed and capacity of connectivity.

There is no doubt that all this connectivity is transforming the way we live, work, entertain ourselves and do business. Furthermore, the digitization has brought disruptive changes to almost every aspect of society. With all this change upon us, what is the next big opportunity for the ICT industry over the next 10 years?

While we can't predict everything that's to come, we can accurately anticipate that certain technologies will be catalysts for transformational change and serve as drivers of adoption and growth. These catalysts include cloud computing, big data, analytics, AI, IoT, and so on. Thanks to the combination of these technologies and data on consumer habits online, we can identify some of the significant growth opportunities for all industries moving forward.

The first one is video.

Since the first movie, 'Arrival of a Train', hit the big screen in 1896, humanity's appetite for video content continues to grow. While viewing habits have changed and consumption has shifted to smaller, more personalized screens, video content today accounts for more than 70 percent of network traffic and over 23 percent of the time spent online. And it continues

**Charles Yang**
President,
Huawei Middle East

**HUAWEI**

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this burgeoning. By 2020, it is expected that 90 percent of Internet traffic will be video. This is down to our relentless urge to consume video, on-demand and uninterrupted.

The numbers are mind-blowing, and companies that can take advantage of this opportunity will become business leaders. As we all know, for video business, content is the king. As such, Huawei launched its cloud-based video platform, MuchTV, which aggregates best in class content from various providers, and connects to operators' networks. As of now, there are five operators in the region that harness this platform to launch mobile video service. While the user-base for these services currently stands at around three million, it is expected to reach eight million by the end of 2017.

Although broad consumption of video has mainly been for entertainment, the applications for video across verticals are immense. The reliance on video will be fundamental to many industries in the future, from safe city to civil engineering developments, right down to visual inspection of infrastructure such as bridges, buildings and pipelines. This means immense opportunities for the ICT industry.

The second big opportunity is "verticals", as the ICT technology evolution had touched all other industries, nowadays the buzzwords are IoT and cloud.

IoT will play a vital role in the future of a connected world. It will greatly improve efficiency across various industries. For example, all the manufacturing processes will be connected – which is referred to as "industry 4.0".

IoT will also impact every aspect of our life, as our cities become smarter, with cars driving themselves, and drones delivering goods to our doorsteps.

Cloud is also changing the industry, during the past 10 years OTT companies unveiled the new cloud era, which provides agile and low cost cloud services; we can call it cloud 1.0. Over the next 10 years, it will evolve to cloud 2.0, where all vertical industries are shifted to cloud, the Industry Cloud. By 2025, more than 85% of enterprise applications will be shifted to the cloud, and this evolution will only grow further in the future.

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All of these new opportunities and services will require the adoption of the next generation networks – 5G. This new technology boasts massive connections of Millions/cell, effectively connecting all vehicles, drones, and fleets. 10Gbit/s peak rate can make VR/AR a reality. 1ms latency makes massive self-piloting much safer and more reliable.

As a technology leader, Huawei has been a driver in pushing this innovation forward, and continues to pioneer, especially 5G standard developments, with the aim of being a key contributor to 5G innovation and ushering in a revolutionary era of connectivity.

I believe that the Middle East region will become one of the first adopters of 5G technology, as this is one of the unique parts of the world with the highest mobile penetration rates. In addition, the region's massive appetite for on-demand content channels, such as YouTube and Netflix, it is only natural then for the region to embrace the latest and greatest mobile technology.

Looking at the future, the opportunities are astonishing. However, we need to work solidly today. For Huawei, two key areas are the primary focus: innovation and the ecosystem.

Huawei continues to invest heavily on research & development during last 10 years, with circa 10% of its revenues being spent on R&D and innovation. To date, Huawei's investments in R&D have exceeded US $30 Billion. In the Middle East, we have set up joint innovation centers and labs, to stimulate innovation for this region. That's the very reason why Huawei was awarded "Best Vendor Innovation" by Telecom Review in 2016.

Ecosystem and partnerships play key roles in the coming decade, be it video, IoT, or Cloud. For example, MuchTV aims to aggregate more than 100 partners for providing video, music and games. Smart parking also requires partnership with vendors for censors, modules, application development. We will continue to build this eco-system with our customers, partners, and share the benefit of the industry development.

The next decade will undoubtly hold great potential for the trailblazers who have vision and foresight to march forward. This will be a long march, as one famous idiom puts it "if you want to go fast, walk alone; and if you want to go far, walk together", Let us march forward together, to turn these opportunities into reality!

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# WHOLESALE NEWS

## NBTC Rejects TOT's Revised 2300MHz Wholesale Plan

The telecoms committee of the National Broadcasting and Telecommunications Commission (NBTC) has rejected TOT's revised 2300MHz mobile broadband wholesale proposal, The Nation reports. NBTC commissioner Prawit Leesata-pornwongsa told the news site that the committee was concerned that the state-backed telco's plan risks violating Article 46 of the Frequency Allocation Law, which requires license holders to operate frequencies independently, instead of allowing third parties to assume the responsibility. To date, 13 companies have picked up the terms of reference to bid to become TOT's partner, including Ad-

vanced Wireless Network, a subsidiary of Advanced Info Service (AIS); DTAC TriNet, a subsidiary of Total Access Communication; and TrueMove H Universal Communication and Real Move, both part of the True Corp group. TOT had expected to take 60 days to select a 4G partner by a 'beauty contest' method, with the firm or consortium with the best overall technical and commercial proposal winning. A binding contract is expected to be signed in the third quarter of 2017, with network deployment commencing in 4Q17. As previously reported by TeleGeography's CommsUpdate, in August 2016 the NBTC rejected TOT's initial proposal as lacking

in essential details, such as a network rollout plan, a timeline for soft and commercial launches and a clear roadmap of bandwidth allotment, prompting the telco to go back to the drawing board. In October 2015 the NBTC gave TOT the green light to develop 4G services using its existing 2300MHz spectrum for a ten-year period. The authorization was designed to help TOT create new revenue streams to offset lost build-transfer-operate (BTO) concession revenues, the watchdog claimed at the time. It has been suggested that the NBTC will revoke the frequencies if the 2300MHz network is non-operational by end-2017.

## Iranian Mobile Networks Get in-flight Roaming



international airlines, according to a press release from the company. The third-party firm, Payesh Namayesh Parham, allows the two biggest networks to catch up with Rightel who began offering the service in December. Now users of the two largest mobile networks can use voice, SMS and data while flying. The new service has been initiated in collaboration with OnAir; a Swiss company, which enables airline passengers to use their cell phones and laptops for calls, text messaging while in the air. The cost for calls, text message and Internet is 85,000, 30,000, and 650,000 rials respectively ($2.20, $0.80 and $16.50) Airlines in which Iranian cell phone users can now use this service include Aeroflot, All Nippon Airways, AZAL, British Airways, Cebu Pacific Air, EgyptAir, Emirates, Etihad, Hong Kong Airlines, Iberia, Libyan Air, Oman Air, Philippine Airlines, Qatar Airways, Royal Jordanian, Singapore Airlines and TAM.

Athird-party telecoms support firm, Mobiro has teamed up with the two

biggest mobile network operators in Iran to offer in-flight roaming on dozens of

## Regulator Suspends Telecel Interconnection Amid XAF600m Tax Dispute

Central African Republic-based mobile network operator (MNO) Telecel-RCA has had its international calling capacity suspended by the Agency of

Telecommunications Regulation (Agence de Regulation des Telecommunications, ART), with the watchdog also prohibiting the cellco from interconnecting with

its domestic rivals Orange, Moov and Azur. According to APA News, the ART imposed these sanctions on Telecel on 27 January after the MNO failed to pay

the government a total of XAF600 million (USD979,513) in duties and other taxes. According to ART personnel at the time of the announcement, the regulator intended to block Telecel's interconnection until the cellco paid the public treasury in full. However, subsequent reports from publications including News.Abangui.com state that Telecel's interconnection suspension was lifted two days later on 29 January, despite the cellco having not paid its dues, with unnamed local sources hinting at higher-level government intervention in the matter, although the exact circumstances of the apparent reversal are unconfirmed.

## NBN Connects First Wholesale Mobile Site, Inks Deal with VHA

NBN Co, the company rolling out Australia's broadband network, has announced it has signed its first agreement for its Cell Site Access Service (CSAS) product. NBN's first Cell Site Access Service (CSAS) customer, Vodafone Hutchison Australia (VHA), will shortly switch on new coverage in Molong, NSW by using tower sharing and fiber services supplied by the NBN network. The NBN CSAS product aims to enable mobile operators to connect mobile sites using the NBN network. VHA has installed an extra set of antennas on the Molong NBN Fixed-Wireless tower and used the NBN CSAS product to carry the mobile voice and data signals back to the NBN point-of-interconnection in Dubbo. The Molong area has been identified as an area that needs improved mobile coverage in phase one of the Federal Government's Mobile Blackspot Program. Molong is the first black spot area to be addressed directly with the help of NBN infrastructure and products.

## ACCC Extends Wholesale ADSL Regulation to 2022; Publishes Latest NBN Wholesale Market Report

Wholesale ADSL services will be regulated for another five years, the Australian Competition and Consumer Commission (ACCC) has confirmed. As per its decision – which will extend the declaration until 2022 – the watchdog said it believed that regulating the service on a national basis would promote the long term interests of customers during the transition to the National Broadband Network (NBN). Commenting on the decision, ACCC commissioner Cristina Cifuentes said: 'Continued access to wholesale ADSL services remains in the transition to the NBN and is critical to enable retail providers to compete with the dominant provider, Telstra, in the supply of high speed broadband services nationally … Declaring the ADSL service will lead to a more competitive retail sector which is likely to deliver greater choices for end users in the form of better prices, service quality and service options.' In separate but related news, the ACCC has published its report on the NBN wholesale market for Q4 2016. Among the highlights of the report it was revealed that nbn, the company overseeing the construction and management of the NBN, was supplying a total of 1.705 million broadband wholesale access services as at 31 December 2016, up 28% quarter-on-quarter. Of that total, connections via fiber-to-the-premises (FTTP) technology made up the lion's share – 1.015 million – while fiber-to-the-node (FTTN) and fiber-to-the-basement (FTTB) accesses accounted for 411,220 and 43,097, respectively. Notably, the report for the first time included data on the uptake of NBN services via HFC and long term satellite access technologies, with the number signed up to these standing at 54,829 and 14,551, respectively. With regards to the speeds taken up, meanwhile, the 25Mbps/5Mbps tier continues to be the most popular option, with 930,819 of the total accesses reported at this level. It was noted, however, that there had a sizeable increase in the number of 100Mbps/40Mbps connections being requested, with the total at that speed reaching 201,262 at the end of the reporting period. In terms of the operators utilizing NBN-based access services, the top four acquirers remained unchanged, those being Telstra, Optus, TPG Telecom and Vocus Communications.

## MVNOs Unhappy with High EU Wholesale Data Roaming Rates

MVNOs are disappointed with the EU decision on wholesale roaming price caps, saying the data rate has been set "much too high". The EU institutions agreed a glide path starting at EUR 7.7 per GB from June and going down to EUR 2.5 per GB in 2021. This is still well above the rate proposed earlier by the European Parliament of EUR 1 per GB. The industry group MVNO Europe said the high rates will "strongly affect competition" and make it difficult for MVNOs to recover their costs. It could also lead to higher overall prices for Europeans, it said, noting that many retail customers are already paying EUR 1-2 per GB. In particular the fair-use roaming rules approved earlier will make it difficult for mobile providers to offer 'roam like home' to customers. the association said. Under these rules, the amount of data prepaid users and subscribers with unlimited plans can use while roaming is based on the wholesale price cap. MVNO Europe Vice-President Innocenzo Genna said in a statement: "European citizens expect the end of the roaming surcharges to happen without losing competitive tariffs and innovative offers: by contrast, with the present deal on wholesale caps, they will be heavily disappointed."

# 'Roam-like-at-home': EU Moves Closer to Ending Roaming Charges

After years of negotiation, the European Union's plan to end roaming charges across the continent on 15 June 2017 is now a step closer. Negotiators from the European Parliament, Commission and Council this week agreed on price caps for the amount that carriers will pay one another when their when their customers call, send texts or use data within the EU. "Goodbye roaming," tweeted Miapetra Kumpula-Natri, the EU lawmaker who negotiated for setting wholesale rates on behalf of the European parliament. Wholesale roaming charges have been fixed at EUR 7.70 per gigabyte from June 2017, reducing to EUR 2.50 per gigabyte in 2022. Phone calls will be set at EUR 0.032 per minute and sending a text will cost EUR 0.01 from June 2017. The caps will be reviewed every two years. Wholesale charges for mobile data was one of the most controversial aspects of the deal, given Europe's high mobile Internet consumption rates. And wide differences in national prices and consumption patterns made reaching a Europe-wide agreement over wholesale charges for data a difficult task. Caps needed to be low enough for operators offer roaming at no extra cost to customers without raising domestic prices, but high enough to recover their costs.

**Price caps too high?**

However, the price caps are set too high, argues MVNO Europe, which represents the interests of the Mobile Virtual Network Operators that serve more than 10% of the EU's mobile customers. "With excessive wholesale roaming charges, dominant mobile operators will be the only ones to drive the market, adding barriers for smaller players," said MVNO Europe in a statement. "MVNOs, being the first-movers in offering innovative services, are therefore crucial for competition adding real value on the telecoms market and to end-users." Innocenzo Genna, MVNO Europe Vice-President, stated that, "European citizens expect the end of the roaming surcharges to happen without losing competitive tariffs and innovative offers: by contrast, with the present deal on wholesale caps, they will be heavily disappointed."

**Other regions will be watching**

Roaming charges are, of course, an important issue for consumers and service providers worldwide. And getting the balance right is often a challenge for regulators. Harmonizing an agreement across borders can be even more challenging, which is why Europe's moves will be watched across the world. Other regional moves to end roaming charges include recent agreements by a group of west African nations to abolish international mobile voice roaming charges. On 31 March 2017, travelers between Togo, Cote d'Ivoire, Guinea, Mali, Burkina Faso and Senegal will be able to make and receive calls as if they were in their own country. The move follows similar efforts across the continent in East Africa.

# MegaFon Investigated Over Roaming Hikes, but only Faces Tiny Penalty

The Russian Federal Antimonopoly Service (FAS) has filed a case against cellco MegaFon regarding its recent increased international roaming charges for 38 countries. The operator could face a fine of up to RUB1 million (USD16,600), although commentators cited by ComNews noted that this penalty would be insignificant for MegaFon. The same experts claimed that the December price hikes stemmed from MegaFon's 'weaker' international negotiating position regarding foreign operators compared to its main rivals. According to the FAS, MegaFon's actions may have violated the Law On Protection of Competition regarding pricing for its voice, data and SMS roaming fees. The comptroller added that the other main Russian cellcos, VimpelCom (Beeline), Mobile TeleSystems (MTS) and Tele2 Russia, have not made similar tariff increases.

# EC Must Deliver on Roaming Promises, VP Ansip Warns

Andrus Ansip, the European Commission's (EC) VP for the Digital Single Market, urged EU lawmakers and member states to compromise on a crucial barrier to the Commission's plan to abolish roaming rates, warning a failure to do so could bring the regulator's credibility into question. The European Parliament and member states are set to meet today to hold possibly the final round of talks to decide on caps for the wholesale roaming charges operators pay each other when consumers use services abroad. However, the issue risks derailing the entire proposal – which would allow consumers to use their phones abroad without paying extra – with both sides far apart on where the wholesale caps for data should be set. The European Parliament is pushing for an initial cap of €4 per GB, while member states want it set at €8.50 per GB. In a letter cited by Reuters, Ansip urged the two sides to show "significant flexibility" over the issue. "If no political compromise can be achieved by next Tuesday [31 January 2017], people will rightly question our common will and ability to deliver on our promise to them. That is a risk we should not run," he said. Ansip's comments come after EU member states approved an EC mobile roaming fair use policy last month, leaving only the issue of wholesale roaming charges to be resolved before legislation can be passed to end consumer surcharges. The EC proposed a deadline of June 2017 to abolish consumer roaming charges.

# EC Roaming Plan a Step Closer After Wholesale Fee Deal



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After months of negotiations representatives from the European Parliament, Council and Commission agreed a level for wholesale roaming price caps, paving the way for the abolition of consumer roaming fees in June. Wholesale rates – the charge operators levy on each other for connecting customers roaming in the EU – proved a thorny issue with different levels suggested by the European Commission (EC), MEPs and Council of member states. Yesterday, the three groups finally agreed on caps of €0.032 per minute for voice calls, €0.01 for SMS and a decreasing scale for data starting at €7.70 per GB in June and eventually reaching €2.50 per GB in 2022. Between those dates, operators will be tied to per GB limits of €6 during 2018, €4.50 in 2019, €3.50 in 2020 and €3 from 1 January 2021. The data charge proved the most difficult issue for the EU bodies to resolve. In November the European Parliament called for a sliding fee from €4 per GB to €1 per GB. Ahead of the proposal going to the European Council, Finnish Council member Anne Berner threatened to demand further reductions, citing fears of increased consumer prices. Despite Berner's comments, the Council eventually voted for an increased limit of €10 per GB in 2017 and €5 by 2021. In its original bill the EC suggested a rate between the levels MEPs and the Council demanded. While all parties agreed on wholesale pricing levels, the policy must still be finalized by the European Parliament and European Council. Agreement on the caps constituted the final hurdle to passing legislation to end consumer roaming fees, after all the bodies approved a fair usage policy in December. Andrus Ansip, EC VP for the Digital Single Market, said: "This was the last piece of the puzzle. As of 15 June, Europeans will be able to travel in the EU without roaming charges. We have also made sure that operators can continue competing to provide the most attractive offers to their home markets. Today we deliver on our promise." As the data cap reduces, the EC will conduct a review of the wholesale telecoms market and submit its findings by the end of 2019

# EU Reaches Compromise on Cut in Wholesale Roaming Rates

The European Parliament and Council have reached a compromise on the extent of the reduction to wholesale roaming rates. Under the agreement, the maximum wholesale charge for data will be EUR 7.7 per GB from 17 June and then continue to decrease in stages. From 1 January 2018, the cap will drop to EUR 6.0 per GB, from 1 January 2019 to EUR 4.5 per GB, from 1 January 2020 to EUR 3.5 per GB, from 1 January 2021 to EUR 3.0 per GB and from 1 January 2022 to EUR 2.5 per GB. The rates are higher than those originally proposed by the Parliament, but lower than the Council's first decision and European Commission's proposal. The maximum charge for calls was agreed to fall from the current EUR 0.05 per minute to EUR 0.032 from 15 June, and the wholesale rate for text messages will decrease from EUR 0.02 to EUR 0.01 per message. The European Commission is tasked with reviewing the rates every two years, with its first report due at the end of 2019. Together with the retail fair use policy, the new wholesale caps will support the plan to end all retail surcharges for roaming in the EU from June. The member states must still give their formal approval for the wholesale rates in the coming weeks.

# EU Finds Happy Medium for Wholesale Roaming Rates

The EU this week finalized caps on wholesale roaming rates, paving the way for the end of retail roaming charges from June 15. In a statement, the European Commission said that its negotiators, as well as those from the European Parliament, and the European Council, agreed to limit wholesale prices to €0.032 per minute for voice and €0.01 per SMS. Data will be capped at €7.7 per GB; the price will fall gradually over the next five years to €2.5 per GB by January 2022. "This was the last piece of the puzzle," said Andrus Ansip, the Commission's vice president for the Digital Single Market (DSM). "As of June 15, Europeans will be able to travel in the EU without roaming charges. We have also made sure that operators can continue competing to provide the most attractive offers to their home markets," he said. The wholesale cost of data was the major sticking point in the negotiations. In December, the Council proposed an initial cap of €10 per GB, falling to €5 per GB by mid-2021. That was considerably higher than the Parliament's proposal in November of €4 per GB, falling to €1 per GB. In June, the Commission suggested a cap of €8.50 per GB. "I warmly thank the European Parliament rapporteur Miapetra Kumpula-Natri and all the negotiators from the European Parliament as well as the Maltese Presidency of the Council of the EU and all those involved in achieving this milestone. Their efforts made it happen," said Ansip. The final agreement will take effect once it has been formally approved by the Parliament and Council. The Commission will also conduct a review of the wholesale market, delivering an interim assessment in December 2018, and final assessment by the end of 2019.

**Sudatel through its Sudan operating company "SUDANI Telecom" is proud to launch its very first Mobile Money Services under the brand name Gorooshi.**

This breakthrough service allows its users to enjoy the fastest, safest and most convenient method of transferring and receiving money at anytime.

The Service Gorooshi makes it possible for its users to top-up airtime, pay phone & utility bills , in addition to transferring money straight to bank accounts and carrying out regular retails purchases.

Gorooshi also enables its users to develop their own private Mobile Money Wallet free of charge, on any type of phone and does not require internet connectivity or the setting up of a Bank Account to function.

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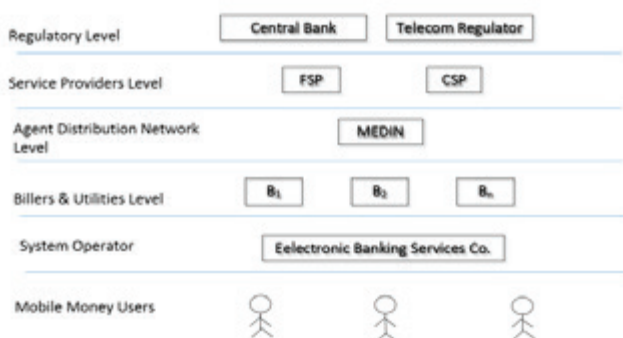# Utilizing Digital Innovations in Mobile Payments

Globally, 2.5 billion people out of a population of 7.4 billion are excluded from financial services, while 4 billion people out of 7.4 billion own mobile phones (1). Meanwhile in Sudan, this access to financial services ratio is far below world averages with 35 million Sudanese out of 39 million are excluded.  This while mobile penetration is at a high of 27.8 million Sudanese who currently own mobile phones (2).

Historically, the Government of Sudan exerted enormous efforts.   In the 1900s banks were established. In 1990s electronic payment systems were launched with centralized and nationwide platforms. These included SWIFT for international remittances, ATM networks for cash withdrawal, and a system for check clearance.  The year 2007 witnessed the introduction of electronic payment channels, such as POS, SMS and ATM, where individuals could purchase electricity, top up their mobile phones, pay their mobile phone bills.  In recent times, the Government introduced nation-wide system (through Sudatel as the pioneer Telco to introduce MFS) to pay electronically for any government service.  Yet with all of this effort the mobile financial penetration remained low.

On the way in 2013 there were more flexible payment tools and channels. E-purse (reloadable prepaid card) was introduced in both virtual and physical forms. Finally, high mobile phone penetration segued virtual channels into mobile money services.

Building on this history, Sudan opted for a Collaborative and Centralized MFS Model. The base platform is owned by the Central Bank of Sudan who delegated its management to Electronic Banking Services Company (EBS - a company mandated to operate national payment systems). This model allowed equal opportunity and operations for all telecom operators as well as all banks in Sudan.   There are no imbalances between powerful telcos and the diverse number of banks.

However, this model has more complexity because of the myriad stakeholders involved, as illustrated here:

**Manal Mubarak Yassin Elfaki**
Manager, Mobile Financial Services | Digital Services Department

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Starting at the regulatory level we have the Central Bank of Sudan (CBOS) and the National Telecommunications Corporation (NTC) regulating and standardizing a mix of banking and telecom services.

On a provisioning level we have two types of providers:

- Financial Services Providers (FSP): any institution that owns a financial license from the Central Bank.
- Customer Services Providers (CSP): any brand that owns a customer base and capabilities to build and maintain a brand, a distribution network, and/or customer interfaces to provide such financial services to customers.
- On a distribution level (Merchant Distribution Network – MEDIN), there are Points of Sales (POS) where the cash physically moves in and out.
- Billers and Utility (Bn) provider level are the business owners who accept payment through mobile money for their services and products.

Finally on the system operation level is the operator (EBS).

Such a model encompassing such divers' stakeholders, each with their own interests, sparks heated debates around even its basic viability. Conflicts abound from a multi-stakeholder platform where each has limited control over the system. If not well managed, the debates may affect time to market and limit its functionality. However this model lays the foundation for smooth interoperability between customers and allows for choice of the different brands. It provides uniform standards for ancillary payment systems such as ATM's to convert their E-money to cash, and transfer money between their E-wallet and bank accounts. At the same time it removes platform operational overhead from the providers. This leaves each to differentiate and compete on customer service. Our findings even suggest that

the model encourages collaboration with banks rather than competing with them.

Sudatel Group has introduced mobile money via its Sudan subsidiary, Sudani, back in 2014 in cooperation with Faisal Islamic Bank using the brand name 'Gorooshi' (My Money in Sudanese slang). At first it was very limited in terms of services and access points. Cash In/ Out services were limited to 7 Sudani customer service shops and 14 Faisal Bank branches. Despite this, the service was very well accepted by our customers, both banked and unbanked alike. The need for mobile money was made so evident. Such unmet needs led to a migration to a more advanced platform in end of Q3 2016. The service was then widely and commercially launched.

## Sudani's vision is to develop full MFS solutions equally to both the banked and the unbanked alike with finance services cards and mobile money.

**Service Challenges:**
As any mobile money service the main challenge was offering convenience, which meant building a wide network of agents. This was paralleled with the challenge of mass education and building broad awareness. In the case of Sudan, there was a particularly unique challenge of competing with Airtime Transfer. Due to the absence of any tangible convenient money transfer options, people used a surrogate of air time credit transfer provided by all mobile operators to send money to relatives, friends and even pay for goods. Simply put, a user would transfer air time to his distant beneficiary who then sold the airtime at a discount to any nearby airtime dealer for cash. Over time this evolved to a massive and

ingrained informal distribution network for airtime transfer. Dealers would earn from 5% to 10% per transaction, which became their real daily 'bread and butter'. Fearing cannibalization, dealer resistance to switch to a standardized and centralized mobile money system was enormous.

To overcome these challenges, Sudani created a hybrid distribution network. It is a combination of Sudani-owned customer shops dotted around Sudan ringed with independent Sudani telecom dealers, and blended with a third-party non-telecom retail network (Rittal Technology Co). The service was then proliferated with a 360 degree communications campaign combined with field teams on the ground to demonstrate, educate, acquire and activate the services directly with customers. In addition, Sudani took the lead with the national regulator, NTC, to regulate airtime transfers to gradually migrate people towards quality and secure mobile money services. Prior to this campaign, the number of MFS subscribers peaked at 136,449. Only Gorooshi word-of-mouth attracted users at the time. Post campaign efforts resulted in a customer growth of 52% within only one month of launch and keeps growing aggressively to this day.

Sudani's vision is to develop full MFS solutions equally to both the banked and the unbanked alike with finance services cards and mobile money. This will not be done alone. Sudani is partnering with all manner of goods and services companies to distinguish Gorooshi from its peers while making it more convenient and useful in terms of the variety of services on offer. In the end, Gorooshi will be instrumental to achieve a parity of MFS users to mobile holders. The aim is to have banking in the palm of each and every Sudanese.

On a Group level, Sudatel will spearhead MFS with a Gorooshi-like model adapted to each of its subsidiaries in West Africa.

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(1) Wireless Federation, Global Mobile Money, Innovation to sustain and build revenues, Volume IX, 2015
(2) NTC Annual Report, 2015

# China forecast to reach 1B 4G users by end-2017

China's 4G subscriber base is predicted to reach one billion by the end of this year after adding more than 240 million LTE users in 2017, according to the China Academy of Telecommunication Research. The number of LTE users in the country increased by 347 million in 2016 to end the year at 762 million, accounting for 43 per cent of global 4G connections compared with 38 per cent at end-2015, according to GSMA Intelligence. TD-LTE users are expected to represent 70 per cent of China's 4G users this year and to hit 870 million by 2021, C114.net reported. Market leader China Mobile runs a TD-LTE network (and has 535 million LTE users) while rivals China Unicom and China Telecom both operate TD-LTE and FDD-LTE networks. 4G penetration in China rose from 32 per cent at the end of 2015 to 57 per cent at end-2016. 2G subscribers dropped to 384 million and accounted for 29 per cent of total mobile connections at the end of last year, down from 44.5 per cent at the end of 2015. The country had 1.3 billion mobile connections at the end of 2016. GSMA Intelligence forecasts that global 4G connections will reach 2.3 billion by the end of 2017, which would mean China would maintain a 43 per cent share of global LTE subscribers.

# DOCOMO, NEC Carry out 5G Massive MIMO Verification Trials

Japanese equipment vendor NEC Corp has announced the successful completion of a joint trial with mobile network operator (MNO) NTT DOCOMO concerning 5G base station verification trials of Massive MIMO technology – which are seen as a key component of next generation base stations. The pair confirmed that the trials in central Tokyo and Kanagawa Prefecture utilized NEC's so-called 'massive-element' Active Antenna System (AAS) supporting the low-SHF band, where radio waves 'are reflected or diffracted due to buildings, utility poles, vehicles and people, and indoor environments, which also include many obstacles, such as columns and walls'. The joint press release notes that the equipment maker's AAS 'adopts fully-digitized antenna beam control technology, which improves the precision of beam forming. While transmitting beams to the target mobile handsets, it is capable of forming beams that counteract interfering signals using the multi-path'. NTT DOCOMO is placing itself squarely in the vanguard of 5G R&D. TeleGeography's GlobalComms Database writes that in November 2016 the MNO teamed up with Huawei to conduct a field trial of 5G network technology operating in the 4.5GHz band, achieving speeds of up to 11.29Gbps and a latency of less than 0.5 milliseconds. Meanwhile, in a separate trial DOCOMO and Samsung carried out a 5G test which achieved data rates of up to 2.5Gbps in a vehicle travelling at 150km/h. Transmissions were conducted using the 28GHz high-frequency band, one of the candidate bands that the Ministry of Internal Affairs and Communications is considering for commercial 5G networks in Japan. Also in November 2016, DOCOMO announced plans to team up with Ericsson of Sweden and Intel to develop a 5G trial environment in central Tokyo, while the cellco also has in place a memorandum of understanding (MOU) with Huawei, signed in December 2014, under which the two firms continue to test Massive MIMO; mixed numerology using filtered OFDM (f-OFDM); and combined performance of Sparse Code Multiple Access (SCMA), Polar Code, and f-OFDM in Japan. DOCOMO is hoping to have a live 5G network in service in 2020.

# Zain Saudi, Nokia Trial Advanced 4.5G Features

Zain Saudi Arabia and Finnish equipment vendor Nokia have announced the successful trials of advanced 4.5G features, including uplink carrier aggregation (CA), 4×4 MIMO, downlink 256 QAM and uplink 64 QAM. The trials, which took place in Jeddah (Saudi Arabia), will help Zain Saudi Arabia evolve towards the next generation technologies of 4.5G Pro, 4.9G and eventually 5G. Four antennas – both on the Nokia Flexi Multiradio 10 Base Stations and mobile devices (4×4 MIMO) – improved the network performance by 88% to reach download speeds of up to 134Mbps per 10MHz carrier, while uplink CA software aggregated 1800MHz and 2100MHz bands, creating larger, virtual carrier bandwidths and boosting the network capacity and uplink speeds (up to 43Mbps). The higher order modulation (256 QAM) increased the downlink speed by 36% per carrier to reach speeds of up to 98Mbps, with uplink 64 QAM improving spectral efficiency and uplink speed by 32% to 32Mbps per carrier. In separate news, Zain Saudi has paid SAR219.46 million (USD58.5 million) to rival Etihad Etisalat (Mobily), as ordered by an arbitration panel in November 2016. Mobily requested a referral to arbitration in early December 2014 with regards to receivables due under an agreement signed with Zain Saudi on 6 May 2008. Mobily disclosed that by 30 November 2013, Zain owed it SAR2.2 billion for the provision of national roaming, site sharing, transmission links and international traffic. Zain denied the claims and stated it only owed SAR13 million, but the arbitration panel subsequently ruled in favor of Mobily.

# Huawei, Australian university open NB-IoT lab

Huawei is providing Australia's James Cook University with the latest IoT technology as well as direct funding to create a Narrow Band IoT (NB-IoT lab) to research and develop applications, smart devices and sensor networks. Research carried out at the IoT lab will feed into Huawei's global IoT development. Part of the research will focus on IoT for a smart reef, smart healthcare and smart agriculture.

# Ericsson Hails First Combined 5G Platform

Ericsson launched an "industry first" combined core and radio platform able to support 5G use cases, which it believes will be a vital tool in accelerating the deployment of next generation networks. The announcement is the company's first major 5G-focused product launch since new CEO Borje Ekholm highlighted the importance of the new technology to the company's turnaround plans during his first day in the job. Speaking ahead of the company's showcase at MWC, Arun Bansal, head of Business Unit Network Products at Ericsson, hailed the new platform and highlighted the need for operators to be fully prepared to take advantage of the new business opportunities offered by 5G when the next generation technology becomes a reality.

"Today, we are introducing a 5G platform which includes a 5G core, radio and transport together with support systems, transformation services and security," he said. "With this we are the first with combined 5G radio and core and we have the market's first 5G access and transit portfolio." Ericsson has high-hopes for 5G and predicts the market opportunity for stakeholders will be worth $582 billion by 2026 – representing a 34 per cent growth on current worldwide operator revenues. This boost will be partly due to the new fields of business technologies that IoT, VR and AR will open up. "We are seeing a strong pull [towards 5G] from leading operators," Bansal said. "Digital transformation of industries is happening now. Several have started driving 5G use cases and may not wait for operators to act." "The main requirement is driven by both consumer use cases, but more significantly industrial use cases around the globe."

**Trials underway**
Ericsson is currently in early-stage trials with 28 operators and expects 2017 to see an increase in 5G field tests ahead of full deployment during 2019 and 2020. Last month, it demonstrated Gigabit LTE with Australian operator Telstra – which is expected to support a range of 5G use cases. Ericsson also announced earlier today it had conducted trials of the world's first intercontinental '5G' network with SK Telecom and Deutsche Telekom.

# SK Telecom, DT, Ericsson Demo Intercontinental 5G Trial Network



Korean telco SK Telecom, together with German operator Deutsche Telekom (DT) and Swedish vendor Ericsson have jointly built and demonstrated what they claim to be the world's first intercontinental 5G trial network. DT and SK Telecom network slices are now available in the other operator's footprint, connecting Germany and South Korea. Also, a proof-of-concept has been implemented and successfully evaluated, featuring the creation and roaming extension of network slices optimized for Augmented Reality (AR) and maintenance services. The successful demonstration was hosted at DT's corporate R&D center in Bonn, Germany and SK Telecom's 5G Testbed at Yeongjong-do, Korea. "5G is not just a faster network. 5G will provide extreme user experience anywhere and anytime, even when the user roams across different operators globally", said Alex Jinsung Choi, CTO SK Telecom. "Federated network slicing will enable seamless platform sharing amongst operators at a global scale for continuous and guaranteed user experience." "Our customers are demanding global connectivity with a unified service experience," said Bruno Jacobfeuerborn, CTO Deutsche Telekom. "Network slicing is envisaged as a key enabler to support multiple services in the 5G era. Today's breakthrough shows we can extend that concept to ensure optimized service experiences with global reach for our customers." In 5G, network slicing technology will allow operators to configure an end-to-end network that provides the desired overall functionality and service parameters. Federated network slicing will make it possible for an operator to provide a network service globally. SK Telecom said that the home and visited operators must have agreements in place that enable the recreation of a given network slice in the visited network. These agreements should cover aspects such as: network slice availability at the access layer, availability in the core network and the connection to customer application servers. "Network slices in the context of 5G will be like 'virtual networks on-demand'. With this world's first intercontinental 5G trial network, we truly demonstrate the provisioning of network slices to global customers when abroad," Ulf Ewaldsson, Senior Vice President, Chief Strategy and Technology Officer at Ericsson, said.

# Midweek M2M: IoT and Machine-to-machine Developments

US giant AT&T has announced the acceleration of its LTE-M Low-Power Wide-Area (LPWA) network deployment for IoT services, with 'nationwide' LTE-M availability in the US now scheduled for the second quarter of 2017, and the same level of coverage in Mexico by the end of the year. 'Thanks to the success of our pilot [launched in October 2016], we're on track to support LTE-M devices across our commercial network in the US and Mexico ahead of schedule,' said Chris Penrose, President, Internet of Things Solutions, AT&T, adding: 'We're seeing real momentum for LTE-M that will let us connect more end points than ever before. And we can do it at a lower cost with superior performance and carrier-grade security.' Kelly King, CEO, AT&T Mexico, added: 'This is huge for our enterprise customers. It's an important step to help accelerate the speed of business.' Another US titan, Verizon is also rapidly developing its IoT network capabilities. Module maker NimbeLink demonstrated a live Category M1 (Cat M1) connection on the Verizon Wireless LTE network by connecting its device directly to Verizon's ThingSpace platform at the recent IoT Evolution Expo in Fort Lauderdale, Florida. NimbeLink's Brandon Hart, director of technical business development, said: 'It's an industry first. People like to talk about how M1 is coming, but we were actually able to demonstrate it working.' Many devices that currently use Wi-Fi or Bluetooth to connect to LTE routers or gateways are expected to connect to the LTE network directly when they are equipped with Cat M1 modems. Meanwhile, across the 'pond', LTE-for-IoT chip maker Sequans Communications and Telefonica have completed the first live LTE Cat M1 data call in Europe, at Telefonica's Innovation Lab in Madrid, Spain, where an IoT device powered by Sequans' Monarch LTE-M/NB-IoT chip communicated with an LTE base station over-the-air. A press release declared the event as 'a major milestone for Telefonica on the way to a commercial LTE-M network launch, which will support cost-effective, widespread deployment of IoT.' Mobile operator Beeline Kazakhstan is testing the Cisco Jasper platform for control and management of M2M SIMs, with a view to launching it commercially later this year. The 'Control Centre' platform offers a single management portal, accessed remotely by customers who can control various parameters of their SIMs/connections and receive real-time data on the state of connectivity. Vodafone Iceland is planning to launch live NB-IoT network services in autumn this year following a pilot in partnership with Huawei, according to Icelandic newspaper Vidskiptabladid. Satellite provider Inmarsat is claiming the first 'global' IoT network, powered by the Actility ThingPark LPWA platform, using LoRaWAN-based connectivity on the ground and satellite connectivity as the network backbone. The launch is the culmination of a partnership begun last year combining Inmarsat's global L-band satellite connectivity platform with the ThingPark IoT management platform to deliver an integrated IoT solution linking connectivity, services and IoT devices from a single application and service management point. Actility CEO Mike Mulica said of the project: 'Actility has worked on many large-scale nationwide LPWA network deployments, but this is bigger: we're fantastically excited about being part of the first truly global IoT network in partnership with Inmarsat.' Also looking globally, Nokia has announced the creation of a 'worldwide IoT network grid' ('WING') which it calls a 'one-stop-shop, full service model offering seamless IoT connectivity across technologies and geographical borders to address the transport, health, utilities and safety markets.' WING includes Nokia's M2M Core (including Nokia Cloud Packet Core) as a managed service, and a 'global services command centre' built on the Nokia IMPACT IoT Platform. Nokia says WING will manage the IoT connectivity and services needs of a client's assets, such as connected cars or freight containers, as they move around the globe, reducing the complexity for enterprises who would otherwise be required to work with multiple technology providers. Intelligent switching between cellular and non-cellular networks means that, for example, a shipping container linked by satellite in the ocean could switch to a cellular network connection near a port. Jersey Telecom has launched its previously-announced LoRa network, partnering Stream Technologies, which provided its 'IoT-X' connectivity management platform, the Stream LoRaWAN network server, an expert support team and assistance with the network's design and implementation. The network has twelve LoRa gateways deployed throughout the island. SK Telecom of South Korea has provided its expertise to Thai state-owned operator CAT Telecom in a partnership to deploy a LoRa-based IoT network and services in Thailand. Under their agreement, the pair are deploying a pilot LoRa network in Bangkok and Phuket, with a view to launching pilot IoT services in April. Initial services will include tracking services for vehicles and tourists, with many applications to follow such as smart metering and smart lighting. Iran's ICT minister, Mahmoud Vaezi, says a special committee within his ministry has been working on IoT development for two years, as the country prepares to push forward a plan to implement smart cities and automated utilities. As quoted by PressTV, Vaezi emphasised that certain steps had also been devised for adopting requisite regulations for IoT in Iran, whilst an IoT pilot project in Tehran is operational, with preparations in motion for its large-scale expansion. Also in the Middle East, UAE operator Du and the University of Sharjah are collaborating on 5G/IoT development as part of the UAE 5G Innovation Gate (U5GIG) programme. Du is building a UAE 5G and IoT Innovation Lab to test, validate and develop 5G and IoT use cases and services, to which university staff and students will have access, and experts from both Du and the university will jointly supervise related graduate and undergraduate research projects. AT&T, IBM, Nokia, Palo Alto Networks, Symantec and Trustonic have joined forces to tackle IoT security challenges under the IoT Cybersecurity Alliance banner. The group will research and raise awareness of methods to better secure the IoT ecosystem. In the past three years AT&T says it has seen a 3,198% increase in attackers scanning for vulnerabilities in IoT devices, whilst 58% of companies surveyed by AT&T in 2016 said they were 'not confident' in the security of their IoT devices. Finally, a statistical bulletin from French telecoms regulator Arcep showed

that French network operators added 808,000 net new M2M SIM connections in the fourth quarter of 2016, bringing the active M2M SIM total on their networks to 11.737 million by end-December (up by 11.1% year-on-year). The total includes a tiny proportion of M2M SIMs in France's Overseas Departments, just 26,000 at the year-end.

## IBM, Fybr Partner for IoT

In a joint effort to improve the quality of life in urban areas, IoT and Smart City platform provider Fybr has teamed with IBM's Watson Internet of Things group. This new partnership will bring sensor data from Fybr's Smart City Platform to IBM's Bluemix Cloud to take advantage of Watson's advanced analytics capabilities to add continuous learning and contextual data to Fybr's sensor data. IBM describes Watson IoT as "a cognitive computing system that learns from experience." With Fybr's gateways and edge devices sending data on things like traffic, air quality and lighting to the IBM Bluemix Cloud, Watson can combine the information sent from Fybr Smart City implementations with other data such as news, weather, or historical events. By optimizing public safety, traffic, energy data and more, local leaders can make intelligent and informed decisions more rapidly—enhancing livability and sustainability within a community. With more than two-thirds of the World's population expected to live in urban areas by 2050, the evolution of urban infrastructure has never been more critical for community advancement and overall quality of life. The partnership between the Fybr Smart City Platform and IBM's Watson IoT platform can help to address growing urban challenges. "We have integrated the Fybr Engine with the IBM Watson Analytics Platform running on the IBM Bluemix Cloud," said Mrinal Wadhwa, chief technology officer of Fybr. "By combining data from Fybr devices with data in other systems that a customer may have on the Bluemix Cloud and then using Watson's advanced analytical and machine learning capabilities, we can bring significant benefits to a city by delivering more contextual, actionable and meaningful insights." "In the course of helping build smart cities over the last decade, we continually hear a need for better tools to tackle the problems of safety, efficiency, and public responsiveness. Fybr builds intelligent systems that leverage technology to make communities more efficient—all while reducing costs," said Rik Goodwin, PhD., chief operating officer of Fybr. "Working with IBM and Watson, we can help local leaders leverage the benefits of emerging technologies in a manner that is cost-effective and reliable." Bob Glatz, CEO of Fybr added "If cities can have systems and policies that adapt to the data produced by billions of interconnected sensors and devices, they can positively impact the quality of life within their community. The insights that IBM's Watson would bring to the Fybr Smart City Platform will be a tremendous asset for local, state, and federal agencies."

## Nokia Gives IoT WINGs

Finnish vendor's worldwide IoT network grid takes aim at transport, health, utilities and safety markets. Nokia on Friday took the wraps off a managed IoT service that gives enterprises seamless connectivity across borders and network technologies. In addition to connectivity, the Finnish vendor's worldwide IoT network grid (WING) offers subscription and device management, security and analytics. The service also includes provisioning, operations, billing, and dedicated customer services. Connectivity is maintained by automatically switching between cellular and non-cellular networks. For instance, a shipping container could be connected to a cellular network when it is near a port, but then connected by satellite when it is in the middle of the ocean. Cellular e-SIM subscriptions are handled by Nokia's IMPACT IoT platform, which automatically connects an asset to a local operator's network when it crosses a border. In order to provide truly global IoT connectivity, Nokia aims to partner with operators and tap their excess network capacity. "We are reaching out to communication service providers across the globe to collaborate with us so that we can extend the benefits of the connected world to more industries," said Igor Leprince, head of global services at Nokia. As well as pitching WING directly to enterprises – particularly those in the transport, health, utilities, and safety markets – Nokia is also offering to operators as a white label managed service model. "The complexity of IoT deployment, service development and business models makes it imperative for market participants to play to their strengths and build long-term, flexible partnerships. Nokia's managed IoT service offering fits well with this requirement," said Alexandra Rehak, head of Ovum's IoT practice. "The new offering leverages Nokia's broad portfolio of technologies and strong expertise in network design and management, and should open up new business opportunities for operator customers and large enterprises alike," she said.

## AT&T, IBM, Nokia Take Aim at IoT Security

Palo Alto Networks, Symantec, Trustonic also among founding members of new IoT Cybersecurity Alliance. AT&T and a group of major IT and telco vendors have formed a new industry body to address cybersecurity issues related to the Internet of Things. Called the IoT Cybersecurity Alliance, the group also includes IBM, Nokia, Palo Alto Networks, plus security

Helping these organisations stay protected requires innovation across the whole IoT ecosystem," said Mo Katibeh, SVP of advanced solutions at AT&T, in a statement on Wednesday. AT&T said that over the last three years it has seen a 3,198% increase in attackers scanning for vulnerabilities in IoT devices. The IoT Cybersecurity Alliance's stated mission is to research and raise awareness of better ways to secure the IoT ecosystem, thereby thwarting any ne'er-do-wells. More specifically, the group will research security challenges across different IoT verticals and use cases, such as connected car, smart city, industrial, and healthcare. Security issues will be addressed at every layer, including endpoint, connectivity, cloud, and data/application layers. The group also aims to make IoT security easily accessible across the ecosystem, and will engage with policymakers and other organizations to drive awareness of IoT security issues. "Be it a connected car, pacemaker or coffee maker, every connected device is a potential new entry point for cyberattacks," said AT&T chief security officer Bill O'Hern. "Yet, each device requires very different security considerations. It's become essential for industry leaders and innovators like those in the founding members of this Alliance, to work together to help the industry find more holistic security approaches for IoT."

specialists Symantec and Trustonic. "Today's businesses are connecting devices ranging from robots on factory floors to pacemakers and refrigerators.

## AT&T Wants to Conduct Tests at 3.7-4.2 GHz and Higher

AT&T is asking the FCC to grant it a two-year experimental license so that it can conduct testing and propagation measurements to evaluate the viability of the 3.4-4.2 GHz and millimeter-wave bands for supporting 5G. While rival Verizon has been talking about 5G for some time and is conducting pre-commercial tests in about 10 markets, AT&T is sticking to its standards guns and close to the 3GPP's standards development. AT&T said in its application that its tests will provide valuable information for optimizing 5G system parameters being discussed in 5G standard activities and provide data on coverage, capacity, latency and other key performance indices. AT&T's application lists 3.7-4.2 GHz but also many other bands, including 27.5-2.835 GHz, 3.7-3.86 GHz, 64-71 GHz and 71-76 GHz. The 3.7-4.2 GHz band is particularly interesting because the propagation characteristics are similar to those of the 3.5 GHz band and the 3.55-4.2 GHz range, which combines 3.5 GHz and 3.7-4.2 GHz, is being considered in other regions of the world for 5G, increasing its chances for international harmony. AT&T said its testing will involve communications between a fixed outdoor base station in Austin, Texas, and user equipment (UEs) operated from inside residential units, business units and test vehicles located within three kilometers of the base station. The 5G radio signal will be measured and analyzed in various types of RF propagation environments, such as line-of-sight, through foliage, built-up nearby structures and so on. No specific manufacturers are listed on the application, but 10 units from multiple vendors are part of the plan. Austin has been a popular venue for 5G development. Last week as part of a broader Indigo network announcement, AT&T said it would launch its first "5G Evolution" markets in Austin and Indianapolis, and Austin is the site of the company's first enterprise-focused 5G trial with Intel as well as a trial with DirecTV. AT&T is also building two 5G test beds in Austin to debut this spring. The test beds will include dedicated 5G outdoor and indoor test locations and feature flexible infrastructure to allow modifications and updates as 5G standards develop. AT&T has said it would like to see the industry finalize parts of the 5G standard earlier—in December 2017 instead of June 2018—to help speed up the 5G rollout process, but Verizon has opposed those efforts in the 3GPP.

## Telefónica Plans to Virtualize its 4G Networks in 13 Countries

Spanish telco Telefónica has contracted Huawei to virtualize its 4G networks in 13 countries as part of its UNICA program. The Spanish telco said the two companies are building a large scale virtual Evolved Packet Core (vEPC), an industry-approve framework for providing converged voice and data on 4G LTE networks, in Latin America and Europe. The vEPC network will cover 11 countries in Latin America: Brazil, Argentina, Uruguay, México, Colombia, Peru, Panama, Costa Rica, Nicaragua, El Salvador and Guatemala; and two in Europe: Germany and Spain. Telefónica will be using Huawei's vEPC solution, called CloudEPC, that will allow the operator "to build agile networks that quickly scale to match the performance demands of new services", the companies said in the statement. Telefónica and Huawei have been jointly working and testing Huawei CloudEPC performance, in Telefónica's NFV Reference Lab in Madrid. During the test, Huawei CloudEPC showed one of the best performances in both data and signaling planes by good cloud-formation architecture and by using EPA (Enhanced Platform Awareness) technologies. The companies are currently testing the onboarding of the CloudEPC solution over Telefónica´s UNICA infra cloud platform that will allow full automatization of the vEPC

deployments and life cycle management within Telefónica networks. "This large scale vEPC network deployment is a further step within the Telefónica UNICA virtualization program where a smooth migration to UNICA infra cloud capabilities will be reached following extensive test in Telefónica Lab," Javier Gavilán, planning and technology director at Telefonica said. "These results provide the confidence needed to continue with the adoption and deployment of virtualized solutions and to enable the transformation to software-driven networking."

## Smartphones to Generate Half of all Internet Traffic in 2021

Nearly half of all internet traffic will come from smartphones in five years, but the majority of the traffic will still run over fixed networks, according to the latest forecasts from Cisco. The company's latest Visual Networking Index estimates that 60 percent of traffic from mobile devices was offloaded to fixed networks in 2016, and this will still be around 63 percent in 2021, at the end of its five-year forecast period. Smartphones accounted for 16 percent of total global IP traffic last year, and Cisco expects this will grow to a 48 percent share in 2021, making smartphones the biggest source of internet traffic, more than PCs.

## Managed WiFi Services Worth up to $6.7bn to Telcos

XCellAir survey claims operators could generate billions in revenue, save further billions in opex by ensuring reliable WiFi experience. Providing managed WiFi services to consumer customers represents a $6.7 billion opportunity for telcos, based on the findings of a survey published by XCellAir on Tuesday. According to XCellAir, that figure is derived from a $3.3 billion revenue opportunity by 2018, and potential opex savings of $3.4 billion by the same year. "ISPs have a golden chance to capture Wi-Fi management as a service for their customers from which they stand to benefit financially, as well as in goodwill towards their brand," said XCellAir CEO Todd Mersch. It is worth noting of course that XCellAir pitches itself as a WiFi quality-of-experience (QoE) specialist. It too stands to benefit from a growing appetite for managed WiFi services. Back to the survey, which quizzed 1,000 U.K. and U.S. consumers in December last year, and 15% of respondents said they are willing to pay their ISP or a third party to manage their WiFi service; i.e., to optimize performance and minimize downtime. These consumers would be willing to pay on average $34 per year for such a service. As it stands though, 89% of those surveyed said they had completely unmanaged WiFi, despite the fact that 80% said they had experienced some problems with their WiFi, and 31% said they suffered occasional or frequent WiFi problems. As well as generating revenue and goodwill, operators would save on costs, because managing WiFi services leads to fewer calls to customer service, and fewer truck rolls to the customer's premises to fix their issues. "With WiFi fast becoming the consumer's preferred choice for connectivity, Internet service providers need to ensure they are doing their utmost to meet service requirements. Our research reveals that there is nascent demand for managed WiFi services, demand that theyre also willing to pay for," said Mersch.

## 5G to be Available in Nearly 30 Countries by 2021

5G will launch in 2020 and will be available in every major region worldwide in 2021, with Ovum forecasting that more than 50 operators will be offering 5G services in close to 30 countries by the end of 2021. However, the majority of 5G subscriptions will be concentrated in a handful of leading 5G markets, including the US, China, Japan, and South Korea. The US will be the largest 5G market in 2021, with more than 10 million 5G subscriptions, followed by China, Japan, and South Korea. Those top four 5G markets will account for more than 80% of the world's 5G subscriptions in 2021. Major operators such as Verizon, SK Telecom, and Telia have announced plans to launch pre-standard 5G services as early as 2018, with plans to transition to standardized services once the 5G standard is finalized. Early launches of pre-standardized 5G services could help these operators establish a lead in 5G, but could also create challenges around upgrading pre-standard equipment and services to the 5G standard. Ovum's 5G subscription forecasts only include subscriptions to standardized 5G services. Ovum forecasts that US-based Verizon will be the largest 5G operator by subscriptions in 2021, followed by its rival AT&T, NTT DoCoMo in Japan, and China Mobile. Driven by the early major 5G investments of leading operators, North America and Asia will each account for close to 45% of global 5G subscriptions at the end of 2021, followed by Europe with more than 10% of subscriptions, with the Middle East and Africa accounting for the remainder. Ovum produces 5G subscription forecasts every six months, as part of its broader forecasting of the key segments across the telecoms and media markets. In mid-2016, Ovum published its first 5G subscription forecasts, which predicted 24 million 5G subscriptions worldwide by end-2021. Ovum's new 5G forecasts are a 4% upward revision to 25 million 5G subscriptions worldwide by end-2021 based on additional operators planning to launch 5G services in the forecast period. The main use case for 5G through 2021 will be enhanced mobile broadband services, although fixed broadband services will also be supported, especially in the US. Over time, 5G will support a host of use cases, including the Internet of Things and mission-critical communications, but Ovum does not believe those use cases will be supported by standardized 5G services through 2021. A number of operators have announced plans to launch what they describe as 5G services

before 2020, but these will not typically be based on networks and devices complying with 5G standards, and so are excluded from Ovum's forecasts. Ovum defines a 5G subscription as an active connection to a 5G network via a 5G device. 5G is further defined as a system based on and complying with 3GPP 5G standards, beginning with parts of 3GPP Release 15, which is scheduled to be finalized in 2018.

## 3GPP Unveils 5G Logo

The 3GPP standards group has released a logo for 5G, to help set apart the next generation of mobile network technology from its predecessors. The logo can be used from 3GPP Release 15, the first set of technical standards for 5G, the 3GPP said in a statement on its website. The 3GPP agreed in June 2016 on a work plan for Release 15 and expects to have it ready by the end of 2018. At that point operators and equipment makers can use the logo for the launch of the first 5G networks. The 5G logo builds on the existing LTE waves with a new design, and uses the green of the LTE-Advanced Pro logo to highlight the technology's continuous evolution. It will also be used for the 5G Phase 2 Release 16 specifications, planned for completion in 2020, and any future releases covering 5G.

## DTH Partners with OTT in Russia

The Russian DTH platform operator Orion Express has entered into a partnertship with the OTT platform ivi. This has resulted in the two launching a new online service named Kinoteatr, which alows viewers to watch over 50,000 films in ivi's library. Access to the service is through the OTT service operator Telecarta Online, based on the technological platform Life Stream. Kinoteatr costs R99 (€1.55), with a one-time payment of R 1, 188 for a year and R199 for a month. Orion Express and ivi will operate the new service on a revenue sharing basis.

## French M2M Market adds 808,000 Connections in Q4 2016

The French mobile market saw M2M net additions improve for the third consecutive quarter to 808,000 in the three months to December 2016, bringing overall M2M connections to 11.74 million, according to ARCEP's mobile statistics. This represented an annual growth rate of 11.1 percent, which compares with 8.8 percent in the previous quarter and 27.9 percent a year earlier. Excluding M2M, the market reached 72.97 million mobile connections at end-December, after achieving 471,000 quarterly net additions across mainland France and the overseas territories. Annual growth improved to 1.2 percent, compared to 1.0 percent in the third quarter and 0.6 percent a year earlier. In mainland France, MVNO connections recorded negative growth over the three-month period after two positive quarters, while MNO net additions continued to improve sequentially, reaching 526,000. The fourth quarter saw a continuation of the key trends shaping the French mobile market. Prepaid connections remained on a downward trend, while the shift towards contract-free postpaid subscriptions progressed further, with 70.0 percent of the post-paid residential market on contract-free offers in December 2016, compared with 64.8 percent a year earlier.

## TT to Launch VDSL Super Vectoring; Planning G.fast Upgrade

Tunisie Telecom (TT) has started a two-year rollout of fiber-to-the-cabinet (FTTC) infrastructure with a view to providing customer fixed broadband speeds of up to 300Mbps via VDSL Super Vectoring, the operator's CEO Nizar Bouguila revealed in an interview with Tunisie Haut Debit. The official said that the system had already been deployed in some areas, and marketing would begin in the next two months. Regarding a possible future upgrade to G.fast technology, which also uses the existing copper infrastructure for last-mile connections, Mr. Bouguila noted that such a development was still in the planning stage, though a deployment was penciled-in for the end of the year, with a launch anticipated in early 2018. When pressed on the company's approach to over-the-top (OTT) services, meanwhile, the official said that TT respects net neutrality, despite the negative impact of OTT services on its business and the potentially warping effect such providers have on the sector. Mr. Bouguila lamented that OTT providers were able to compete in the Tunisian market without complying with any local regulations or paying any taxes but added, however, that: 'this problem has already been raised at the level of the International Telecommunication Union (ITU) and must be solved at an international level'. Responding to questions on the operator's 4G network, the official explained that TT's 4G network is already available in almost all governorates, and the operator will be expanding coverage into rural areas very soon.

# BlackBerry Licenses Optiemus to Make Phones in South Asia

BlackBerry has signed an agreement with Indian telecom company Optiemus Infracom to license BlackBerry software and services for the production of BlackBerry Android handsets in India, Sri Lanka, Nepal and Bangladesh. Under the terms of the deal, BlackBerry will license its security software and services suite, as well as related brand assets to Optiemus Infracom. The partner will design, manufacture, sell, promote and provide customer support for BlackBerry-branded mobile devices that offer the full BlackBerry experience, including the trusted BlackBerry for Android secure software, in India, Sri Lanka, Nepal and Bangladesh. BlackBerry will continue to control and develop its security and software solutions and maintain trusted BlackBerry security software, including regular Android security updates to the platform. The agreement with Optiemus Infracom expands on an existing relationship announced in November 2016, for the distribution and sale of the DTEK50 and DTEK60 by BlackBerry, the company's DTEK series of Android Smartphones with BlackBerry Security Software inside. These devices continue to be available through the company's distribution network. Additional information on the product roadmap and availability of new devices manufactured by Optiemus Infracom will be available in coming months.

# Indonesian Government to Embrace IoT

By 2019, 20% of local and regional governments in Indonesia will use IoT devices to turn infrastructure like roads, street lights, and traffic signals into assets instead of liabilities, IDC predicts. This year, however, it said 90% of Indonesian cities will fail to take full advantage of smart city data and digital assets due to a lack of process, project management, and change management skills. "In Indonesia, digital transformation is still not adequately represented within the enterprise, and this disparity in leadership will lead towards a delayed response towards market changes that will adversely impact business," IDC Indonesia country manager Sudev Bangah said. Timing is critical, and archaic thinking of riding out trying economic times is no longer relevant and should be addressed with process-led innovation." These insights are among the top technology predictions announced recently by IDC Indonesia at the IDC FutureScape Media Briefing. The research firm highlighted that digital transformation will attain macroeconomic scale over the next two to three years in the country, changing the way enterprises operate and reshaping the global economy. IDC calls this as the dawn of the "DX Economy." "As digital transformation reaches macroeconomic levels, a DX economy will emerge and will become the core of what industry leaders do and operate," IDC Indonesia research manager for consulting Mevira Munindra said. "Essentially, to succeed, Indonesian enterprises must begin to think of the relevancy of their business in 10 years, and how they should react in the face of disruptive forces." In the enterprise sector, IDC's predictions are as follows:

- By 2019, 50% of IT organizations will create new customer-facing and ecosystem-facing services to meet the business DX needs.
- By 2018, lack of vision, credibility, or ability to influence will keep 80% of IT executives from attaining leadership roles in enterprise DX.
- By 2020, Indonesian firms will use open innovation to allocate expertise to 15% of new projects, aiming to increase their new product introduction success rates by over 50%.
- By 2020, nearly 20 percent of operational processes will be self-healing and self-learning — minimizing the need for human intervention or adjustments.
- By 2018, online brand ambassadors and social media influencers will have more marketing power than traditional digital advertising, yet this will subside through 2019 and beyond.
- By 2019, digital transformation investments will double, drawing funds away from store capital and profoundly changing the retail industry.
- By 2019, only 30% of manufacturers investing in digital transformation will be able to maximize the outcome; the rest will be held back by outdated business models and technology.
- By 2019, cloud adoption will reduce infrastructure spend by 25% among top-tier banks.

# IDC Launches VoIP Services over GPON Network

InterDnestrCom (IDC), the sole telecoms provider in the autonomous region of Transnistria, has launched VoIP services over its GPON network. The telco said that standalone copper telephony is disappearing, as fibre optics 'greatly simplify' the connection of homes and offices by allowing potential subscribers to receive their broadband, TV and voice telephony signal over one platform. The GPON network is currently available in eight Transnistrian towns, namely Tiraspol (753 buildings), Bendery (571), Ribnita (248), Grigoriopol (59), Dnestrovsk (90), Dubossary (74), Kamenka (42) and Slobodzeya (23). IDC — which also operates a PSTN network as well as a fixed-wireless CDMA-based platform — claimed a total of 192,000 wireline subscribers as of September 2016, up from 187,000 reported in 2009.

# World's First Gigabit LTE Device Launching in Australia

Telstra has launched the world's first commercial Gigabit LTE service, available via a portable hotspot from Netgear. The device, based on a Qualcomm Snapdragon X16 modem, will go sale for $360 on 14 February and will also be available on a range of contract plans. The service is supported by an upgrade to Telstra's LTE network supplied by Ericsson. The technology has a theoretical maximum downstream bandwidth of 1 gigabit per second and upstream of 150 megabits per second. In demonstrations on Telstra's network it consistently achieved close to 900Mbps downstream and almost 100Mbps upstream, peaking at 930/127Mbps, at a location that was supporting several other bandwidth intensive demonstrations at Telstra's launch event. This throughput is achieved by using 4x4 MIMO (four antennas on both the base station and the device), aggregating three channels to give a total of 60MHz of bandwidth and a more advanced modulation technique known as 256QAM on the downstream link. The uplink uses two channel aggregation 4x4 MIMO and 64QM. Channa Seneviratne, director wireless network engineering in Telstra Operations, said Telstra planned to have coverage of the CBDs of the main capital cities — Sydney, Melbourne, Brisbane, Perth and Adelaide — by the end of this year and eventually to extend the service to 87 per cent of the population. Per Narvinger, vice-president network systems at Ericsson, said enabling the service required a software upgrade in the base stations and the two additional antennas and associated radio to handle the change from 2XMIMO of the Telstra's current LTE service. The portable hotspot, the Netgear Nighthawk M1, has a microSD slot and USB connection on which movies and other content can be stored and shared by all the 20 users the device supports. It also has an Ethernet connection, useful for connecting to hotel Internet services overseas where the costs of mobile roaming are prohibitive. It supports Wi-Fi at both 2.4GHz and 5.0GHz, measures 105 x 105 x 20mm and weighs 240gm. The device is intended to be primarily managed from a Smartphone via an app, which is available from Google Play or the Apple App Store, and there is also a Web-based UI that can be accessed from a connected laptop. The screen on the device shows the amount of data remaining on whatever plan the user has chosen (Telstra said the device could be used with a prepaid SIM, but is not supported and this feature would not be available). The Nighthawk M1 has a claimed battery life of 16 hours continuous usage and can also be used to deliver a charge boost to a Smartphone. Narvinger said one of the big challenges to be overcome in developing the service had been accommodating four antennas and the processing needed for 4xMIMO in a small device with reasonable battery life. "If you had talked to Qualcomm just a few years ago, they would have said it could not be done," he said. Overall, he said network traffic was 80 per cent downstream and 20 per cent upstream but came close to 50/50 at major sporting or entertainment events as spectators uploaded video. There are no plans to move to symmetrical services in LTE/4G, but he said flexible allocation of capacity between up and downstream links would be a feature of 5G. Telstra is predicting a fivefold increase in mobile data traffic — which has grown by 85 per cent CAGR over the past decade — by the time 5G launches in about five years time, and said that technology developments like 1Gbps LTE, which make more efficient use of spectrum, would be needed to enable the increase in demand to be supported. Telstra and its partners in the service made much of the fact that the new technology is able to download large files much faster than the current LTE network and in so doing frees up network resources for other users.

# Combining IoT Data from the Edge with Batch Data to Unlock Insights

Roy Hill has enlisted the services of IT consultancy firm Ajilon, which has created a platform that provides business insights and optimizes processes for the Australian mining company. Built on Microsoft Azure, the new platform utilizes rapid processing, augmentation and visualization of information across Roy Hill's operations, while providing a secure and scalable solution to deliver real-time insights. The platform can ingest large amounts of batch data from Roy Hill's systems, as well as streaming data from the company's IoT assets, for analysis and use by the company's data scientists and engineers. According to Peter Hawkins, national solutions lead of Ajilon, the company's experience in mining logistics and its pedigree in business intelligence (BI) aided in the creation of the analytics platform. "We have a really strong BI practice in a lot of the large mining and oil and gas companies in Western Australia, so it was a natural extension to start investing in analytics," he told IoT Hub. Hawkins teamed up with Ajilon's national analytics lead Jeremy Dennis, who started scouring the market, determining the demand and best practices of streaming analytics systems, and set about building a number of proofs-of-concept on various platforms. Hawkins and Dennis eventually settled on Microsoft Azure to host their solution, as "they had — and still have — a real completeness of vision for how everything strings together, from the IoT device through to visualization." Ajilon has had a relationship with Roy Hill spanning a number of years, having provided the company with a number of IT services in the past. When Roy Hill started toying with the idea of introducing streaming analytics into its operations, Ajilon's progress with its proofs-of-concept held it in good stead to expand that relationship into that arena, according to Hawkins. "We agreed to form a partnership where Roy Hill and Ajilon both invested in this opportunity, and to build out the platform that was right for them," he explained. "We went through a process of talking to a number of internal IT stakeholders who had a use case they wanted to develop, so using Agile methodologies, we started to incrementally build out the platform. "One of the things Roy Hill wanted wasn't just a proof-of-concept, but to have a production-ready platform, with robust methods of getting the data from core backend systems, easy ways to get data into and out of the data lakes, standardize that data, and help to visualize it in a way

that multiple users could use." Working with one of Roy Hill's data scientists, its head of architecture, and its integration team helped Ajilon create the platform as it is today, Hawkins said. Hawkins said that one of the challenges with working within the mining industry is not only obtaining the data from the end devices in the field, but also "getting the data right" for analytics purposes. "One of

the big challenges in mining is getting access to the data out there, so what we've done is written some connectors into some of their backend aggregator systems," he explained. "So we're not talking about connecting directly to a SCADA (supervisory control and data acquisition) device, but we are pulling the data as close to real-time as possible from the aggregator systems and

streaming it to the Azure IoT Hub. "There are multiple challenges from getting data from the very edge of the network, such as licensing and contractual obligations, and the varying nature of the devices used at different sites, so from our perspective, using aggregators is a very rapid way to get the data into our platform."

## Orange, Nokia Collaborate on 5G Developments



Orange Group and Finnish equipment vendor Nokia have signed a 5G collaboration agreement, under which the two partners will drive the definition and

development of new services, with a focus on making an efficient transition from 4G to 5G network connectivity in terms of power, operations and cost effectiveness. The two companies will build on existing joint innovation programmes, as well as work with other partners to develop, trial and introduce solutions that will make 5G a commercial reality and drive the digital transformation of vertical industries. Nokia and Orange will leverage the Nokia Flexi Base Station and 5G-ready AirScale radio access portfolio, the AirFrame data centre platform, telco cloud and cybersecurity technologies to create

applications making use of 5G's ultra-low latency and ultra-high reliability. This work will also include the application of ultra-broadband leveraging new frequency bands; cloud RAN and massive MIMO; the Internet of Things (IoT); end-to-end network slicing; and energy efficiency techniques. Alain Maloberti, Senior Vice President at Orange Labs Networks, said: 'Working with Nokia, we are preparing the evolution of our networks from 4G to 5G, with multiple services on a single infrastructure to deliver a quality tailored for each service requirement.'

## KPN to Test Hybrid DSL-4G Service for Home Broadband

Dutch operator KPN announced plans to test a combination of DSL and LTE to deliver faster home broadband in outlying areas. The KPN Experiabox will be combined with a LTE modem. The service will rely on the fixed network, but if capacity becomes limited, the 4G connection is activated to boost bandwidth. The test will start in April in the town of Nijkerk, in the area Appel-Driedrop Huinen, with 200

customers. KPN already started in 2015 testing 4G as an alternative to the fixed network for rural areas. With a 4G Sim card in the modem, selected customers could choose a home subscription at EUR 32.50 per month for 10 GB per month or EUR 50 for 50 GB. The previous offer did not include access to KPN's voice and TV services. With the hybrid DSL-4G test, customers will be able to get the full

triple-play offering. KPN is developing this offer for areas where it has not upgraded its copper network. While it does offer FTTH in Nijkerk, the network has not been extended to outlying areas of the municipality. A postcode check for the target area shows speeds of only 20 Mbps are available there.

## Aire Networks Chooses Interxion for OTT Expansion

The company will work with Interxion's Madrid office to develop a new portfolio of OTT solutions, targeting pay-TV operators and business clients. Aire Networks currently manages a delivery network with covers 90% of Spain's territory through fibre and LTE technology. Its Perseo TV Solution delivers video-on-demand (VOD) content and live streaming channels in both IPTV and OTT environments. "Our technological solution aims to meet the growing demand of convergent packages with content and telecom services while relying in a single provider," said

Raúl Armero, marketing director, Aire Networks. "Perseo TV's service requires high-capacity connections. Even though Aire has its own data centres in Spain, the Netherlands, the UK and the United States, Interxion's role will be fundamental to guarantee a stable connexion now and in the near future," added Zigor Gaubeca, network engineering's director of the cloud-based TV platform. Interxion's solutions have been selected before for major telecom players, such as Telefónica, which selected it to distribute pay-TV signals to cable headends and



VOD providers.

# Redefining Data Rules for a Data-driven Business Environment

**Pressing need for data management**

A key lever for innovation and overall value generation within the IoT ecosystem is gathering, processing, storage and sharing of data. However, to ensure that such data sharing protects the rights of all users as well as preserves national security, it is important to provide regulatory clarity for overall data management in a clear, consistent and responsible manner. In the past, regulators have addressed data privacy and security issues with telecom operators but with IoT the problem is bigger and more complex. The stakes are higher with IoT devices capturing and sending out a range of sensitive data such as individual health status which is of interest to insurance providers, or status of the national energy grid, which can be processed in remote locations in a cloud to generate strong analytical insights. At present, most of the policy makers do not have clear stands and are beginning to contemplate introduction of new regulations/ legislations.

Ideally, there is a requirement for strong national data protection regulations/ legislations to be in place in every country, which make it clear to all IoT ecosystem stakeholders on how to manage data along its lifecycle, that is, from collection to erasure. Once such guidelines are in place, businesses can draft contracts with their users in a way that all involved entities adhere to the stipulations. Given that IoT service providers offer global services using common platforms, it would be preferable that policies and legislations developed by

**Many developing countries have very few data management regulations and advanced nations have regulations that were developed for specific use cases such as protection of individual creditworthiness information however, they are inadequate for IoT applications.**

**Andrea Faggiano**
Partner and Head of SASCAR
(Strategic Advisory Services for Competition and Regulation)
Arthur D. Little

**Arthur D Little**

**Co-Authors**

**Rajesh Duneja**
Principal
Arthur D. Little

**Rohit Sethi**
Manager
Arthur D. Little

various countries are aligned as much as possible so to avoid conflicts that can be detrimental to the growth of the IoT ecosystem.

## Regulators are slow to respond

Many developing countries have very few data management regulations and advanced nations have regulations that were developed for specific use cases such as protection of individual creditworthiness information however, they are inadequate for IoT applications. The European Union in April 2016 published "General Data Protection Regulation" (GDPR) (Regulation (EU) 2016/679) on protection of natural persons with regard to processing of personal data and on the free movement of such data. This regulation provides an extensive overview of considerations involved in drafting such regulations and generally accepted principles around the same. The regulation will enter into application in May 2018 after a two-year transition period.

**There is a strong opportunity in the Middle East region now to modify/ update existing data protection regulations, which have primarily been drafted from a telecommunications perspective and cover stipulations such as non-disclosure of subscriber's personal information to other parties.**

## Key aspects to be addressed

There are four aspects in data management that are key from an IoT requirements perspective and are required to be addressed:

1.  Data classification: This is the first step in a comprehensive data management process and is a key input into how different types of data can be handled. A commonly used consideration for data classification is the adverse impact that can be created in case of a confidentiality breach or uncontrolled disclosure of data.

2.  Data ownership: In addition to data classification, the other determinant into designing an appropriate and adequate consent administration is data ownership. Clear assignment of data ownership is a challenge that is becoming more prominent in the IoT world. To cite an example, if a car records its performance and usage statistics, who would be the rightful owner of such data, the car manufacturer or the individual owning the car? As a commonly accepted guideline, as long as a natural person can be identified directly or indirectly by means of combination of different types of data, the data gets classified as personal data. In case the data refers to a private entity by means of its usual business, and is sufficiently decoupled from personal data of any individuals involved in its generation, the data is considered to be owned by business/ enterprise.

3.  Consent administration: Seeking an informed consent from the data owner is a key requirement for all kinds of data processing starting from data gathering all the way to erasure of the data once the processing has been completed. A common best practice is to vary the degree of consent sought along explicit opt-in, explicit opt-out or no consent to be administered based on a logic that is a function of a combination of data classification and data ownership.

4.  Data storage: This covers aspects such as the duration for which data can be stored, the type of data that can leave or not leave the country borders for processing, and eventually the erasure of data ('right to be forgotten'). Not many countries have drafted clear regulations on this yet. While some countries are liberal with cross-border transfers of personal data, some others allow such transfers to countries only where the data privacy and security laws are equivalent or higher than their own. Another key mechanism for cross-border transfer of data is corporate rules such as EU's "Binding

Corporate Rules" (BCR) where groups of corporate affiliates may send data to non-EU countries within their corporate group as long as the group has a set of rules that are approved by an EU data protection authority.

## Opportunity for the Middle East

There is a strong opportunity in the Middle East region now to modify/ update existing data protection regulations, which have primarily been drafted from a telecommunications perspective and cover stipulations such as non-disclosure of subscriber's personal information to other parties. Cyber-security regulations published more recently cover cybercrimes such as when someone violates data privacy, however these regulations are inadequate in providing the expected clarity to IoT service providers. Therefore, there is a clear requirement for a comprehensive data management framework at the country level.

Authorized entities in each country should initiate work, if already not done so, towards drafting of these national data protection regulations to provide adequate clarity to all stakeholders, for timely development of the IoT ecosystem within their countries and preferably aligned at least at the regional level.

**Authorized entities in each country should initiate work, if already not done so, towards drafting of these national data protection regulations to provide adequate clarity to all stakeholders, for timely development of the IoT ecosystem**

## REGULATORY NEWS

## Egyptian Court Confirms ECA can Investigate Monopoly Issues in Telecoms Sectors

An Egyptian administrative court has ruled that the country's antitrust watchdog, the Egyptian Competition Authority (ECA), is authorized to examine monopolistic practices in the telecoms sector, Ahram Online reports, citing a statement from the ECA. It is understood that the case was filed by local mobile network operator (MNO) Orange Egypt (formerly MobiNil), which claimed that the ECA did not have the right to refer communications providers to court.

The cellco had claimed that by doing so the ECA was trespassing on the authority of local telecoms regulator the National Telecommunications Regulatory Authority (NTRA).

## TRAI Recommends Government to Fund 100 MB Data Per Month for Rural Consumers



After barring contentious programmes like Facebook's Free Basics and Airtel Zero, telecom regulator TRAI on Monday recommended government to fund around 100 MB data per month for rural consumers and mooted introduction of third party platforms to provide free internet in a non-discriminatory manner to promote digital economy. The regulator has given clean chit to model of providing data credit in subscriber's account as reward if "it is structured in a manner that is open and non-discriminatory." "In order to bridge the affordability gap for the persons residing in rural areas and to support government's efforts towards cashless economy by incentivizing digital means, the Authority recommends that a scheme under which a reasonable amount

of data, say 100 MB per month, may be made available to rural subscribers for free," TRAI said. The Telecom Regulatory Authority of India estimates 100 Megabyte (MB)free data for 50 million rural subscribers in a month would cost Rs 600 crore. The regulator has suggested that the cost of implementation of the scheme may be met from Universal Service Obligation Fund (USOF) -- which is meant to promote telecom services in rural areas. Under USOF, the government charges in the form of Universal Access Levy, from telecom licensees to fund setting up of telecom infrastructure in all uncovered rural and remote areas of the country. "It is a good start. Anything sustains if subscribers understand its value and then they start paying for it.

With 100 MB of data, our wallet user can make thousands of transaction which is more than enough," MobiKwik COO Mrinal Sinha said. For third party aggregator platforms, the regulator has cautioned the data through aggregator should not be designed to circumvent 'The Prohibition of Discriminatory Tariffs for Data Services Regulations' which bars operators from entering into exclusive pacts with internet companies to subsidize their access. However, net neutrality volunteers see loophole in TRAI's aggregator model and feel that it leaves room for zero rating model. "Government subsidizing data for subscribers is a great step. However, aggregator model would lead to violation of differential pricing regulation. Whether you give data back immediately or later, it will be same a zero rating platform," Internet Freedom Foundation, Co-founder Nikhil Pahwa said. Zero-rating, is a term that is generally used to describe schemes that provide free access to data services for subscribers of a particular service provider for accessing specific content. TRAI in February barred differential pricing on Internet which ended services of platforms like Facebook's Free Basics and Airtel Zero. The regulator also released a consultation paper in May where it explored the reward model, toll free model, Direct Money Transfer Model for provision of free data services.

# EU Negotiators Agree to Coordinate 700MHz use

The European Parliament, the European Council and the European Commission have agreed on how to coordinate the use of the 700MHz spectrum band, as part of a wider plan to facilitate the introduction of 5G mobile technology by 2020. The agreement, which focuses on the ultra-high frequency (UHF) band (470MHz-790MHz), including the 700MHz band (694-790 MHz), builds on a proposal presented by the Commission in February 2016. It also represents the first deal made under the Digital Single Market strategy, as presented by the Commission in May 2015. As per the terms of the pact, the 700MHz band should be assigned to mobile operators and made available for wireless broadband use by 30 June 2020 at the latest in all EU Member states, although duly justified exceptions are possible until 30 June 2022. Further, EU member states will adopt and make public their national plans for releasing this band by 30 June 2018. They will need also to conclude cross-border coordination agreements by the end of 2017. In the sub-700MHz band (470MHz-694MHz) meanwhile, long-term priority is given to broadcasting use until 2030. Andrus Ansip, Vice-President for the Digital Single Market, commented: 'Better spectrum coordination is vital to provide higher quality internet to all Europeans. It paves the way for 5G, the next generation of communication networks, and the internet of things (IoT). We made a first step today with a joint approach to use the 700MHz band in the EU. We should go further and this is one of the main objectives of our new Electronic Communications Code and 5G action plan presented earlier this year.'

# CTIA, CCA Blast FCC for Slipping Cybersecurity Rule into 5G Order

Both CTIA and the Competitive Carriers Association (CCA), which don't always see eye-to-eye on wireless regulatory issues, agree on one thing: The FCC's proposal to require millimeter wave (mmWave) licensees to disclose network security plans is a bad idea. Actually, both organizations say it violates the Administrative Procedure Act (APA) because the FCC did not propose the rule in its original Notice of Proposed Rulemaking (NPRM), where entities like CTIA and CCA could have voiced their objections. Instead, they say the commission barely mentioned a security obligation in a "fact sheet" that was published less than a month before the order was adopted. The requirement appears as Rule 30.8, published in the Federal Register on Nov. 14, and states that each licensee is required to submit to the FCC a statement describing its network security plans and related information, which must be signed by a senior executive within the licensee's organization with personal knowledge of the security plans and practices within the licensee's organization. It also spells out other specific requirements. "The lengthy and complex NPRM raised numerous issues, but contained no discussion of Rule 30.8. Nor did the rule appear in the NPRM's appendix of proposed rules or in the [Jan. 13, 2016] Federal Register notice," CTIA said in its Dec. 14 filing with the FCC. "The Commission failed to seek comment even on whether to impose a requirement at all. The NPRM merely sought comment on 'how to ensure that effective security features are built into key design principles for all mmW band communications devices and networks' without setting forth any specific proposals." CTIA, which represents the largest U.S. carriers, spelled out a host of arguments against the rule, including that Rule 30.8 "threatens security by publicizing information that can help bad actors. Network providers take pains to not reveal security plans, system architectures, or the tools they use. Public dissemination of even 'high level' network security plans risks exacerbating threats." CCA, in its December 14 commentary, said the cybersecurity requirements will saddle carriers with administrative and competitive burdens and should be rejected. In addition, "the obligations that will be imposed on mmW licensees are discriminatory and against the public interest as there are no similar obligations currently imposed on licensees in other spectrum bands or on wireline providers. Further, there is no record evidence that mmW technology poses a higher risk than any other use of spectrum." CCA, which represents smaller and regional U.S. carriers, further states that licensees, especially wireless licensees, are not the appropriate party to make cybersecurity disclosures. Rather, "OEMs are in the business of constructing and selling network infrastructure and would be in the best position to provide security information." In a separate December 14 filing, T-Mobile echoed the sentiment that the cybersecurity statement requirement is unreasonably discriminatory as it's being applied only to millimeter wave band licensees despite any evidence in the record that security is a unique concern for them. "T-Mobile does not dispute the importance of security in the millimeter wave bands or other bands, but the lack of any justification for this mechanism or discussion of its effectiveness or appropriateness prevents the Commission from adopting rules imposing new regulatory burdens on licensees," the carrier said. "Security protocols are best developed in response to customer demands by industry through standards-setting bodies or otherwise. Providers of wireless communications services have ample incentive to ensure that their networks are sufficiently protected. There is no need for the Commission to unnecessarily insert itself into network design." However, if the FCC believes a cybersecurity statement requirement is within its authority and necessary, it should initiate a separate rulemaking proceeding to ensure that interested parties have the necessary procedural opportunities to evaluate the proposal, T-Mobile said, adding that would ensure the commission and the public get a full opportunity to analyze its implications in accordance with the APA.

# TRAI Wishes to Provide Broadband to 500 Million People Via Cable TV

Telecom regulator TRAI Chairman R S Sharma today said broadband connectivity to 500 million people can be provided in a short span of time by leveraging digital cable TV network. "We have made a number of recommendation and our recommendations if followed could transform our ranking which is abysmally low," Sharma said at Skoch Summit. He said that there are 100 million homes in India connected with digital cable TV. "The cable TV connection will become digital. If you

have 100 million homes where you take this digital, these 100 million homes with same pipe with little bit of up gradation can be used for delivery of robust broadband connectivity," Sharma said. He said that recommendation in this regard has been sent by the Telecom Regulatory Authority of India. "We have been following it with the Department of Telecom and Ministry of Information and Broadcasting. Yesterday that pipe was used for providing cable TV service, it can now also transfer bits and bytes. That can

immediately provide connectivity to 500 million people," Sharma said. He said that an average cable TV home is estimated to have five members. Wireless or mobile broadband subscriber in September grew by was 173.87 million and fixed line broadband connections were at 17.84 million. Government under National Telecom Policy 2012 has set target to connect 600 million people by the year 2020 at minimum 2 Mbps download speed.

# Australian Broadband Prices Set to Rise as Government Proposes NBN tax

Broadband prices in Australia are set to rise after the government this week proposed levying a charge on ISPs to help state-owned wholesaler NBN cover the cost of its fixed-wireless and satellite services. The government has put the cost to NBN of serving fixed-wireless and satellite broadband customers at AU$9.8 billion (€6.9 billion) between 2010-11 and 2039-40. Recovering these costs directly from end users would make these services prohibitively expensive, so NBN must look elsewhere. At the moment, NBN cross subsidizes the fixed-wireless and satellite services with revenue generated by its fixed-line operation. But this has been made harder because NBN faces more competition than expected in metropolitan areas. With that in mind, the Department of Communications and the Arts on Monday unveiled the Regional Broadband Scheme (RBS), which proposes that NBN covers around 90% of those costs, and that the remainder – between AU$40 million (€28.2 million) and AU$60 million per year – is paid for by alternative providers. In the first year, altnets will have to pay AU$7.09 per month plus a AU$0.0127 monthly admin fee for every fixed broadband connection. Exemptions have been proposed for altnets with fewer than 2,000 subscribers, and services delivered via fixed-wireless connection or over lines incapable of providing a minimum speed of 25 Mbps. ISPs that are in the process of transferring to the NBN's fixed-line network won't have to pay either. "NBN and NBN-comparable providers would pass the charge on to their end user base," the



Department said, in a regulatory impact statement (RIS). The government has proposed the RBS for the simple reason that NBN's fixed-line business faces more competition than expected. "Network providers have expanded into population-dense areas with existing infrastructure beyond what was originally conceived," the Department said. The government cited fibre-to-the-basement (FTTB) provider TPG, which it said is rolling out networks to high-value apartment blocks and undercutting NBN's prices. "While NBN is able to reduce its prices in commercially viable areas to respond to competition, if it does so, it will be less capable of supporting cross subsidies to fixed-wireless and satellite services," the

government said. In addition to the RBS, Australia has also proposed introducing a Statutory Infrastructure Provider (SIP). SIPs will be required to connect premises to high-speed broadband upon request from a retail service provider. NBN will be the default SIP, but other network operators will be able to be SIPs where appropriate. The government has also proposed new wholesale and retail rules designed to stop anticompetitive behavior and put downward pressure on broadband prices. Australia has launched a public consultation on the proposals; interested parties have until 3 February to respond.

# Microsoft's Acquisition of LinkedIn Gets EC Approval

Microsoft addressed the European Commission's concerns about bundling LinkedIn with its products, in return for approval of the $26 billion takeover. Of particular concern to the EC was, post-merger, how Microsoft could use its strong market position in operating systems via Windows, as well as productivity software (Outlook, Word, Excel and Powerpoint), to strengthen LinkedIn's position against its rivals. The commission said it was nervous of Microsoft pre-installing the professional social network on all Windows PCs, as well as integrating it into Microsoft Office and combining the two companies' user databases. This development could have been reinforced by shutting out LinkedIn's competitors from access to Microsoft's APIs, which they need to interoperate with its products and to access user data stored in the Microsoft cloud, the commission said. The EC was concerned that these measures would mean LinkedIn getting bigger, so making it harder for new players to provide competing services. In addition, it could have tipped the market towards LinkeIn in those markets, such as Austria, Germany and Poland, where rivals currently operate. The commitments made by Microsoft to the commission include ensuring that PC manufacturers and distributors would be free not to install LinkedIn on Windows, and allow users to remove LinkedIn if pre-installed. In addition, it must allow competing professional networks to maintain current levels of interoperability

with Microsoft Office through the Office add-in programme and APIs. Finally, Microsoft agreed to allow competing professional social networks access to Microsoft Graph, a gateway for software developers. Microsoft Graph is used to build applications and services that can, subject to user consent, access data stored in the Microsoft cloud, such as contact information, calendar data and emails. In a recent speech, EU competition commissioner Margrethe Vestager highlighted how acquiring user data, or even data from objects such as connected cars, can be central to M&A

activity, and hence within her remit. The Microsoft/LinkedIn deal provides a prime example of such an acquisition and, consequently, of how the EC will scrutinize them. Salesforce, an unsuccessful rival bidder for LinkedIn, earlier urged the EC to dig further into Microsoft's proposed acquisition. CEO Marc Benioff pressed the Federal Trade Commission (FTC) in the US to investigate the deal, but the agency declined. Benioff argued the acquisition is anticompetitive because Microsoft can restrict access to LinkedIn's data, making life difficult for rivals (including Salesforce).



# Liquid Telecom Obtains Regulatory Approval

Liquid Telecom has received the final regulatory approval to close its latest transaction in Tanzania and has become the majority stakeholder of Raha, Tanzania's leading Internet Service Provider. Raha today serves over 1500 businesses as well as a growing number of retail customers with a range of connectivity solutions, including fiber, satellite, WiMAX and Wi-Fi. The acquisition provides Liquid Telecom's

enterprise and wholesale customers with direct and faster access to Tanzania and to all Eastern, Central and Southern Africa. Tanzania will become the latest market to be added to Liquid Telecom's extensive fiber network, which is the largest of its kind serving eastern, central and southern Africa, spanning over 40,000km across 12 countries. The Tanzania Communications Regulatory Authority (TCRA) approved the agreement on December 8, 2016.

"We are very pleased to announce that this transaction has received its final approval. The agreement enables Liquid Telecom to expand its footprint into Tanzania, a growing and dynamic African country," said Nic Rudnick, CEO, Liquid Telecom. "We are thrilled with this approval and look forward to being part of a pan-African connectivity movement," said Aashiq Shariff, CEO, Raha.

# Commission Proposes New Tax Rules to Support e-commerce and Online Businesses in the EU

The European Commission has unveiled a series of measures to improve the Value Added Tax (VAT) environment for e-commerce businesses in the EU. Our proposals will allow consumers and companies, in particular start-ups and SMEs, to buy and sell goods and services more easily online. By introducing an EU wide portal for online VAT payments (the 'One Stop Shop'), VAT compliance expenses will be significantly reduced, saving businesses across the EU €2.3 billion a year. The new rules will also ensure that VAT is paid in the Member State of the final consumer, leading

Finally, the Commission is delivering on its pledge to enable Member States to apply the same VAT rate to e-publications such as e-books and online newspapers as for their printed equivalents, removing provisions that excluded e-publications from the favorable tax treatment allowed for traditional printed publications. Andrus Ansip, Vice President for the Digital Single Market, said: "We are delivering on our promises to unlock e-commerce in Europe. We have already proposed to make parcel delivery more affordable and efficient, to protect consumers better when they buy online

Pierre Moscovici, Commissioner for Economic Affairs, Taxation and the Customs Union, said: "Online businesses operating in the EU have been asking us to make their lives simpler. Today we're doing that. Companies big and small that sell abroad online will now deal with VAT in the same way as they would for sales in their own countries. That means less time wasted, less red tape and fewer costs. Our proposals mean that European governments stand to gain an additional €100 million a week to spend on services for their citizens." Today's proposals embrace a new approach to VAT for e-commerce and follow up on the commitments made by the European Commission in the Digital Single Market (DSM) strategy for Europe and the Action Plan towards a single EU VAT area.
In particular, we propose:

- New rules allowing companies that sell goods online to deal easily with all their EU VAT obligations in one place;
- To simplify VAT rules for startups and micro-businesses selling online, VAT on cross-border sales under €10,000 will be handled domestically. SMEs will benefit from simpler procedures for cross-border sales of up to €100,000 to make life easier;
- Action against VAT fraud from outside the EU, which can distort the market and create unfair competition;
- To enable Member States to reduce VAT rates for e-publications such as e-books and online newspapers.
- These legislative proposals will now be submitted to the European Parliament for consultation and to the Council for adoption.

to a fairer distribution of tax revenues amongst EU countries. Our proposals would help Member States to recoup the current estimated €5 billion of lost VAT on online sales every year. Estimated lost revenues are likely to reach €7 billion by 2020 and it is essential that we act now.

and to tackle unjustified geo-blocking. Now we simplify VAT rules: the last piece in the puzzle. Today's proposal will not only boost businesses, especially the smallest ones and startups, but also make public services more efficient and increase cooperation across borders."

# Nigeria's Telcos are Being Forced to Increase Mobile Internet Prices

Around a year ago, Nigeria's mobile internet subscriber base had nearly hit at a landmark figure: 100 million. But, due to unfavorable government policies, that trend is likely to be reversed. Last year, the Nigerian Communications Commission (NCC), the country's telecoms regulator

earned praise for deregulating data prices. The removal of a data floor price allowed local telcos to set lower mobile data prices making them cheaper than ever before and enabling more Nigerians access to the internet. But, in a surprising move, the NCC has reinstated its data

floor price, forcing telcos to jack prices back up. In a letter sent to telcos, the NCC claims the price increase is necessary "in order to provide a level playing field for all operators in the industry." The prices will take effect from December 1. The NCC cited the need to allow "small operators

and new entrants" who hold "less than 7.5% market share" and have operated "less than three years in the market" to operate profitably. Put another way: the NCC thinks that, by charging lower prices for data, large telcos, like MTN, could kill off smaller internet service providers who'd be unable to compete profitably. Reports suggest the new regulation is due to lobbying by smaller operators. More expensive mobile internet access costs will particularly stifle internet usage growth given Nigeria's low fixed line broadband internet penetration. The move is being widely criticized by players in Nigeria's fast-growing tech sector. Iyin 'E' Aboyeji, who made his name as a co-founder of Andela, one of the country's high-profile young tech companies, called the decision the "biggest threat" to the Nigerian government's own stated ambitions for the local tech sector. Aboyeji who now runs a payments startup called Flutterwave, addressed president Buhari directly in a series of tweets. The decision also comes at a time when Nigeria's mobile internet usage has been steadily regressing. While the NCC's decision to make telcos hike data prices is surprising, there was a chance the price of internet access was going to increase. As Quartz has reported, in a bid to increase government revenue, Nigerian lawmakers have discussed a bill to levy a 9% communications tax on various services including internet data. But with service providers unlikely to bear the extra expense, the costs was likely to be passed down to end users.

# Europe Set to Finally Make its OTT Move

The European Commission is reported to be in the process of introducing new regulations for OTTs which will level the playing field for telcos in Europe. The e-privacy directive, which currently only applies to telcos, will be expanded to OTT services such as Microsoft's Skype and Facebook's WhatsApp, as the EC lumbers towards some sort of decision on regulation. The telco industry has long been lobbying regulatory decision makers to address the imbalance in rules governing how telcos can monetize mined data, as there has been a general acceptance the OTTs have significantly more freedom. The draft wants to extend the rules to ensure the OTTs will have to guarantee the confidentiality of communications and obtain the users' consent to process their location data, mirroring similar provisions included in the Gaggle of Red-tapers' General Data Protection Regulations (GDPR), set to come into force in 2018. "This creates a void of protection of confidentiality for the users of these services," the draft reads, referring to the OTTs. "Moreover, it generates an uneven playing field between these providers and electronic communications service providers, as services which are perceived by users as functionally equivalent are not subject to the same rules." While the telcos have been begging for equality in the digital economy, this may not be what they had in mind. You do have to feel a bit sorry for the cumbersome telcos, they have had revenues shattered by the OTTs who are offering very similar services, but playing to a different rule book. The parity maybe welcomed by the telcos, and will give them the opportunity to monetize data in a similar manner to OTTs and open up new revenue channels. The proposal will also remove the obligation on websites to ask visitors for permission to place cookies on their browsers, which currently appears via a banner, assuming the user has already consented through the privacy settings of the web browser. "If browsers are equipped with such functionality, websites that want to set cookies for behavioral advertising purposes may not need to put in place banners requesting their consent insofar as users may provide their consent by selecting the right settings in their browser," the draft said. The proposal is set to be unveiled in January as a late-Christmas present from the Gaggle of Red-tapers to itself. After all, the Gaggle of Red-tapers wouldn't be the party-animals they were if they weren't given the opportunity to throw their red-tape all over the shop and complicate matters.

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**VIVA**
Bahrain

**ARTICLE**

# Redefining Data Rules for a Data-driven Business Environment

As Bahrain ushers in a new wave of technological developments, the big data agenda is steadily becoming a top corporate priority, especially within the ICT industry. While most companies today strive to implement a fluent data-driven business model, the process of fully exploiting data and analytics in reality must permeate the culture of the company at all levels to drive impactful results. The belief in the importance of data must be embedded in the fabric of the business and reflected in every bottom line decision.

**As Bahrain ushers in a new wave of technological developments, the big data agenda is steadily becoming a top corporate priority, especially within the ICT industry.**

However, no matter where you are on your journey to create the internal business culture, many external factors weigh heavily on the ability to unlock the full potential of data and accordingly refine and optimize business operations. In essence a favorable regulatory environment is a key enabler for the industry to move towards a data-driven business environment. Bahrain is moving in the right direction when it comes to defining the rules and regulatory frameworks to foster data-driven business environment.

**Mr. Karim Tabbouche**
Chief Commercial Officer
VIVA Bahrain

VIVA

The TRA has already announced in the fourth National Telecom Plan (NTP) published in May of 2016 which includes some key areas that will facilitate the Bahrain ICT industry's transition towards data-driven business.

**The TRA has already announced in the fourth National Telecom Plan (NTP) published in May of 2016 which includes some key areas that will facilitate the Bahrain ICT industry's transition towards data-driven business.**

First and foremost is the development of Bahrain's National Broadband Network (NBN). The NBN will open up a world of opportunities for telecom operators in Bahrain by providing them access to fixed infrastructure and creating a level playing field for the industry. A strong fiber backbone is a vital element in the transition towards 5G which would allow faster throughputs and enable the deployment of next generation telecom services. By taking away the burden of deploying/managing fixed infrastructure from operators, the NBN will ensure investments are made to offer more advanced services to subscribers. Therefore a rapid and efficient transition towards a working NBN model is a key enabler for the transition towards data driven businesses.

Another key element included within the NTP 4.0 is the spectrum release plan. Radio spectrum is a key requirement to offer high-speed services over wireless networks and by announcing its intentions to release more spectrum in 2017, the TRA has taken a step in the right direction to facilitate the move towards data driven business. A smooth and fair spectrum allocation

process will significantly help the operators in Bahrain to enhance their networks for faster data throughputs. For operators to continue investing in infrastructure and enhancing the data throughputs they offer subscribers, there needs to be a favorable regulatory environment that allows for the monetization of traffic flowing through their networks. The inability to monetize data traffic can potentially lead to a slowdown in investments from operators and



**The government is firmly supportive of initiatives such as 'Smart Cities' and the integration of IoT and Fintech in every aspect of people's lives. Such initiatives require supporting regulatory frameworks and a high degree of collaboration between authorities**

hamper the transition towards a data driven business environment.

Lastly is cross sector regulatory collaboration. The government is firmly supportive of initiatives such as 'Smart Cities' and the integration

of IoT and Fintech in every aspect of people's lives. Such initiatives require supporting regulatory frameworks and a high degree of collaboration between authorities such as Telecommunication Regulatory Authority, Electricity & Water Authority, Traffic Directorate and Ministry of Health and the Central Bank. Such collaboration can help pave the way for advanced next generation services such as Smart Cities, Smart Metering, Traffic monitoring, e-health and mobile financial services. These initiatives require the collection and processing of massive amounts of data which is today scattered across multiple organizations.

This regulatory framework and collaboration will support businesses' transition from the early stages of adoption of a data-driven culture and towards a more robust and integrated embedded data strategy at the corporate level. And the success of which is highly dependent on finding the idea business model and policy frameworks whereby regulatory authorities, Telecom operators, businesses and the society comes altogether seamlessly.

# A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

## Bahrain

Transport and Telecommunications Minister Kamal bin Ahmed Mohammed said the expansion of the Information and Telecommunication Technology (ICT) Conference "MEET ICT2017" and Bahrain International Technology Exhibition (BITEX2017) confirms the Kingdom's attractiveness for technical investments which positioned the kingdom as a regional leader in the information and communications industry. During a meeting with Bahrain IT Companies Society (BTECH) and "WORKSMART" for Events Management - the organizers of the conference and exhibition - the minister affirmed the government's keenness on development of information and communication technology (ICT) sector as one of the key sectors in diversifying the economy and supplement the national output. The minister stressed the importance of the conference/exhibition this year titled "intellectual world through digital transformation" with a particular focus on the expansion on the use of information technology to boost productivity, reduce costs and boosting the national economy. The organizers thanked the minister for his continued support. They gave a brief presentation about all themes of MEET ICT and BITEX in its seventh year which will be held on February 7-9. (February 1, 2017) bahrainbiznews.com

## Bangladesh

The chairman of the Bangladesh Telecommunication Regulatory Commission (BTRC), Shahjahan Mahmood, has told that the watchdog intends to give cellcos the green light for technology neutral usage of all existing licensed spectrum as soon as possible, thereby allowing them to launch 4G LTE services, whilst an auction for additional LTE-suitable frequencies is planned 'in four months'. 'Prior to the auction, we will give go-ahead to technology neutrality for all existing spectrum,' confirmed Mahmood, adding: 'We may charge the operators for technology neutrality … The rate of charge is yet to be fixed.' He also stated that the additional 4G spectrum licenses will have higher fees than previously auctioned 2100MHz licenses. Although existing 2100MHz licenses technically permit the launch of 4G services, Bangladeshi operators have no available capacity to do so, having used the 2100MHz spectrum to meet 3G demand, whilst their 900MHz and 1800MHz frequencies are currently restricted to GSM usage. The report adds that in a meeting last week the Prime Minister's ICT Affairs Adviser Sajeeb Wazed Joy directed the BTRC and other government telecoms officials to introduce 4G services as soon as possible. Spectrum available for the upcoming auction includes an unsold 2×15MHz 2100MHz block, plus frequencies in the 1800MHz band and a portion of 900MHz bandwidth made surplus following the recent merger of Robi Axiata and Airtel Bangladesh. Major operators including market leader GrameenPhone have indicated the aim to be technically ready to launch LTE immediately after regulatory approval. (February 21, 2017) The Daily Star

Bangladesh Telecommunication Regulatory Commission (BTRC) is going to hold a public hearing over mobile phone services at Chittagong for the first time outside the capital. While talking to the Dhaka Tribune, BTRC Chairman Dr. Shahjahan Mahmood said: "The commission wants to hold more public hearing on subscribers' dissatisfaction over mobile phone services across the country." "We are very much eager to hear the public complaints which they are still facing. We want to listen not only to the citizens living in the capital, but also other subscribers outside the capital. That is why, we are going to hold public hearing in the port city," said Mahmood. (February 15, 2017) dhakatribune.com

The government should formulate a policy on corporate social responsibility spending for all companies, State Minister for Telecom Tarana Halim said yesterday. "A national policy can enhance the companies' accountability on CSR spending," she said at a roundtable on "CSR in sustainable business structure" organized by the daily Ittefaq, a Bangla-language newspaper, at its office in Dhaka. Tarana said companies spend huge sums on CSR, but they need to be careful about the misuse of the funds. "A policy needs to clearly mention that no conflict of interest should arise." Within a short time, the telecom division will direct Bangladesh Telecommunication Regulatory Commission to formulate a separate policy for the telecom companies in this regard, she said. Parvez Iqbal, member for tax policy at the National Board of Revenue, said NBR gave huge importance to CSR and that is why they are also offering rebate from 2009. Companies can get 10 percent rebate if they spend CSR funds on 23 selected sectors. "This is huge scope and some companies have even got 20 percent rebate on their CRS spending," said Iqbal. Tasmima Hossain, the acting editor of the Ittefaq, said the government needs to formulate a policy and also ensure its implementation. "In the policy, if we can put emphasis on CSR spending for human resource development, it can directly help build this generation of youth," said Hossain. She also

suggested including elderly heath care in the NBR's selected list for CSR activities. Citing an example, Shawkat Hossain Masum, business editor of the Prothom Alo, said a bank funded a picnic under its CSR spending, which is a complete violation of rules. "In our investigation, we have seen companies, especially banks, are spending huge sums on CSR projects to get political benefits or satisfy a specific segment of people," Masum added. Ekram Kabir, a vice president at Robi, said the operator spends a hefty amount on CSR, but it makes sure those projects become self-sustainable. Jamal Uddin, a journalist at the Ittefaq, in his keynote, said banks spent Tk 528 crore on CSR projects in 2015, which dropped to Tk 510 crore last year. (February 14, 2017) thedailystar.net

Mobile technologies and services generated 6.2 percent of the GDP of Bangladesh in 2015, a contribution that amounted to around $13 billion of economic value, according to GSMA Intelligence. In the same year, mobile operators and the ecosystem provided employment to more than 760,000 people across Bangladesh, the report further stated. One-third of this was created directly in the ecosystem, while the rest is generated indirectly in other sectors as a result of the demand for production inputs generated by the mobile sector. "GSMA Intelligence findings clearly demonstrate the substantial contribution that mobile makes to the Bangladeshi economy," said Brett Tarnutzer, Head of Spectrum, GSMA. "By systematically pursuing a policy framework that increases certainty, acknowledges market realities and removes regulatory barriers to investment and innovation, the Bangladeshi government and its citizens stand to achieve so much in the coming years." In terms of public contribution, the mobile ecosystem generated about 10 percent of the government's revenue in 2015, valued at $2.42 billion through general taxation, mobile-specific taxes, and spectrum licenses. Mobile's overall impact includes the direct impact of the mobile ecosystem as well as the indirect impact and the increase in productivity brought about by the use of mobile technologies. GSMA added that Bangladesh performs close to the regional averages across metrics of mobile market development, despite a lower income than neighboring countries. Bangladesh is above the Asian average in terms of unique subscriber market penetration at 53 percent, while only slightly below with regard to mobile internet penetration at 33 percent and 3G at 20 percent of all mobile connections. Thus, it sees the potential for further growth if a supportive policy environment is put in place. GSMA Intelligence expects that the economic contribution of the mobile industry in Bangladesh will continue to increase. In value-added terms, it is estimated that the ecosystem will generate $17 billion by 2020. This forecast relies on a favorable macroeconomic environment and on a moderate expansion in demand and supply in the mobile market, as the number of mobile internet users and mobile coverage both increase. Employment opportunities are also set to expand from 780,000 jobs in 2016 to 850,000 jobs in 2020, an increase of around nine percent during that period. The amount of spectrum, and the terms on which it is made available, fundamentally drive the cost, range, and availability of mobile services. To ensure that this mobile vision becomes a reality, it is imperative that the spectrum is allocated in a way that encourages the rapid deployment of mobile broadband infrastructure, resulting in high quality, affordable mobile services for consumers across Bangladesh," added Tarnutzer. (January 31, 2017) enterpriseinnovation.net

# Egypt

Within the framework of the meetings and events held by International Telecommunication Union (ITU), which NTRA's experts are keen to attend, the first meeting of the ITU Expert Group on the International Telecommunication Regulations (EG-ITRs) will be held on 9-10 February 2017, at the ITU Headquarters, in Geneva, Switzerland with the aim of reviewing the International Telecommunication Regulations. The meeting is open to UTU member states and sector members. It should be noted that the ITR-EG has been formed under resolution No. 146 issued by the Plenipotentiary Conference (Busan, 2014) conference delegates, and Resolution No. 1379 during the annual meeting of ITU Council which was held during last May. This Group is open for the participation of all Member States and sectors Members. It is commissioned with the review of ITRs, taking into account news trends in telecommunications and information and communications technologies, emerging issues and obstacles that may arise from the implementation of the 2012 ITRs and WCIT-12 Resolutions and Recommendations.

It should prepare a progress report on its achievements to be submitted to the Council at its session in 2017. Moreover, a final report will be also submitted to the Council at its session in 2018 with the comments of the Council. This meeting aims to discuss the possibility of updating the International Telecommunication Regulations which have been adopted in Dubai in 2012 and determine the revised texts, or the articles that should be added thereto. It is worth mentioning that Egypt has a long standing role in this concern on the Arab and African levels as it has chaired the Council Working Group on ITRs in 2003-2005. Then Egypt took over the role of coordinator for the African and the Arab regions during the Plenipotentiary Conference in 2006. It should be noted that this will be taking into account new trends in the field of telecommunications / ICT, as well as emergency issues and problems that might arise during the implementation of the decisions and recommendations of World Radiocommunication conferences (WRC-12) 2012. (February 1, 2017) tra.gov.eg

# Iran

Iran's Minister of Communications and Information Technology (CIT) Mahmoud Vaezi says a special committee has been working on the development of the Internet of things (IoT) in the country for two years now. Iran says it is pushing forward an ambitious plan to use the Internet of things (IoT) – a move that could take the country closer to smart cities and automated utilities. Iran's Minister of Communications and Information Technology (CIT) Mahmoud Vaezi was quoted by the domestic media as saying that a specialized committee inside his ministry had been working on the development of the IoT in the country over the past two years. Vaezi added that the committee was working on several perils pertaining to the project including privacy and security. He also emphasized that certain steps had been devised for adopting the required regulations for using the IoT in Iran. Elsewhere in his remarks, the Iranian minister said that a pilot project to use the IoT had already been launched in capital Tehran, adding that the preliminaries for launching the project at a larger scale were being prepared. As a network of physical objects, the IoT enables items such as devices, vehicles, buildings and others to collect and exchange data. This technology allows the objects to be monitored and controlled remotely through a computer-based system and is meant to provide consumers increased convenience. Iran's media reported last May that the country's researchers had launched a small-scale IoT project in eastern Tehran. The project was the first of its kind in the Middle East and officially took Iran to the club of countries that are using the technology. On the same front, the media reported in late January that the National Iranian Gas Company (NIGC) had signed an agreement with Iran's leading telecom operator Hamrah-e Aval to use smart gas meters that wound be connected to the IoT. This, reports said, was meant to increase energy consumption efficiency across the country. (February 10, 2017) presstv.ir

The Iranian government has begun the latest phase of its National Information Network (NIN) project, which is creating a closed national internet service which hosts only approved Islamic content. The Financial Tribune says under the latest phase, dubbed Talash 3, capacity will reach 10Tbps (10,000Gbps), up from 1Tbps in 2013 and 4Tbps in April 2016. 'The project will ultimately help advance the development of start-ups and knowledge-based businesses,' telecoms minister Mahmoud Vaezi is quoted as saying. The NIN service – which is also known as Internet-e Paak (Pure Internet) – was opened in August 2016 and is meant to provide a faster and more reliable connection for Iranian users, and to complement the World Wide Web rather than replace it. Two previous phases of work – Noor 1 and Noor 2 – were carried out to deploy a nationwide fibre-optic backbone network. (February 7, 2017) telegeography.com

Mobinnet data center and TD-LTE Internet network was inaugurated in Tehran on January 29. Mobinnet is a semiprivate Iranian Internet service provider which also offers WiMAX broadband Internet without the need for traditional telephone connection. TD-LTE is a high speed wireless technology that uses a single carrier frequency for both uplink and downlink, and uses the 3 and 4G network to service customers. Speaking at the ceremony for the new Internet service, the Minister of Communications and Information Technology Mahmoud Vaezi said four cities now have access to TD-LTE, namely Tehran, Karaj, Mashhad and Kish in the Persian Gulf. "This number will reach 11 by the end of the fiscal year (in March)," ISNA quoted him as saying. The domestic private sector does not have a strong role in developing data centers, he noted. "Developing data centers is crucial for the advancement of cloud computing and this calls for bigger investments." The ministry has invested in the ICT sector and plans to triple its market value by the end of the sixth economic development plan (2016-2021). The market value of the key industry is 400 trillion rials ($10 billion), Vaezi noted. Stressing the role and significance of competition in boosting economic growth rates, the minister said Iranians are eager to have access to, and benefit from, global technological advancement. Mobinnet's CEO, Hussein Riazi noted that aside from infrastructure and regulatory frameworks, his company is working on Internet of Things, content delivery networks and content creation. Over 750 cities have access to 3G Internet and more than 300 cities have received 4G Internet coverage in Iran. Nearly 1.5 million people actively use 4G Internet; the number will reach 5 million by March 2021. Mobinet's offer follows a similar offer from its long term rival. MTN-Irancell launched its own LTE-TD internet service last August. The company's TD-LTE network was launched simultaneously in 25 cities in the country. It is now available in more cities, the company says. CEO of Irancell Alireza Ghalambor Dezfouli says 1,038 areas in the country, including 527 cities, have access to Irancell's 3G network and 239 areas have 4G coverage. (February 1, 2017) financialtribune.com

# Iraq

Kuwaiti logistics firm Agility has filed for arbitration over a USD380 million dispute with the Iraqi government over its investment in the nation's telecommunications sector. Reuters writes that Agility has filed for arbitration with the World Bank's International Centre for Settlement of Investment Disputes, claiming that the government had 'indirectly confiscated' its more than USD380 million investment, violating a bilateral agreement between Kuwait and Iraq encouraging the movement of capital and investment between the two nations. No further details of the complaint were provided. Agility is a minority shareholder in Korek Telecom, having held a stake in the provider since 2007, though in 2011 it formed a joint venture with France's Orange Group to acquire a 44% stake in the cellco.

(February 13, 2017) telegeography.com

Zain this week named a new CEO of its Iraq unit in Ali Al-Zahid, whose appointment becomes effective on February 1. Al-Zahid currently serves as Zain Iraq's Chief Commercial Officer, a role he has held since June 2015. He joined the company in September

2013 as director of sales. "Ali Al-Zahid has an outstanding track record in one of Zain's most complex and challenging emerging markets. He has a strong background in mobile technology, strategy and management, and in exploiting commercial data-related opportunities," said Zain group CEO Scott Gegenheimer, in a statement on Tuesday. Al-Zahid has also held senior roles at Orange Austria and O2 Germany, and has previously worked as a consultant. "It is a pleasure to promote a young talented leader with Iraqi heritage the role of CEO at an important part of Zain Iraq's evolution. Over the last three years he has played a vital role within the senior management ranks and proven to be a very capable professional, exceeding expectations on multiple fronts," said Mohammed Al Charchafchi, who has been serving as chairman and CEO of Zain Iraq and continues to hold the role of chairman. "I share the Chairman's confidence that he is a good fit to take Zain Iraq to the next stage of the company's development to enhance customer experience and solidifying Zain Iraq's market leadership," Gegenheimer added.

(February 1, 2017) totaltele.com

# Jordan

As the Jordan government continues to look for measures to increase revenues from the telecom sector, one option that has come to light is imposing fees on using Voice over Internet Protocol (VoIP) services such as Skype, Viber or WhatsApp, as reported by The Jordan Times. If a fee is imposed on this service, it will range from JD1 to JD2 per month, according to Nader Dhneibat, secretary general of the ICT Ministry, and it will only be on making calls, not messaging. Another scenario that is being studied is imposing JD1 as a monthly deduction from postpaid lines. However, Dhneibat clarified that the ministry is 'still looking into the scenarios and will take the interest of all stakeholders into account', "Our objective is to support the treasury while at the same time not to affect users or harm investments by telcos in the sector," added Dhneibat. Jordan's telecom sector is already one of the most highly taxed in the region, with a 24% tax on mobile subscriptions, and a 16% special tax on the purchase of mobile phones. Consumers have since then expressed their opposition to increased charges through various social media. (February 6, 2017) commsmea.com

The Jordanian government is considering several ways to generate additional revenue from the sector, including a controversial fee for using over-the-top (OTT) VoIP services, the

Jordan Times writes, citing Nader Dhneibat, secretary general of the ICT Ministry. Amongst the measures under consideration are a JOD1 (USD1.4) to JOD2 per month fee for using applications such as Viber or WhatsApp to make calls, a JOD1 per month additional deduction from post-paid subscriptions, extra fees for customers purchasing SIM cards, and a sales tax increase on internet services from 8% to 16%. 'These scenarios are still under study,' the official explained, adding: 'One scenario might be adopted, or two at the same time…Our objective is to support the treasury while at the same time not affect users or harm investments by telcos in the sector.' Jordan's telecom sector is already one of the most highly taxed in the region, with a 24% tax on mobile subscriptions, and a 16% special tax on the purchase of mobile phones. Indeed, the revelation that the government was considering levying further charges sparked a protest campaign from customers earlier this week. Social media posts called for a day-long boycott of mobile services, urging users to remove the SIMs from their devices for 24 hours, to pressure service providers into opposing the state's plans. The outcome of the boycott is still to be seen, but its impact is expected to be largely symbolic, with the financial effect on cellcos likely to be negligible. (February 2, 2017) telegeography.com

# Morocco

Morocco's Internet users increased by 17.9 percent in 2016 to reach 17 million people, accounting for a penetration rate of 50.4 percent, according to the country's national telecom regulator ANRT (Agence National de Réglementation des Télécommunications). The number of people surfing the Internet via smartphones reached 15.8 million compared to 1.23 million people favoring ADSL Internet, the Rabat-based agency pointed out in a report. Since its launch in June 2015 and until December 31, 2016, the 4-G mobile reached close to 2.8 million customers. (February 7, 2017) moroccoworldnews.com

The Seychelles, Morocco and South Africa on the top list of countries in Africa with better access to the Internet on the continent. These three countries have the best connection in respect of connection in Africa. More than half of their population has access to the network, according to statistics in real time published by Internet live status. The three countries are closely followed by Tunisia, Nigeria and Kenya. A special mention is given to Nigeria which the first place in terms of the number of citizens within the country. At the bottom of the list, are four countries with less than two percent of access to the Internet there are Eritrea, Burundi, and Guinea. A year ago Mali and Lesotho recorded a penetration rate of more than 18%. In this same category, we find the Cameroon which is also a leap forward with a 16. 5 % rate of access. The result of this is probably accounts of the of the Internet in the two anglophone minority regions in the country. In sub-Saharan Africa, a major obstacle that keeps millions from achieving universal digital access is geographical location. Many landlocked African nations or rural areas that are far from cable landing stations struggle to access efficient and cost-effective networks. Users in landlocked countries in Africa pay on average $232 more per month for fixed broadband access than those living in coastal areas, according to the World Bank's recent 2016 Digital Dividends report. (January 30, 2017) africanews.com

# Nepal

Telecom companies operating in the country will now have to take permission from Nepal Telecommunications Authority (NTA) prior to making any changes in their share structure. The first meeting of the High-level Monitoring Committee formed under the Telecommunication Policy, 2004, last week took a decision to this effect. The committee is headed by Minister for Information and Communications Surendra Kumar Karki. Such decision from the government has come at a time when the tax issues related to TeliaSonera selling its majority share in Ncell to Malaysian telecom operator Axiata is being hotly debated. Ram Chandra Dhakal, spokesperson for the Ministry of Information and Communications (MoIC), said that the decision is aimed at regulating telecommunication industry of the country more effectively. "We have already directed NTA to make necessary amendments and implement the direction," he said. Until now, telecom operators did not need to inform the regulatory body while changing their share structure. They could make the changes in their share structure after fulfilling other legal procedures at the Department of Industry (DoI) and the Office of Company Registrar (OCR). Meanwhile, NTA has said that it is expediting the process to implement the recent decision of the government by making necessary amendments in the existing telecommunication policies. "We had notified United Telecom Ltd (UTL) and Smart Telecom Pvt Ltd that they would need to take permission from NTA before they make any changes in their share structure while issuing unified license to them," Min Prasad Aryal, spokesperson for NTA, said. According to him, a few amendments might be required in the existing telecommunication policies to introduce such provision for other telecommunication service providers. Currently, there are six telecom service providers in Nepal — Nepal Telecom (NT), Ncell, UTL, Smart Telecom, Nepal Satellite Telecom and STM Telecom. The High-level Monitoring Committee meeting had also decided to make necessary amendments to Interconnection Guideline, 2008 and implement them. The meeting had also directed NTA to take necessary steps to control unhealthy competition among telecom service providers. The meeting had shown serious concerns over service charges being levied in an unscientific manner in a bid to outdo other telecom operators. It also directed telecom operators to deliver quality service to customers and introduce a provision to compensate customers in case of any halt or disturbance in regular services being provided. Similarly, the meeting also recommended MoIC to make necessary amendments in Telecommunication Policy, 2004, Telecommunication Act 1997 and other telecommunication related guidelines and bylaws to make them more relevant. (February 1, 2017) thehimalayantimes.com

# Oman

The Telecommunications Regulatory Authority (TRA), represented by the Quality Service Department, conducted a field survey to measure the performance of mobile telecommunications networks of Omantel and Ooredoo at Muscat Festival venues, Naseem Gardens and Amerat Park. The survey was held in conjunction with festival events and aimed to measure the high quality of service provided by the operators in view of the high number of users visiting the festival, stated a press release. The network performance was measured using an automated system to monitor 'Quality of service (QoS) and Internet speed', which is a standard tool used globally to measure Key Performance Indicator (KPI) of mobile telecommunications QoS and all the data related to signal strength and coverage of mobile networks using G2, G3 or G4. TRA periodically conducts field surveys of the operators' transmission stations in the various regions of Oman and generates reports to the operators. These surveys are done to check if there is any inconsistency with the international quality of service standards. (February 15, 2017) muscatdaily.com

A benchmark comparative study of prices of retail telecommunication services in Oman in comparison with neighboring countries by Oman's Telecommunications Regulatory Authority (TRA) is expected to be concluded and published during the second quarter of the year. This follows a TRA directive issued on 16 October 2016, on the formulation of a specialized task force to undertake the study, Muscat Daily reported. TRA has invited a number of government bodies and academic institutions to take part in the study, said the authority. The study is being conducted in coordination with neutral and independent agencies and is adopting the highest levels of transparency and neutrality, according to the regulator. The parties include Sultan Qaboos University, the Shura Council, The

Research Council, Ministry of Transport and Communications and the National Centre for Statistics and Information. The consultants embarked upon the assigned study and a meeting was held with TRA task force to discuss the scope of work and the methodology of the benchmark study and the data required from the operators to conclude the study. Another meeting was also held with representatives from operators providing public telecommunications services. A similar benchmarking study conducted by TRA in 2015 found that the prices for fixed voice services in Oman were comparable to the prices in other GCC countries, and also the other selected countries within the study. However, fixed broadband services in Oman were among the highest in the countries covered by the study across all usage baskets except for medium speed. The prepaid prices from network operators in Oman were well above the GCC price average. For postpaid and business services the prices in Oman were at the higher end of the scale among the countries covered. Prices for mobile broadband services in Oman were either below or comparable with other GCC countries for prepaid services at low usage levels, but among the highest for postpaid and higher usage levels. (February 3, 2017) world.einnews.com

TRA stated in a communiqué that a lot of mobile users have been receiving calls and text messages requesting personal information, in addition to information about Oman. "These callers do not carry any official right to obtain these information and aim to affect the bond and values of the Omani society," stated the authority. "TRA is advising all network users to not interact with these callers and to not respond to them in any way, or give them any personal information that could be used against the users." (February 2, 2017) muscatdaily.com

# Pakistan

Minister of Information Technology (MoIT), Anusha Rehman has revealed that Internet Corporation for Assigned Names and Numbers (ICANN) Board has passed a resolution on Internet Registry. The local community of Pakistan will now be able to register and use internet domain names in native languages. This will help the citizens to access web pages in Urdu. In addition to making navigation easier, this will also be valuable in targeting local markets, non-English speaking internet users and for local promotions. The e-Commerce market of Pakistan will also benefit from this development by eliminating the language barriers and reaching targeted customers. Pakistan already has ".pk" domain name and dot will be an important step towards creating digital Pakistan through local content. MoIT approved the request for internet registry in consultation with stakeholders committee members from Academia, Civil Society, Internet

Community, ISPAK, National Language Authorities, PASHA, PTA, Governments etc. Pakistan has already successfully completed the preparation and evolution stages of ICANN Fast track for Integrated Delivery Network country-code Top-Level Domain (IDN ccTLDs). The minister appreciated the efforts of team MoIT, multi-stakeholder technical committee members on internet registry and team NTC. Established in 1988, ICANN is a not-for-profit partnership of people from all over the world dedicated to keeping the internet stable and secure. ICANN manages Domain Name System (DNS) and ensures that every internet address is unique and valid. A domain name comprises of two elements: before and after "the dot". The part to the right of the dot, such as "com", "net", "org" or now, is known as a "top-level domain" or TLD. The part before the dot is the domain name that you register. National Telecommunication Corporation (NTC) will be

the manager for internet registry. (February 13, 2017) techjuice.pk

The HB Group, which purchased Wi-tribe from Qatar's national telecom company Ooredoo, has confirmed that it has signed a partnership agreement with China's leading telecom company, Huawei, to deliver fastest home broadband service in Pakistan. The partnership is part a $50m investment programme embarked on by the HB Group to upgrade and modernize broadband services in Pakistan following its acquisition of Wi-tribe in March last year. As a result of the partnership, Wi-tribe is set to introduce next generation LTE Advanced (LTE-A) technology in Pakistan, commonly known as 4.5G, making it the first company in South Asia and the Middle East to deploy the technology on its 3.5Ghz spectrum. Commenting on the investment, Wi-tribe Supervisory Board Chairman Shahid Malik said. Malik, the ex-minister of UK, added, "Within six months time over 1 million households will have access to the fastest wireless home broadband service in Pakistan using the most advanced technology currently available anywhere in the world. In practice, this will mean a revolution in terms of the amount of data Wi-tribe can offer its customers but more importantly, it will mean speeds of up to 100Mbps for a single user household. This type of speed is unheard of in our industry and if you couple that with huge GB volumes available, we will be able to offer the best internet packages in Pakistan in terms of speed, volume, reliability and value for money." This strategic partnership will be the 2nd major investment by Wi-Tribe after a multi-million upgrade of its spectrum in August 2016, which doubled its capacity to ensure a much higher satisfaction while browsing the internet for its customer base. Meanwhile, Huawei Pakistan's Deputy CEO Ahmed Bilal Masud said: "We are proud to have landed the contract to partner with Wi-tribe and to deliver our world-class Internet solutions for the Pakistan market. The roll out of this 4.5G technology is the first of its kind in South Asia and the Middle East and we are proud to be partnering with Wi-tribe and pioneering LTE Advanced in Pakistan." "This is the beginning of an investment journey and by the end of 2018 we plan to be delivering single user households up to 200 Mbps speeds," said Malik. He described the investment as a game-changer for the company, stating: "This is a game-changer and positions us as the stand out number one home broadband service provider in Pakistan and delivering a huge advantage over our competitors. We take pride in the fact that today Wi-tribe, a Pakistan based company, is a technology pioneer not just in Pakistan but also across a whole region. This was not an easy decision, especially when a bulk of telecom operators are shrinking, consolidating, optimizing and shedding thousands of jobs in the process." (February 8, 2017) dailytimes.com.pk

The Government of Pakistan has decided to auction the last available block of spectrum of 10 MHz in 1800 MHz left from the 2014 spectrum auction. 4G Auction to be Completed Before June, 2017: Anusha Rehman. For this purpose, the Prime Minister of Pakistan Nawaz Sharif has successfully constituted the advisory committee for the 3rd round of spectrum auction. Prior to this, the Government had brilliantly completed the 2 rounds of 3G and 4G spectrum auctions while providing mobile broadband to the masses in the country. The Minister Ms. Anusha Rahman heads this committee whereas its other members include the chairman PTA Dr. Ismail Shah, special assistants to PM for law, executive director Frequency Allocation Board, Member telecom and secretaries IT, finance and law are its members. The member telecom also been appointed as the secretary of committee. The committee met for the first time yesterday as an inaugural session. Pakistan successfully achieved unbelievable milestones after 3G and 4G launch back in April 23, 2014 through a transparent Spectrum Auction. Within short period of 2.5 years, Pakistan has achieved unprecedented growth in 3G/4G penetration rate which indicates that it has incredible potential. Presently, Pakistan has around 90 million unique subscribers which is 47% of the total 193 million population. The GSMA Intelligence stats in May, 2016 indicated that the rate of Mobile Broadband (MBB) penetration of Pakistan has witnessed phenomenal growth specially if compared to other regional countries like Bangladesh, India and Indonesia. (February 7, 2017) phoneworld.com.pk

The Ministry of Information Technology and Telecommunication Pakistan has started relevant processes and measures to auction off the remaining 4G spectrum among the telcos of Pakistan. The said Ministry is looking forward to have the auction this year, that too as soon as March – ProPakistani has reported. According to ProPakistani, the relevant spokesperson had told that in order to smoothly conduct the auction within the specified time-frame, the process has already been initiated. To administer the sale, a Auction Supervisory Committee will need to be established. A file on the subject matter has been sent to the PM office for the necessary approval. Pakistan had its first auction this auction was held online in which telecom operators sent bids using the secure portal provided by PTA. An event that was also set up by PTA at Marriott Hotel, Islamabad covered the event. Zong and Mobilink each won the 10 MHz 3G spectrums in 2100 MHz band, Telenor and Ufone managed to win the 5 MHz 3G spectrum in 2100 MHz band each. Zong was also able to win the 10 MHz 4G spectrum in 1800 MHz band. Warid didn't participate. Telenor and Warid were later able to get the 4G spectrums. And as Mobilink also got the 4G functionality after it acquired Warid, Ufone becomes the only company which doesn't have the 4G spectrum. It might be noted that the Pakistan experienced a massive influx of people shifting to new cutting edge connectivity technologies following the 3G/4G auction a couple of years back. The shifting, however, had slowed down to a point when it hit the the second lowest of past 10 months. (January 31, 2017) techjuice.pk

Around 90 percent of Pakistani population would have access to 3G networks, 80 percent of which are also estimated to enjoy 4G services by year 2020. Amid heavy investments, 3G coverage in Pakistan – by all operators combined - reached 65 percent of population by 2015, while it stretched to around 75 percent of population by mid-2016, the facts revealed in Global System Mobile Association (GSMA) report. A web-based portal, ProPakistani, while quoting the statistics given in the report, said 3G coverage had reached 75 percent of Pakistan's population by mid-2016, 4G coverage reached 18 percent of Pakistan's population by mid-2016 while 29 percent of Pakistani population use mobile internet (2G, 3G or 4G). The report said mobile broadband uptake had been slow, mainly due

to the fact that many citizens either could not afford it or did not know how to use devices and services that deliver mobile broadband. With time, mobile broadband (3G and 4G) users in Pakistan are estimated to grow to 60 million by 2020. With continued investment - it is estimated that investments for 3G network expansion will reach $2.8 billion over next four years (not including any additional spectrum costs) - and it will enable around 90 percent of the population with 3G access, said the report. With only two operators, 4G roll-out has expanded rather slowly and reached 18 percent of the population by mid-2016. However, with Mobilink acquiring Warid and Telenor beginning 4G services, 4G coverage is expected to rapidly to become accessible to 80 percent of the population by 2020. The report said today's users would accelerate their transition to mobile broadband from 2G services, with improved network coverage and more affordable smart phones with time. By 2020, mobile broadband will be accessed by about a third of the population, albeit predominantly those shifting from 2G. Given the lack of fixed line broadband connectivity in Pakistan, the digital divide - between those that have access to the internet and those that do not - will remain substantial. Pakistan is an emerging digital society. Digitization is still in its early stages, and is used mainly as a tool for accelerating socio-economic development, particularly in improving digital and financial inclusion. However, through its Vision 2025 strategy, Pakistan aims to complete its transition to a knowledge-based economy, creating a globally competitive and prosperous country that provides a high quality of life for all its citizens. Vision 2025 envisions a more advanced digital society. Digital development can drive increased engagement between individuals and institutions, provide huge growth potential and productivity gains in all sectors, and enable more advanced and innovative government services. Pakistan's mobile sector is in a unique position to support the country's digital development for three key reasons: Mobile can connect more people than any other technology, particularly in underserved rural areas, mobile can provide secure access to a variety of digital services such as health and education and mobile can provide a platform to provide financial inclusion, engaging many people in the economy for the first time. In parallel, innovative services that run over mobile networks can support many of the government's Vision 2025 objectives, such as increasing enrolment in education, improving food security and driving private sector growth. Mobile operators in Pakistan

are playing their part in innovating to deliver the services that will accelerate progress towards the goals of Vision 2025 - and in doing so generating growth, jobs and investment in wider economy. But they have an opportunity to do more. Three key areas require immediate attention: a competition policy that considers all market players, not just telecoms service providers, in a technology-neutral environment, aimed at preventing bottlenecks and exclusionary conduct; clear and simplified licensing practices based on function rather than technology or legacy industry structures, which can accommodate the rapidly changing market and encourage investment and innovation; and a new framework for physical network cooperation (including network and spectrum sharing) that is light-touch and focuses on general competition principles and transparency. There is a real opportunity for the government, institutions, mobile operators and the wider mobile industry to work together to make the regulations a better fit for modern digital ecosystem, the report maintained. (January 30, 2017) nation.com.pk

The Pakistan Telecommunication Authority (PTA) has inaugurated the nation's first internet exchange point (IXP) in Islamabad, enabling internet users in the country to access locally-hosted content at faster speeds. Local news portal Dawn quotes PTA chairman Dr Ismail Shah as saying at a press conference marking the launch that: 'Just like a phone call is routed through local exchanges, an online request from internet users in Islamabad [now] will be directed to the servers installed [at the IXP] instead of directing requests to servers in Europe or the US.' The official added that the use of the IXP would help drive down prices for end users as well improving latency. Pakistan has seen a spike in internet usage since the introduction of 3G and 4G mobile broadband services in 2014, with Minister of State for Information Technology Anusha Rehman noting: 'We have been adding a million internet users a month since broadband 3G and 4G high speed internet services were introduced in Pakistan. From an insignificant 3.8 million broadband users, Pakistan has now more than 40 million [mobile and fixed] broadband users in less than three years, and the numbers continue to rise.' ProPakistani writes that eight ISPs are using the IXP at present, namely: Pakistan Telecommunication Company Ltd (PTCL), Nayatel, Telenor Pakistan, Wateen, Multinet, Cybernet, Wi-Tribe and PERN. (January 30, 2017) ProPakistani

# Qatar

Revealing that the Communications Regulatory Authority (CRA) had resolved more than 94% of complaints received in 2016 compared to 90% in 2015, the authority announced that a new interactive complaints management system would be launched soon to make it more convenient for consumers to lodge and monitor complaints. To address issues raised by consumers such as billing, network coverage, disconnections and delays in activation, CRA has also engaged with the service providers to discuss solutions in the delivery of communication services in Qatar, said a press release. CRA received 3,504 complaints from

consumers about service providers in Qatar in 2016. Of these, 2,058 were invalid and of the remaining 1,446 valid complaints, over 94% have been resolved, and CRA is investigating the remaining complaints with the service providers and expects to resolve them in the coming weeks. For mobile services, 51% of the complaints received are related to billing issues, 7% related to network coverage issues, and 13% related to service disconnections. As for fixed line services 26% of the complaints relate to fixed-line disconnections while 25% of the complaints are related to delay in installation and activation issues. "CRA

is constantly looking for ways to improve the experience of telecom consumers in Qatar, and to enable the availability of innovative, high quality communications services. Soon, CRA intends to launch a new interactive complaints management system to make it more convenient for consumers to lodge and monitor complaints," said Mohammed Ali Al-Mannai, President Services. "Through effective and reliable systems and processes, CRA ensures that people have the right tools and technology at their fingertips to contribute to CRA's vision of making Qatar a smart, connected nation," His Excellency added. Complaints received by CRA include issues related to disconnections, billing, premium SMS service, poor network coverage, delay in activating fixed line services, roaming charges, spam calls and SMS, and mobile data usage denial. "These figures show that CRA is proactively and effectively managing the 290 complaints received on average per month against service providers. Resolving these complaints is a vital part of our role in protecting consumers in Qatar and the upcoming complaints management system shall enhance CRA's coordination with the service providers for complaints management," said Amel Salem Al-Hanawi, CRA's Consumer Affairs Manager. Consumers with a complaint are free to approach the CRA if a complaint directly to

their service provider remains unresolved for 30 calendar days, or if they are dissatisfied with the resolution offered. Complaints are then assessed by the CRA against a set of criteria to determine if a complaint is valid or not. CRA receives and investigates complaints by working with both the consumers and service providers to find a fair and mutually acceptable solution. Consumers can contact the CRA in a variety of ways: the 24/7 hotline number is 103, email CRA at consumervoice@cra.gov.qa, using the CRA's online complaint form via the website, by tweeting directly to @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 and postal sectors, 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. (February 7, 2017) thepeninsulaqatar.com

# Saudi Arabia

Saudi Arabia's telecoms regulator the Communications and Information Technology Commission (CITC) has awarded a unified telecoms concession to mobile operator Etihad Etisalat (Mobily) for a total fee of SAR5 million (USD1.3 million). The authorization, which is valid until October 21, 2034, will allow Mobily to provide fixed telephony and broadband services in the kingdom. Earlier this week, rival Zain was also awarded its respective unified concession, in line with a higher order dated October 1, 2016. As reported by media that month, the Saudi government issued Royal Decree No. 61534 directing the CITC to provide the kingdom's operators with unified telecoms licenses and to extend their licensing periods by 15 years. (February 22, 2017) telegeography.com

Saudi Arabia, fueled by its commitment to sustainable growth through economic diversification and technological transformation, climbed four spots to become the 16th biggest economy in the world in 2016. However, with the widespread use of technology, the risk of cyber threats from hackers, insiders, and foreign governments has reached new heights. Enhancing the nation's cybersecurity infrastructure to combat these threats, develop standards, share critical information and educate stakeholders has become a key priority for the Saudi government. The Ministry of Interior (MOI) represented by National Cyber Security Center (NCSC), in partnership with Naseba, is organizing the Second annual International Cyber Security Conference (ICSC) Feb.27-28 at the Security Forces Officers Club. The conference is the largest cybersecurity gathering in the Kingdom with over 600 VIPs, CEOs, CIOs, CISOs, IT and Security Managers representing the nation's

critical national infrastructure organizations, private sector and academia. Committed to supporting the Kingdom's bid to safeguard its critical networks, providers such as STC, Spire Solutions, TCC, Raytheon, SecurityMatterz, Advanced Electronics Company, Attivo Networks, BT, Fortinet, Innovative Solutions, Kaspersky, Northrop Grumman, PhishMe, Darktrace, Paloalto Networks, Protection Group International, Symantec and VirtualForge will be holding private one to one meetings with the attendees. Dr. Abbad Alabbad, Communication & Strategic Development executive director, NCSC, said that a key objective of the conference is to "facilitate national, regional and international collaboration between government, industry and critical infrastructure organizations." Nicholas Watson, managing director of Naseba, said, "effective information and knowledge sharing within and across industries is crucial to help mitigate cyber threats and attacks. The conference emphasizes this, in addition to facilitating business transactions, partnerships and deals between the key stakeholders and vendors." Sanjeev Walia, CEO of Spire Solutions, the lead sponsor of the conference, noted, "At a juncture when the region is targeted by advanced cyber-attacks, cybersecurity is mandatory for every organization and here in Spire Solutions, we work closely with organizations to protect their business by helping them understand, detect and manage cybersecurity threats in an effective way. Our team will demonstrate some of the niche solutions available today such as deception technology, endpoint security, automated threat hunting, and advanced threat exposure management." (February 13, 2017) www.zawya.com

# Sudan

The Regional Preparatory Meeting (RPM) for the Arab States was held from 30 January to February 1 in Khartoum, Sudan. Participants at the meeting assessed the ongoing implementation of the Dubai Action Plan adopted at ITU's last World Telecommunication Development Conference (WTDC-14) and identified priority areas for information and communication technology (ICT) development strategies in the Arab region. In his opening remarks, Ibrahim Mahmoud Hamid, Assistant to the

President of Sudan, said that ICTs play an important economic, political, and social role in all areas of people's lives and across the sectors, including the health, security, defense, and academic sectors. "Sudan has contributed to the creation of a knowledge-based society for all by pursuing a policy based on knowledge-sharing and partnership with all stakeholders for the promotion of ICTs to implement the Sustainable Development Goals." (February 2, 2017) ITU

# Tunisia

The Tunisian telecoms authority INT (Instance Nationale des Telecommunications) has opened a consultation on new measures aiming to increase transparency for consumers, detailing the way in which ISPs and network operators need to communicate and advertise their services. In particular, the regulator is proposing to enforce a minimum set of information for telecoms and added value services, alongside specific rules on how the terms and conditions of advertised offers need to be displayed via TV, press and outdoors marketing activity. (February 6, 2017) telecompaper.com

The Tunisian telecoms authority INT (Instance Nationale des Telecommunications) has published the results of its latest QoS mobile study, evaluating the 2G/3G voice and data services provided by Tunisie Telecom, Ooredoo and Orange Tunisia in the regions of Tunis and Ariana. The study includes a comparison of the results between this latest wave, carried out in October 2016, and the study conducted in June 2015, highlighting whether the quality of various voice and data services (such as web access) has improved or worsened by operator and by region. (February 2, 2017) telecompaper.com

# United Arab Emirates

The government of the United Arab Emirates (UAE) is maintaining the royalty rate payable by local telcos Etisalat and Du at the same level as in 2016, with the extension to run for five years to the end of 2021. The operators pay 15% of their revenues and 30% of net income to the government each year. Etisalat, which also has operations in 17 countries outside the UAE, will only pay royalties based on its domestic income. Prior to 2016 newer entrant Du paid a lower fee than its rival, but their rates were synchronized last year. Etisalat and Du compete head-to-head across the entire UAE fixed and mobile sectors. (February 22, 2017) telecompaper.com

The Telecommunications Regulatory Authority's (TRA) Computer Emergency Response Team (aeCERT) and the Spectrum Management Affairs Department, are participating at the International Defense Exhibition and Conference (IDEX 2017), launched in Abu Dhabi National Exhibition Center (ADNEC), and lasts for five days. The aeCERT participation for this year includes significant topics and challenges in relation to cyber security, most importantly, an awareness presentation to highlight the enormous damage that may result from the abuse of the Internet of Things (IoT) in the absence of awareness among users about the methods of adjusting the settings

securely. The team also presents the data leakage detection system, which assists the affiliates from different government entities to detect confidential data related to the entities, and which have been published mistakenly. It can also detect security vulnerabilities that could be exploited to carry out cyber-attacks. The visitors will be able to review the smart threats analysis system, which collects data on hacking incidents and associated evidence, as well as detecting sensitive undetected data that has been leaked by hackers. Moreover, the Spectrum Management Affairs team will present the latest online systems in areas of frequency allocation and issuance of authorizations and permits for all wireless and radio services in the country. This would be implemented through a simple process and easy steps that allow the user to apply for spectrum authorization, pay the fees and print the authorization without leaving his office. The Spectrum Monitoring Section will also present its success in establishing a spectrum monitoring center in TRA, where the latest stations and software are available to support frequency allocation, solve harmful interference and provide a safe wireless communication environment in the country. Additionally, the team contributes in securing the use of frequencies in major events, and participates in reducing the cross-borders coverage of communication services from

neighboring countries. Commenting on this participation, Hamad Obaid Al Mansoori, TRA Director-General, said: "IDEX has a great importance, and it is considered a leading global platform in the field of defense industries, as well as related solutions and technologies. Hosting this event in the UAE Capital, Abu Dhabi, in addition to the distinct participation of leading companies and manufacturers is an indicator of the UAE strategic importance in this field, and reflects the sector's confidence in the growing importance acquired by the event every year." "Our participation this year includes a range of projects and solutions that have been developed by national teams in TRA. These solutions have shown the existence of distinct national competencies able to prove their capabilities in fields of cyber security and information security, which are the basis of a reliable infrastructure to meet the needs of smart development and transition towards smart cities. We have been able in the UAE to achieve great accomplishments in this field, which has strengthened our leading position in this field on regional and global levels." The visitors of TRA stand will be able to meet experts in information security from the aeCERT team, and discuss relevant topics in order to raise public awareness. Moreover, they will be able to communicate with engineers of spectrum affairs to inquire about services and modern technologies in this field. (February 21, 2017) emirates247.com

Emirates Integrated Telecommunications Company PJSC (du) sees margins to be more challenging in 2017 and expects growth to come from non-connectivity businesses such as ICT services. Du has been reporting a fall in profits for the past two years due to the change in royalty structure. The operator has paid a little more than 55 per cent of its net profit as royalty fees in 2016. "We have been working on our cost structure significantly that allows us to ensure that we have a value-creation pocket and, on the other hand, opening new track for growth which is not in the connectivity business," said Osman Sultan, EITC's Chief Executive Officer. He said that the company expects to save more than Dh1 billion from cost optimization in the next three years. "We plan to continue our close cooperation with our strategic partners to develop a full range of smart services and cloud solutions, providing only the best possible assistance to our customers, but also helping to drive the UAE's innovation agenda as well as Dubai's transformation into the smartest city in the world," he said. Telecom operators are licensed to offer connectivity services. On top of that, he said that du can build a lot of services by partnering with other companies for smart city, hosting data services, smart home, managed services, etc. As the pre-paid segment has seen a more challenging situation than post-paid for du this year, Sultan said that in a bid to regain its momentum in the prepaid market, "we need to simplify our propositions and work on ensuring that we attract the right users". Out of the 8.64 million subscribers, post-paid contributed just over 11 per cent to the mobile revenue. He said that the main business came from the fixed line last year and the fixed-line revenue is driving the growth. Du's fixed revenue grew 4.4 per cent to Dh2.67 billion compared to Dh2.55 a year ago while its mobile revenue grew by 0.3 per cent to Dh8.97

billion compared to Dh8.94 billion. "We have added almost a million new mobile customers during the year, registering a growth of 12 per cent to 8.64 million, while our focus on cost efficiency maintained our EBITDA levels whilst we invested in our transformation to an integrated digital provider," Sultan said. For 2017, he said the revenue will grow in single digit but fixed-line revenue will grow more than the mobile revenue. For 2016, du reported a 9.7 per cent decrease in net profit after royalty to Dh1.75 billion compared to Dh1.94 billion a year earlier while its revenue grew 3.2 per cent to Dh12.34 billion. (February 16, 2017) gulfnews.com

Etisalat Group's revenues rose by 2.01 per cent to Dh52.36 billion compared to Dh51.32 billion a year ago due to the strong performance from UAE and Maroc Telecom operations. In the UAE, revenue increased by 5.46 per cent as a result of an increase in revenue from data services, expanded the customer base of broadband usage and increased offerings of business solutions, digital and ICT services. Etisalat said that 2015 earnings had been restated. Net profit attributable to equity holders increased by 1.93 per cent to Dh8.4 billion compared to Dh8.26 billion a year ago, the company said in a statement on Abu Dhabi stock exchange. According to Brand Finance's Global 500 recent report, Etisalat had its brand value increase by 45 per cent to $5.5 billion last year due to growing user numbers, innovation and a strong profit. Sukhdev Singh, vice-president at market research and analysis services provider Kantar AMRB, told Gulf News that growth for Etisalat, or for that matter any telco in the region is increasingly driven by data services adoption. In near future, one expects the trend to continue. Given the high penetration of smartphones, particularly in the UAE, he said that the increase in data services was expected. Unlike voice services where margins are more predictable and prices are broadly similar, what one pays out for data services in the UAE varies a lot by operators. "At times, for the same money, one operator offers twice the data as compared to the other. This leads to considerable spend on marketing and promotion, often at the cost of sacrificed margins. This is also evident from comparatively lower growth in operating profit as compared to growth in revenues," he said. The telecom operator's net operating profit increased by 2.10 per cent to Dh11.63 billion compared to Dh11.39 a year ago. Etisalat operates in 18 markets in the Middle East, Asia and Africa with 167 million subscribers in 2015. Subscriber base for 2016 is not available. In August, the group completed the sale of its 92.3 per cent shareholding in Sudanese fixed line operator Canar to Sudan's Bank of Khartoum and received Dh349.6 million in return for the stake. The telecom operator is facing issues in Pakistan and the Senate Standing Committee on Information and Technology and Telecommunication in Pakistan have asked etisalat, a major shareholder of Pakistan Telecommunication Company Limited (PTCL) in 2006, to pay $800 million outstanding dues recently. Etisalat has so far paid three instalments totaling $400 million. The committee has given a time of one month to etisalat to settle and address the issue amicably. (February 14, 2017) gulfnews.com

**ARTICLE**

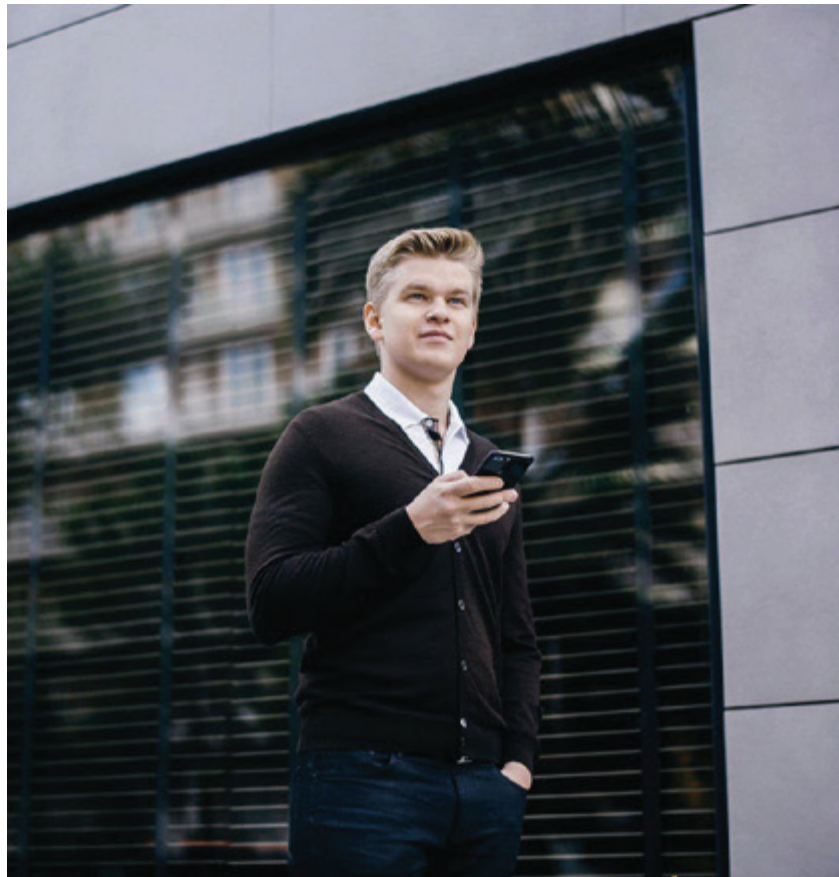# Protecting Subscribers of Digital Services against Fraud

Effectively protecting mobile content subscribers remains one of the major challenges facing telecoms.

As Mobile Subscribers purchase and consume content faster than ever before, the risk of being defrauded instantly increases as well. Most of the platforms used by carriers cannot provide instant and transparent information about mobile service subscribers. When problems arise, carrier customer support can take 48 hours and even longer to resolve subscribers' requests. Rarely can the first line of telecom support provide an instant resolution to a subscriber's problem. Receiving a refund is generally the subscriber's primary objective, yet providing a refund often causes a big headache both for carriers and content providers.

RGK Mobile has built its Customer Care program on understanding and resolving subscribers' problems within minutes of being alerted that a problem exists. RGK achieves this goal by better understanding fraudulent traffic sources and by having a clear complete picture of the whole chain of mobile subscription activation. We believe that the trend will be for more and more carriers to adopt business models that provide subscribers with the possibility of resolving their complaints, including the receipt of refunds, in minutes.

### Effectively preventing the targeting of mobile content subscribers remains one of the major challenges facing telecoms.

The current industry practice involves a chain of disparate entities between the subscriber and the carrier, including content providers, affiliates and aggregators. This leaves no single entity to which subscribers can easily turn with problems as they arise. The truth is that numerous disparate entities cannot be held accountable to subscribers or carriers because no one knows the real source of the problem. When a content owner uses in-house advertising

**Roman Taranov**
Chief Executive Officer
RGK Mobile, Spain

**RGK**MOBILE

solutions, the small amount of attracted traffic will be mostly free of fraudulent elements. But it is impossible to cover all the traffic sources using a single department, as there are millions of sites and thousands of traffic brokers.

## The highest traffic volume comes from websites, mobile sites and in-app advertising.

Currently, the highest traffic volume comes from websites, mobile sites and in-app advertising. Ads can be managed by content owners (if they have an in-house media purchasing department), and/or affiliates connected to the content owner.

So, if a content owner wants to seriously increase sales, he or she must turn to third-party affiliates. While most affiliates obviously do not engage in fraud, some do, and many more leave subscribers who made quick purchases containing hidden costs feeling as though they have been cheated. This risk of fraud or of subscribers feeling cheated will naturally increase as the number of affiliates increases.

Deceiving or even cheating subscribers is easy. Affiliates start with aggressive advertising. The potential subscriber, after making a click on a banner, goes through a chain of aggressive and often misleading pre-landings. When he arrives at the final landing page, totally approved and even hosted by the carrier, he pays little or no attention to the text and subscription conditions while opt-in. When that subscriber understands (usually within several days) that he has purchased an ongoing paid subscription, he becomes extremely dissatisfied and submits a complaint. He just wants to resolve his complaint urgently by canceling his subscription and getting a refund.

As uncontrolled fraud and deceptive practices multiply, the complaint volume rises quickly, leading carriers to think that all the 1click and other mobile services generate more headaches than money. But since the amount of money at stake is significant, carriers might make one last gambit to salvage their profits: to

regulate the whole market themselves. They try to approve all the ads, asking to place subscription conditions right on the banners. Carriers might even ask to approve each traffic source, establishing penalties for each ad found on a non-approved source.

The amount of work that must be done to control every single banner and thousands of sites, though, is unimaginably high. Indeed, it is unmanageable. So carriers may try to impose penalties on affiliates, often in the tens of thousands of euros, for fraudulent traffic. But since all of these investments in traffic are by definition risky in the first place, affiliates prefer to stop advertising and to forget about the over-regulated market. It just isn't worth it for them to deal with the heavy-handed management of the carriers.

## The amount of work that must be done to control every single banner and thousands of sites, though, is unimaginably high.

The inevitable result is, of course, VAS income loss both for the carrier and all the other parties involved. The carrier might think that it has done the right thing

by trying to regulate fraud on its own, but in fact it just does not have enough expertise and real market understanding to properly do so. Consider, for example, some of the problems that a carrier inexperienced in 1click might confront:
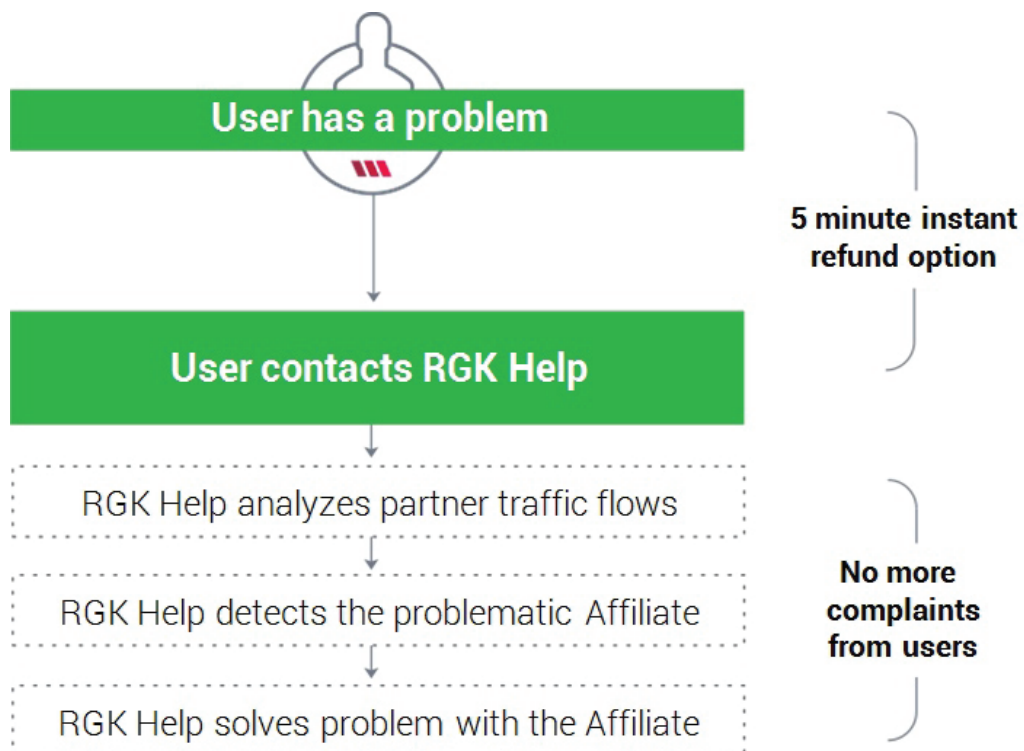
- Aggressive and misleading pre-landings;
- geographic traffic cloaking;
- time traffic cloaking;
- spam (email/sms/messengers/etc.);
- iframing;
- click-jacking;
- auto-subscriptions.

The carriers simply cannot meet this challenge alone.

Fortunately, RGK Mobile has developed a solution to solve the challenge posed by fraud and deceptive practices against mobile subscribers -- a solution that it is confident will become the industry trend for the future. It involves strong control by a single entity over content, affiliates and payment aggregation, providing one address for prompt response and resolution of problems.

**The RGK Fraud Control Solution**
RGK implements this solution using RGK Engine, its innovative, carrier-level content provider access platform.

Strongly connected with and able to easily interact with RGK Help, customer support departments, RGK Engine provides a complete toolset to detect fraudulent traffic in real time.

1. Each affiliate partner of RGK uses special links for advertising which include a unique affiliate code, ensuring that each subscription is always associated with a particular partner and indeed with a specific traffic flow.

2. RGK Engine automatically gathers all the subscriber details such as IP address, referring source, device, and user-agent when the subscriber visits any RGK mobile services. Support department managers are able to get complete information about each subscriber in under a minute. When a subscriber calls, an RGK manager already sees all of the subscriber information while the subscriber is listening to the IVR welcome message.

3. Automated algorithms send alerts to the RGK team when the amount of complaints coming in for a specific partner's traffic flow increases up to 1% of the total subscriptions made.

4. Once the team gets an alert, it might freeze the partner account in order to investigate the issue. All potential subscribers who click the partner's advertising link will be redirected to localhost. The entire problem is solved in an hour or two, with no more new subscribers to the fraudulent campaign, and no more complaints.

5. RGK Help's goal is to provide 24/7 support of the highest quality. To do so, RGK Help exercises full control of the process. Once it detects a problem, all the subscribers coming from an unreliable affiliate partner will be unsubscribed and receive an immediate refund.

## RGK implements this solution using RGK Engine, its innovative, carrier-level content provider access platform.

Comparing the speed of problem resolution of RGK help with that of carrier support departments, we can confidently say that our solution is without peer, and we are certain that our integrated control of the process under one roof will become the industry standard in the future.

RGK Mobile is dedicated to always remaining at the cutting edge. For that reason, we have brought on board Ronald K. Noble, former Secretary General of INTERPOL, who brings his extensive experience in national and international law enforcement to assist us with our global strategy for preventing fraud and identifying patterns of fraud targeting mobile content subscribers.

RGK's model will keep carriers and subscribers free from harm caused by affiliates employing fraudulent and deceptive practices. It is RGK's belief that the trend for providing mobile content will be one of demanding greater protection of subscribers and greater accountability of all those in the chain of providing mobile content to subscribers. RGK believes that in the short-term, mid-term and long-term, everyone in the industry will benefit in terms of service, profit and reputation.

# REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

## Austria

Telecoms regulator RTR is proposing a framework for broadband network construction. Consultation on the draft will be open until mid-March. According to the head of RTR for telecommunications and postal services Johannes Gungl, the objective of the regulator is to promote technology-neutral broadband infrastructure construction. Vectoring, as a bridging technology, could benefit about 1 million of households, as it offers significantly higher speeds. It will improve not only fixed network service, but better fiber-optic infrastructure is also an important prerequisite for 5G. The Telecommunications Control Commission (TKK) adopted a draft decision developing the regulatory framework for broadband construction in Austria in terms of rapid technology development. The main focus of the authority is on vectoring. It allows A1 Telekom Austria to offer faster speeds on the copper network even to customers in areas which are not covered with fiber-optic infrastructure yet. The draft decision of TKK continues the proven regulatory concept and reflects current requirements of the market. Also the prices for network access by competitors have been redefined and the continuous examination thereof has been simplified. TKK expects it would contribute to further progress in fiber-optic network construction. Following the closing of the national consultation procedure on March 17, the draft decision will be submitted to the European Commission and other European regulators under the coordination procedure, before TKK adopts a final decision. (February 8, 2017) telecompaper.com)

## China

China had 770 million 4G users as of the end of 2016, double the number from a year earlier, data from the Ministry of Industry and Information Technology (MIIT) showed. More than 58 percent of China's mobile phone users were 4G subscribers at the end of 2016, according to Zhang Feng, spokesperson and chief engineer of MIIT, at a press conference. The number of 4G users was 386 million at the end of 2015. China has the world's largest 4G network and is aiming to add 2 million 4G base stations, mainly for townships and villages, by 2018. The country is also researching and testing 5G technology with a goal to commercialize it by 2020. The research and development work has entered the second phase, according to Zhang, who noted that China will strengthen international cooperation in the process. "Compared with 4G, 5G is much faster and more reliable and can be used to support virtual reality technology, ultra-high definition video transmission, autopilot and smart manufacturing," Zhang said. (February 21, 2017) ecns.com

## Colombia

The Ministry of Information Technology and Communications (MinTIC), in conjunction with the National Spectrum Agency (ANE) has initiated a public consultation regarding its plans to auction frequencies in the 700MHz and 1900MHz bands. As a first step, the authorities seek to increase the existing spectrum caps in the sub-1GHz 'low bands' (689MHz to 960MHz) from 30MHz to 45MHz per operator, simultaneously increasing the spectrum caps in the 'high bands' (1710MHz to 2690MHz) from 85MHz to 90MHz. As per the draft resolution, a total of 70MHz (2x 35MHz) of spectrum will be offered in the 700MHz band (713MHz-748MHz, paired with 768MHz-803MHz). The 700MHz spectrum is expected to be divided up as follows: 2x 15MHz blocks (Block A), 2x 10MHz blocks (Block B) and two 2x 5MHz blocks (Blocks C and D). A supplementary 2x 2.5MHz block of 1900MHz spectrum will also be auctioned, comprising frequencies in the 1865MHz-1867.5MHz/1945MHz-1947.5MHz bands (Block E). The public consultation commenced on February 7, and will remain open until March 7, 2017. (February 9, 2017) telegeography.com

## Costa Rica

The Comptroller General (CGR) has responded to the complaints of Tigo Star Costa Rica regarding the upcoming auction of spectrum in the 1800MHz and 1900MHz/2100MHz bands. Tigo had provided feedback on tender documents released by sector regulator the SUTEL, complaining that: the documents did not provide information to justify the reserve prices set for the frequencies; there was too little time to process the necessary paperwork for the deadline (originally February 13 but pushed back to March 30); the documents made no mention of the availability of microwave frequencies; an increase in the participation guarantee from 1% to 5% of the bid was 'disproportionate and unreasonable'; there

were several discrepancies between terms of the license and existing regulations on quality of service (QoS) and the registration of pre-paid subscribers. The cable broadband provider also requested information on the software that would be used for the auction, adding that the same information should be made available to all of the eligible participants. In its response, CGR supported several of Tigo's positions, agreeing that Sutel should provide clarity on the availability of microwave frequencies as well as its methodology for determining pricing. Further, the CGR said that bidders should be provided equal opportunities to familiarize themselves with the software that will be used for the auction. However,

the authority rejected Tigo's other complaints, on the basis that either there was no issue, or that the matter was entirely within Sutel's remit. Cable provider Tigo Star is now considering entering Costa Rica's mobile market, having opted not to take part in the 2011 spectrum auction that had liberalized the sector. Tigo's Luxembourg-based parent Millicom International Cellular (MIC) operates mobile networks elsewhere in the region, and is able to provide the full suite of quad-play offerings – including mobile voice and data, fixed broadband, fixed telephony and pay-TV – in Paraguay, Guatemala, Honduras and El Salvador. (February 17, 2017) El Financiero

## Croatia

The Competition Agency (AZTN) has announced a three-month extension to its review of the proposed merger between domestic ISPs Optima Telekom and H1 Telekom. The deal was first announced in August last year and the firms had hoped to complete the tie-up by early 2017, with the regulator originally due to make a decision by February 13. Optima is currently under management control of T-Hrvatski Telekom

(T-HT), while the Deutsche Telekom subsidiary also holds a 19% stake in its smaller rival. Optima's largest shareholder is Zagrebacka Banka (Zaba) with a 40% interest. H1 Telekom is majority owned by its founder Zoran Curkovic, while Croatian state-run bank Hrvatska Postanska Banka (HPB) has a 41.25% stake. (February 20, 2017) telegeography.com

## Finland

Finland's DNA has published its financial results for the twelve months ended December 31, 2016, with the company recording year-on-year increases in all major metrics. In the year under review DNA said net sale totaled EUR858.9 million (USD940 million), representing a 3.6% increase from the EUR828.8 million reported for FY 2015. EBITDA meanwhile stood at EUR236.3 million, up from EUR227.7 million in 2015, with operating profit climbing to EUR91.2 million, an almost 25% annual increase. Net profit in 2016 also saw a significant increase, rising by 30.3% against the year-ago period, to EUR65.2 million. Looking to the year ahead, DNA has said that it expects net sales to remain roughly in line with 2016, while the comparable operating result is expected to improve somewhat in 2017 and the group's financial position and liquidity will remain 'at a healthy level'. In operational terms, DNA also reported gains in almost

all sectors, with the number mobile subscribers on its books reaching 2.742 million at year's end, up from 2.621 million at the end of 2015; of that total 2.721 million were subscribed directly to the company, with the remainder connected via an MVNO. Both fixed broadband and pay-TV accesses were also up y-o-y, at 440,000 and 608,000, respectively. Only fixed voice lines failed to follow the trend, with these slumping 16.6% to 65,000. Separately, DNA has announced that it will start using its first 4G base station operating over the 700MHz band from today (February 1). Noting that it expects the frequencies in question to enhance mobile broadband connection in sparsely populated areas particularly, it has confirmed the first base station using the spectrum will go online in Somero. In terms of future rollout plans, DNA intends to expand 4G connectivity in the 700MHz 'selectively'. (February 1, 2017) telegeography.com

## Germany

Germany's Finance Ministry is allegedly planning to present a report to the cabinet proposing that the government reduce its stakes in a number of state-owned companies, including incumbent telecoms operator Deutsche Telekom (DT) and Deutsche Post. According to financial newspaper Handelsblatt, ministers will discuss how to sell off government shares, with the report allegedly stating that 'a reduction or complete divestment of company holdings is under consideration'. The report on privatization plans, updated every two years, is

expected to be presented to the German cabinet today. In November 2014 the German government played down speculation that it planned to reduce its stake in a number of companies, after a leak of the proposals was reported by press. The German Federal Republic owns a 14.5% stake in DT, which operates under the brand Telekom Deutschland in its domestic market, while a further 17.5% is held via state-owned development bank KfW Bankengruppe. (February 22, 2017) telegeography.com

## Hong Kong

The Office of the Communications Authority (OFCA) has altered the proposed method for reassigning roughly 200MHz of spectrum in the 900MHz and 1800MHz bands prior to the expiry of existing licenses in 2020 and 2021. After reviewing 325 responses to the first round of a public consultation held last year, the regulator says it now intends to reallocate the spectrum through a hybrid method, which will give existing licensees the right of first refusal on 40% of frequencies, with the remaining 60% of spectrum to be sold at auction. The new proposal will now go to a second round of public consultation. It is thought that around 50MHz of 900MHz spectrum and 150MHz in the 1800MHz band are affected, accounting for more than one-third of the 552MHz of frequencies currently assigned in Hong Kong. The Hong Kong government has been criticized by players including HKT for not offering up any new spectrum at auction to enable operators to prepare for 5G mobile services. Authorities have not released any new frequencies for the past three years and there are no plans to do so over the next three years. The OFCA labelled some of HKT's comments as 'reckless and unreasonable', saying it intends to offer the 700MHz band to mobile operators once it is freed by analogue TV broadcasters, which is expected in 2020, while it will also look at opening up spectrum in the 3.5GHz range once it can be ascertained whether or not mobile use would interfere with existing satellite TV services in adjacent bands. (February 16, 2017) The South China Morning Post The government has tweaked its plan to reassign a large batch of the city's mobile frequency spectrum, as it launched a second round of public consultation on the proposed arrangements. The announcement by industry regulator the Communications Authority (CA) and the Secretary for Commerce and Economic Development, Gregory So Kam-leung, has come amid calls for the government's release of fresh spectrum to support the city's 5G preparations and the adoption of spectrum trading between telecommunications network operators. Based on the 325 submissions received in the first round of public consultation from February 3 to May 18 last year, as well as the findings of a consultancy study, the government has drawn up a "hybrid approach", which combines the administrative assignment and auction of 200 megahertz of frequency spectrum in the 900MHz and 1800MHz bands, the Deputy Director General of the Office of the Communications Authority, Chaucer Leung, said in a media briefing on Tuesday. The licensed frequency spectrum on those two bands account for 36 per cent of the total 552MHz of spectrum currently assigned for use in mobile communications services, according to the CA. It estimated that there are 50 megahertz of spectrum in the 900MHz band and 150 megahertz in the 1800MHz band. The existing network operator assignments for those bands are due to expire between November 2020 and September 2021, it said. The government's proposed new arrangement will have 40 per cent of the spectrum on those two bands reassigned to each of the four incumbent spectrum assignees through the offer of "right of first refusal". According to the CA, the remaining 60 per cent will be reassigned by way of auction. Any spectrum which may become available because an incumbent spectrum assignee did not take up the right of first refusal offer will be included in the pool of spectrum up for auction. The incumbent mobile network operators are HKT, Hutchison Telecommunications Hong Kong, SmarTone Telecommunications and China Mobile Hong Kong. "The need to safeguard the provision of 4G service at certain MTR premises and to ensure no adverse impact upon 2G service subscribers post spectrum reassignment from 2021 onwards constitute the overriding public policy reasons for deviating partially from the full-fledged market-based approach for spectrum reassignment," a CA spokesman said. According to the government-commissioned technical study by British firm Plum Consulting, voice-centric 2G services are still being provided over the 900MHz and 1800MHz bands in Hong Kong. In the first round of public consultation last year, the government's three options included: renewing the licenses of the incumbent mobile network operators; take back the entire assigned 900MHz and 1800MHz spectrum, and auction them off; and retain 20 per cent of the spectrum for the incumbent operators and auction off 80 per cent of that spectrum. A spokeswoman for HKT told the South China Morning Post that the operator will study the proposed new arrangement and respond when it is appropriate. HKT, the city's largest telecommunications services provider, has raised the telecommunications industry's concerns about the need for an updated mobile spectrum supply road map by the government in light of developments in other markets. In a statement, Hutchison Telecom said: "We believe that any spectrum arrangement should take public interest and user experience into first consideration, and ensure that all mobile telecommunications operators could continue to provide quality service." The Hong Kong government has decided not to release any new mobile spectrum to operators from this year to 2019. There was also no new spectrum made available in the past three years. By comparison, the governments of Britain, Japan, the United States and mainland China have already cleared the 3.5 gigahertz band for 5G trials in their markets, while awaiting global industry standards for 5G to be finalized. HKT has called for the release of new spectrum in the 3.5GHz and 700MHz bands this year. In Hong Kong, the 3.5GHz band is currently allocated for satellite services, while the 700MHz band is used for analogue television broadcast services. (February 14, 2017) scmp.com

## Indonesia

Indonesia will hold limited tenders for unused capacity in the 2.1 and 2.3 gigahertz radio frequency bands by the middle of this year, Communications and Informatics Minister Rudiantara said. The minister said existing mobile operators are expected to make their bids in the upcoming tender to secure additional bandwidth, which will allow them to improve their capacity to serve customers in densely populated areas. "The winner [of the tender] must be named by the middle of this year," said Rudiantara, who is a veteran telecom industry player. He added that a ministerial regulation to guide the tender process is expected by the end of March. Rudiantara said only existing operators will be targeted in the limited tender, which means that the government will not open the door to newcomers in the industry. The 2.1 GHz band is used by mobile operators like Telkomsel, Indosat Ooreedoo, XL Axiata and Hutchison 3 Indonesia, to provide 3G mobile services. The 2.3 GHz band is used for broadband wireless services by companies such as Internux – the operator of Bolt! 4G LTE, which is available in limited areas in the greater Jakarta area and Medan in North Sumatra – and Berca Hardaya Perkasa, which mainly operates in Denpasar (Bali), Makassar (South Sulawesi) and Pekanbaru (Riau). During the discussion, Rudiantara explained that mobile phone operators are facing pressing challenges in what he called "spectrum crunch" in major cities in Java, such as Jakarta, Bandung (West Java), Semarang (Central Java), Yogyakarta and Surabaya (East Java). He was referring to a condition where operators struggle to provide telecommunication services to their customers due to a rapid increase in data traffic and limited radio spectrum to accommodate the increased traffic. The mobile phone industry in Indonesia has seen growth in data traffic surpass that of telecommunication traffic from voice calls and short text messaging services. One of the culprits is increased use of video by mobile phone users. Rudiantara said the additional bandwidth will allow operators not only to better serve customers, but also lead to savings in both capital and operational expenses. The minister said after the re-arrangement of operators holding 3G and 4G spectrum assets in the 2.1 GHz and 2.3 GHz band is completed, the tender winners are expected to start operating on their newly acquired bandwidth. The tender for unused capacity in the 2.1 GHz band has been delayed since 2015, despite two unused frequency blocks that were vacated when by Saudi Arabia-backed Axis Telekom handed back 10 MHz of bandwidth capacity to the government in 2014, following a successful merger with XL Axiata, the Indonesian unit of Malaysia's Axiata Group. In the 2.3 GHz band, which offers a total capacity of 100 MHz of bandwidth, 30 MHz of capacity is currently unused. Rudiantara said only half of the idle capacity in this band will be put on limited tender, but he did not give a reason. Smartfren Telecom, the telecommunications arm of the Sinar Mas Group, currently controls 30 MHz in this band, while regional BWA providers control 30 MHz. The remaining 10 MHz is reserved for the Universal Service Obligation, which is a government-backed program to provide telecommunication services, including internet, to the public. During Monday's event, Hutchison vice president director Danny Buldansyah said operators expect no further delays from the government in holding the tender. The government may rake in as much as Rp 700 billion ($52 million) in non-tax revenue from just one operator seeking to secure only 5 MHz bandwidth capacity in the first year of operation, based on the previous tender, Danny said. This includes up-front fees. (February 21, 2017) jakartaglobe.id

## Kosovo

The +383 international dialing code allocated to Kosovo by the International Telecommunication Union (ITU) on December 15, 2016 was used for the first time last week, Prishtina Insight writes. Agron Mustafa, the Director of state-owned incumbent Post and Telecommunications Kosovo (PTK) – which offers services under the Kosovo Telecom and Vala brands – demonstrated the call, adding that the operator and its competitors had been authorized by sector watchdog the Regulatory Authority for Post and Electronic Communications (ARKEP) to begin using the code. The official explained that it would take around 18 months to replace the existing codes. At present, PTK uses Serbia's +381 code for landline calls and Monaco's +377 code for mobile calls, whilst its Telekom Slovenije-owned rival, IPKO, uses Slovenia's +386 prefix. Subscribers to PTK's mobile service can use the new code straight away, and Mr. Mustafa expects the Serbian code used for landlines to be replaced by the end of the year. Meanwhile, Mehdi Latifi, PTK's technical director and the company's representative in the Brussels-mediated dialogue with Serbia, added requests have been sent to international operators to apply the new code immediately: 'Today we made our first step and wrote to international operators, who we have contractual relations with, to open the routes for the number +383 to us'. The allocation of the new code is part of a long-awaited agreement with Serbia under which Serbian state-owned operator Telekom Srbija (MTS) will be issued a temporary and limited licensed to provide mobile services in Kosovo. The operator is understood to have unofficially offered mobile services in the north of Kosovo via base stations near the border since 2010, when the Kosovar telecoms regulator removed the cellco's equipment within the territory of the republic. (February 1, 2017) telegeography.com

## Mauritania

Mauritania's three mobile operators – Mauritel, Mattel and Chinguitel – have been fined a combined MRO417.2 million (USD1.2 million) for failing to implement subscriber registration measures. Since July 1, 2016 operators have been obliged to register user details when activating a new mobile SIM card in order to help combat crime and terrorism, but the country's telecoms watchdog, Autorite de Regulation (ARE), says there have been 'breaches of commitments'. Maroc Telecom subsidiary Mauritel has been fined MRO286.0 million, Tunisie Telecom subsidiary Mattel will pay MRO54.5 million and Sudanese-backed Chinguitel must hand over MRO76.7 million. Almost 400,000 unregistered accounts have so far been deactivated by the three cellcos. (February 17, 2017) Agence Ecofin

## Mexico

Mexican regulator Instituto Federal de Telecomunicaciones (IFETEL) has released an action plan disclosing that it will hold an auction for up to 130MHz of 2.5GHz band 4G mobile spectrum in the second half of this year. IFETEL's plan says that the bidding framework for the 2.5GHz auction – delayed from last year whilst it completed the tender for a shared 700MHz 4G network – will be published in Q2 2017 ahead of the launch of the auction process in Q3. Before awarding the new 4G frequencies, Mexico expects to reach an agreement with the US on spectrum co-usage in border regions. (February 2, 2017) telegeography.com

## Montenegro

Montenegro's Agency for Electronic Communications & Post (Agencija za Elektronske Komunikacije i Postansku Djelatnost, EKIP) has launched a tender for broadband wireless access licenses in the 3400MHz-3600MHz band, inviting interested parties to download the documentation for the public auction by 20 March 2017. The announcement on EKIP's website shows details of six blocks of spectrum – three 2×25MHx blocks, one 2×21MHz block, one 2×15MHz block and an unpaired 10MHz block. Existing BWA spectrum holders WiMAX Montenegro and MTEL are prohibited from bidding. (February 17, 2017) telegeography.com

## Nigeria

In a bid to raise revenue, telecommunications companies in the country may block calls made on Instant Messaging applications, WhatsApp and Skype. The telecoms companies seek to address their loss on international calls, and are targeting a revenue of N20trn. This development may also prevent subscribers from performing certain functions like voice and video calls on WhatsApp and Facebook, among other Over-the-Top services. "It is an aggressive approach to stop further revenue loss to OTT players on international calls, having already lost about N100tn between 2012 and 2017," a manager at one of the major telecoms companies in the country said. Speaking on the condition of anonymity, the manager added, "If we fail to be pro-active by taking cogent steps now, then there are indications that we may lose between N20tn and N30tn, or so, by the end of 2018." The source said the increasing rise of the OTT players, who provide voice and Short Message Services, or apps such as WhatsApp, Skype, Facebook, BlackBerry Messenger and Viber, was taking a huge chunk of the voice revenue of telecommunications companies in the country. A United Kingdom-based research and analytics company, Ovum, stated in a report recently that $386bn loss would accrue over a period of six years – between 2012 and 2018 – from Nigerian customers using the OTT voice applications. "Generally, the main fear of the telecoms operators here will be that customers will increasingly use Skype as a substitute for conventional international calls," the Principal Analyst at Informa Telecoms and Media, Matthew Reed, said. The telecoms operators in the country are saddened because international calls make up a critical part of their revenue because of Nigeria's large expatriate and Diaspora population. The operators blame the Nigerian Communications Commission for not properly regulating the sector in order to protect and keep them in business. The Director, Public Affairs, NCC, Mr. Tony Ojobo, who reacted to the development, said, "We don't have any evidence of that. We do not regulate the Internet." The Managing Director, TechTrends Nigeria, Mr. Kenneth Omeruo, said, "I am not aware of this development but globally, operators and network equipment makers don't really embrace Skype. "They liken Skype to an individual who takes undue advantage of other people's generosity without giving anything in return. Globally, there is this apprehension among telecoms operators that Skype only steals their customers, while they invest billions of dollars to build, expand and upgrade networks." The Public Relations and Protocol Manager, MTN Nigeria, Mr. Funso Aina, who spoke on the matter, said it was sad that the OTTs provide a lot of facilities for users free of charge, using infrastructure of the network operators, but without commensurate compensation to operators. According to the firm, a ready example is WhatsApp, which provides free instant messaging services as

an alternative to text messaging services provided by mobile network operators. "It (WhatsApp) has also launched a free voice service. "The point to note in this argument is that the OTTs allow users to send unlimited texts, images, video and audio messages free of charge, using their current data plans." Aina added, "At the same time, they are denying operators of revenue to grow their networks, thereby impacting on service delivery and long-term sustainability. "For instance, to date, MTN has invested over $15bn in building its network in Nigeria. You can now imagine an OTT leveraging the network to deliver its content without investing a kobo locally. The impact on revenue is huge. "Furthermore, because these entities are not licensed, and because they have not built any infrastructure locally, they do not have the same costs

as the licensed operators. "They do not pay taxes, they do not employ any people locally, and indeed, they have no local presence whatsoever, meaning they do not make any contribution to our economy and their services are denying those who make contributions of income." On the argument that operators are recouping their loss of voice and messaging revenues through increased data prices, Aina said that was not the case. He explained, "Every service is provided at a cost, and we cannot subsidise one service through revenue from another; so, the argument as to whether loss of revenue from one is being offset by another is really not a fruitful argument. "The important thing is that services must be produced efficiently and all stakeholders, including our customers, must get fair value for their investments." (February 20, 2017) ynaija.com

## Poland

Poland's telecoms regulator, the Office for Electronic Communications (UKE), has switched off an estimated twelve million unregistered pre-paid mobile SIM cards. The watchdog said that 68.7% of all issued SIM cards had been registered by the February 2 deadline. Users whose accounts have been affected can still have their services restored by registering their details with their operator. While almost a third of issued SIM

cards have reportedly been deactivated, it is thought that the exercise will have little effect on the user totals reported by operators, as most firms only give numbers for active subscribers. The last big cull by a major Polish telco was carried out by T-Mobile in the third quarter of 2015, at which date it deactivated 3.84 million unused accounts. (February 6, 2017) RPKom

## Romania

The Telecom Regulator ANCOM has awarded two new DTT multiplex licenses as part of an auction being held at the beginning of this year. In a statement, it says that M Plus Investments, a company based in Iasi, has won the local multiplex for the city, while Nova Media has won a local multiplex for the city of Timisoara. Since there are two local multiplexes available in Timisoara, an allocation round will be held on February 16 in which the bidders have the possibility – if they so wish – to choose a preferred

position in the spectrum for the multiplex won, upon paying an additional fee. Next Monday (February 20), ANCOM will announce the final results of the auction, including the license fees each of the winners will be required to pay. The auction currently being conducted by ANCOM covers two national, 26 regional and 18 local DTT multiplexes that had not been awarded in previous selection procedures. (February 6, 2017) broadbandtvnews.com

## Russia

The Ministry of Telecom & Mass Communications (MinSvyaz) has issued a summary on its website of the achievements of the federal-assisted programme to eliminate the digital divide in settlements with 250 to 500 inhabitants by expanding universal internet access nationwide. The Ministry disclosed that, under the programme, by the end of 2016 more than 34,000km of fiber-optics was laid to enable high speed internet access in 3,909 villages, each with 250-500 inhabitants, spread across 70 regions (oblasts) of the Russian Federation. These settlements represent around 400,000 households. The overarching universal service programme aims to eventually build around 215,000km of fiber-optic

links, whilst Rostelecom was assigned as the sole federal operator of universal services in March 2014, and in May that year the telco signed a ten-year contract with the Federal Communication Agency (RosSvyaz) on the conditions of national universal services provision, under which Rostelecom also operates 149,000 'universal' payphones and 21,000 points of collective (community) internet access, MinSvyaz's statement adds. As another facet of the universal access programme, broadband internet is available on a 'social tariff' approved in April 2015, currently set at RUB45 (USD0.79) per month for a 10Mbps connection with unlimited data usage volume. (February 17, 2017) broadbandtvnews.com

## Rwanda

The number of mobile phone users in Rwanda increased from 8.86 million in November 2016 to 8.921 million at the end of December 2016, according to the Rwanda Utilities Regulatory Authority (RURA) monthly subscriber report. This was an increase of 0.72 per cent month-on-month to a 79.2 percent penetration level from 78.7 percent in November. This is higher than the 78 percent registered in January 2015 and 77.8 percent for December 2015. However, it is lower than the 80 percent reached in the third quarter of 2016, when over 9.02 million users were registered in July and 9.99 million in August 2016. Postpaid subscribers rose to 113,090 at the end of December 2016 from 112,274 in November 2016, while prepaid clients increased from 8.74 million in November 2016 to 8.81 million subscribers as at the end of December 2016. Tigo Rwanda was the biggest gainer with 36,588 new subscribers in December 2016, bringing the total number of its customers to over 3.25 million from 3.22 million in November. Tigo now has a market share of about 36.5 percent. Airtel Rwanda attracted 1.34 percent or 21,433 new users to reach 1.60 million subscribers, from 1.57 million in November. MTN Rwanda added 5,490 new users to 4.07 million people, up from 4.07 million clients the previous month. (January 30, 2017) telecompaper.com

## Senegal

The Regulatory Authority for Telecoms and Post (ARTP) has granted three new ISP licenses, Le Quotidien reports. The three recipients have been named as Waaw, Africa Access and Arc Informatique, all of which are locally owned. According to Director of Telecommunications at the Ministry, Modou Mamoune Ngom, the three ISPs paid a combined total of XOF950 million (USD1.534 million) for the concessions. The would-be ISPs reportedly have six months in which to begin commercializing their services, and each operator has been assigned a zone to cover before they are able to expand into other regions of the country. It is hoped that the introduction of the three new ISPs will reduce access prices for customers and help to improve the quality of service (QoS) available across Senegal. (February 15, 2017) telegeography.com

## South Africa

Telecoms regulator the Independent Communications Authority of South Africa (ICASA) has postponed its planned auction of LTE-suitable spectrum in the 700MHz, 800MHz and 2600MHz bands 'until further notice'. The auction is the subject of a legal challenge by Minister of Telecommunications and Postal Services, Siyabonga Cwele; the official filed an application in August 2016 to block the proposed spectrum auction, following which ICASA was ordered by the North Gauteng High Court to halt the spectrum allocation process. The move was sparked as the planned spectrum auction is at direct odds with the government's ICT Policy White Paper (published in October 2016), which outlines the establishment of a Wireless Open Access Network (OAN). Under the new framework, all wireless service providers in the country will be required to return their previously assigned spectrum, which in turn will be allocated to the OAN. While government has affirmed its plans to proceed with the establishment of an OAN, ICASA has refused to budge, insisting that a spectrum auction is the best way of allocating scarce spectrum, in addition to being in line with international best practices. (February 20, 2017) TechCentral

Communications regulator ICASA will hold public hearings later this week that will determine how scarce radio frequency spectrum is utilized in future. The idea, according to ICASA, is to update the National Radio Frequency Plan to ensure the efficient use of spectrum. It wants to ensure that the plan reflects the final acts of the World Radiocommunication Conference of 2015 and that it is in line with the latest version of the International Telecommunication Union's radio regulations. The updated plan must be consistent with the Southern African Development Community's Frequency Allocation Plan and ensure that spectrum allocations reflect the usage of the radio frequency spectrum until the next World Radiocommunication Conference in 2019, ICASA said. "The update will be followed by the development of the frequency migration plan process, aimed at addressing the frequency migrations identified during the evolution of the earlier national radio frequency plans, starting with Sabre 1 of 1997…" The hearings kick off at the regulator's offices at Pin Mill Farm in Sandton on Thursday. Mobile operators MTN, Cell C and Vodacom are scheduled to speak first, followed by Telkom, M-Net, the SABC and Sentech, among others. (February 8, 2017) techcentral.co.za

## South Korea

Government announced a package of measures to utilize information and communications technology and science technology to revitalize the country's economy suffering from weak exports and flagging manufacturing sector. Under the measures discussed in a meeting presided over by Acting President and Prime Minister Hwang Kyo-ahn, and announced by the Ministry of Science, ICT and Future Planning, the government will make use of the latest ICT to secure new growth engines. The government said it will double research and development spending to 1.25 trillion won ($1.07 billion) for the local service sector

in 2021. The R&D budget will be poured into the seven service sectors, including software, medicine and tourism, which are considered new growth engines, officials said. The move comes amid a deep slump in the manufacturing sector which accounts for nearly 30 percent of the country's gross domestic product, the ministry said. The manufacturing sector, which has been the engine of South Korea's economic development in the past, is directly affected by exports. However, the sector's employment rate hovers around 17 percent in recent years, lagging far behind its GDP contribution. The service industry, on the other hand, has been strengthening its presence in the economy, hiring 70 percent of the country's total workforce in 2015. But it accounted for 60 percent of the country's total added value due to poor labor productivity. The government said it will also make the local manufacturing industry "smarter" by introducing automated smart factories to enhance the quality of products, cut production costs, and streamline and speed up the manufacturing process. The government said it will construct an accumulated 5,000 smart factories by the first half of 2017 and another 10,000 by 2020. The government will also help local firms to export more ICT products, especially in the aerospace and nuclear power sectors. The government also plans to use next year's Winter Olympic Games -- set to take place in the nation's eastern alpine city of PyeongChang -- as an opportunity to debut a number of cutting-edge products. Athletes and visitors to various Olympic venues in PyeongChang, about 180 km east of Seoul, and nearby areas will be able to experience a wide range of advanced products and technology in the ICT sector, officials said. (February 15, 2017) koreaherald.com

## Sweden

The Swedish Post and Telecom Agency (PTS) has presented an updated 'orientation plan' for its future radio spectrum assignments. The watchdog will seek to auction the 450MHz band in spring 2018; the 700MHz band (no timeframe defined — pending 'essential conditions' to be clarified); the 1500MHz band (2018 or later); and the 2300MHz frequency band (2018 at earliest). Going forward, the PTS seeks to 'maintain high transparency' by updating the orientation plan on a regular basis. (February 20, 2017) telegeography.com

## Tanzania

The Tanzania Communication Regulatory Authority (TCRA) has finalized regulations for the introduction of mobile number portability (MNP), which will enable consumers to retain their phone number if they switch service provider. The regulator's Acting Communication Manager Semu Mwakyanjala as saying that the service will be officially launched by early March, with the process of changing wireless service provider required to be carried out within two working days. The move is expected to increase competition between the country's mobile operators, thereby leading to lower prices and improved quality of service. 'The porting processes shall be designed around a "one-stop-shop" concept, whereby the customer shall start the porting procedure by contacting the new operator or service provider and the proposed recipient operator shall be required to manage the process on behalf of the customer,' the TCRA official added. MNP has been on the regulator's agenda since 2011, but its introduction has been delayed numerous times to give network operators more time to upgrade their infrastructure to allow for the change. (February 22, 2017) The EastAfrican

## Thailand

The telecoms committee of the National Broadcasting and Telecommunications Commission (NBTC) has reportedly agreed to renew the license of local ISP Triple T Broadband for another 15 years, effective 30 January 2017. This decision means that the renewal was granted to the company a full nine years before its original licensee term was due to end, in February 2026. As such, the new expiry date for the operator's concession is January 29, 2032. In its request for the licensee extension, the ISP informed the NBTC that it wanted to increase its potential to seek loans from financial institutions, ahead of a 20-year, THB97.919 billion (USD2.773 billion) investment programme, of which THB36.273 billion will be spent in the first five years. Further, Triple T also disclosed plans to expand its fixed line voice service by an additional 800,000 numbers, up from the current figure of 157,000. In additional licensing news, last week the NBTC issued a 15-year satellite license to Mobile LTE, a non-operational MVNO concession holder. The company previously acquired wireless spectrum bidding documents back in 2015, only to drop out of the auction proceedings. According to the company's registration document, as filed with the Department of Business Development, Yenbamroong family members jointly own 56% of Mobile LTE, while British Virgin Islands-registered Petroleum International Investment Corp owns the remaining 44% stake. (January 31, 2017) The Nation

## United Kingdom

The process of clearing the frequency currently used to deliver digital terrestrial TV (DTT) services will begin next month as the first stage of a major engineering programme gets under way. The upcoming clearance follows the 2014 decision by OFCOM to approve European Commission plans to hand the 700MHz band to mobile phone operators, which are keen to use the spectrum for data services. OFCOM initially wanted broadcasters to move to an alternative frequency by 2022 but in March stated that it wants the 700MHz band to be "nationally available for mobile data to a target of no later than Q2 2020". Digital UK, the not-for-profit organization formed by broadcasters to assist consumers in the conversion to digital TV, the BBC, ITV, Channel 4 and Arqiva, which owns and operates the transmitter network, is co-ordinating the technical planning of the changes at TV transmitters across the UK, which will take place region by region. According to Digital UK, around 90% of main transmitters will require some re-engineering for clearance, as will almost all of the 1,000 smaller relays in the network. DTT platform Freeview said the updating of the Selkirk transmitter in south-east Scotland in March will enable the firm to test its processes ahead of the full rollout, which will begin in the summer. The Selkirk transmitter serves about 18,000 homes. Some Freeview channels will move to new airwaves, which means that Freeview viewers in the south of Scotland will need to retune their TV equipment on 1 March to continue watching BBC channels. OFCOM said that "for the vast majority, the move will require only a simple retune". It estimates that in total 100,000 households might need to change their roof-top aerial, and that a "small number" of viewers might need to fit a filter to their TV to prevent mobile phone signals from interfering with TV reception. The regulator estimates the cost of the change to be £660m. But it has also priced the potential value of mobile operators using the spectrum in the region of £900m to £1.3bn, in part because signals transmitted in the 700MHz band reach further. Senior broadcast figures have warned that the wider plans to move broadcasters from the 700MHz band will cause disruption to services and could mean broadcasters will have less frequency with which to launch new services. (February 21, 2017) broadcastnow.co.uk

OFCOM published a progress report on its work to allocate spectrum for 5G services, and said it is backing the 26 GHz band as the "priority band" for global harmonization. The U.K. telco watchdog said it has worked closely with other regulators in Europe to identify three initial frequency bands to enable 5G in Europe: the 700 MHz, 3.4 GHz-3.8 GHz, and the 26 GHz bands. "We already have plans in place to make the 700 MHz band available for mobile services including 5G," OFCOM said. Indeed, the regulator intends to clear the frequencies, used mainly by TV broadcasters and for programme-making and special events (PMSE), by 2020. While that work is ongoing, OFCOM plans to auction 700-MHz licenses in 2018-2019. "We will seek to include a coverage obligation as one of the conditions of using this spectrum. We will consult on this new obligation, and on the conditions for the award," OFCOM said. When it comes to 3.4-GHz-3.8-GHz spectrum, OFCOM plans to auction a chunk of frequencies in the 3.4 GHz-3.6 GHz range later this year. As for 3.6 GHz-3.8 GHz, a consultation on allocating the spectrum for mobile services closed in December 2016. OFCOM is currently reviewing the responses and will publish an update during the first half of 2017. OFCOM said it is also considering whether the 32 GHz, 40 GHz, and 66 GHz-71 GHz bands can also be used for 5G further down the line. OFCOM is particularly excited about the 26 GHz band though. "This band represents significant advantages compared to other millimeter wave (mmWave) bands. It already has a mobile allocation in the ITU Radio Regulations across most of the band, this makes it feasible for other countries to start using it for 5G ahead of WRC-19 (World Radiocommunication Conference 2019)," OFCOM said. OFCOM said it has begun drawing up proposals to make 26-GHz spectrum available for mobile use in the U.K., and plans to launch a consultation in the first half of this year. "We are supportive and are actively promoting this band as the priority millimeter wave band for global harmonization," OFCOM said. "Achieving early global harmonization, of at least one 5G band, is critical to the development of a global 5G ecosystem." OFCOM said it needs to take into consideration current users of the band, namely: point-to-point wireless links for mobile backhaul and TV broadcasting; Earth stations for Earth exploration satellite systems (EESS), which collect data such as satellite imagery and climate data; and data relay satellite systems, which are used for relaying environmental, weather, and disaster-monitoring data collected by low Earth orbiting satellites. "We are contributing to international coexistence studies aimed at identifying the appropriate technical conditions to enable shared access to the band," OFCOM said. (February 8, 2017) totaltele.com

## United States

The Federal Communications Commission (FCC) has completed its long-running 600-MHz incentive auction, raising $19.63 billion (€18.49 billion). Television broadcasters that relinquished their 600-MHz frequencies during the reverse stage of the auction will collectively receive $10.05 billion. The net proceeds will be used to fund the rollout of a public safety network. Any funds left over will go to the treasury. Winners in the forward auction will soon have a chance to participate in the assignment phase, where they can bid for specific frequency blocks. "Congratulations to the winners in both the reverse and forward auctions. The participation of these broadcasters and wireless carriers will enable the Commission to release 84 megahertz of spectrum into the broadband marketplace. These low-band airwaves will improve wireless coverage across the country and will play a particularly important role in deploying mobile broadband services in rural areas," said FCC chairman Ajit Pai, in a statement late last week. The incentive auction kicked off in March 2016 with the reverse auction, during which broadcasters set the price at which they would sell their 600-MHz holdings. The initial price set was $86.4 billion for 126 MHz, which was ambitious to say the least. Further rounds saw a reduction in the price and subsequently the amount of spectrum that would go under the hammer in the forward auction. The forward auction began in mid-August. 62 companies qualified to take part, including AT&T, Verizon, and T-Mobile US. Cable giant Comcast and satellite TV provider Dish Network also took part. However, the country's fourth-largest telco by subscribers, Sprint opted not to participate. Now the auction has concluded, the hard work of reassigning new airwaves to TV broadcasters so their 600-MHz spectrum can be allocated to successful bidders begins. "We must ensure uninterrupted access to over-the-air television and a timely clearing of the new wireless band," Pai said. "We will devote a great deal of attention to those tasks over the coming months, and it will be a top priority of mine as chairman of this agency," he said. (February 13, 2017) totaltele.com

FCC Chairman Ajit Pai announced the formation of a new federal advisory committee to explore ways to accelerate deployment of high-speed Internet access (or "broadband") nationwide and to close the digital divide. "Access to broadband is increasingly critical for all Americans, no matter who they are or where they live," said Chairman Pai. "It's becoming the 21st -century gateway to jobs, health care, education, information, and economic development everywhere, from the smallest town to the largest city. That makes it imperative for us to remove regulatory barriers to the deployment of high-speed Internet access." The Committee will focus on developing specific recommendations on how the FCC can encourage broadband deployment across America. Issues the Committee will tackle include further reforms to the FCC's pole attachment rules; identifying unreasonable regulatory barriers to broadband deployment; ways to encourage local governments to adopt deployment-friendly policies; and other reforms within the scope of the Commission's authority. In particular, one of the Committee's first tasks will be drafting a model code covering local franchising, zoning, permitting, and rights-of-way regulations. Many localities may not currently have or be able to develop policies conducive to deployment. With a model code approved by the FCC, any city could build a better regulatory environment for deployment, and any provider would have a better case for installing infrastructure. Nominees for the newly formed Broadband Deployment Advisory Committee will be drawn from a diverse set of stakeholders to address specific regulatory barriers to broadband deployment in both urban and rural areas. Representatives of consumers and community groups, the communications industry, and federal, state, local, and Tribal officials are encouraged to apply. (January 31, 2017) transition.fcc.gov

Looking to speed the conclusion of the auction yet again, the FCC Monday (January 30) said it will raise the asking price in each round. Stage four of the forward portion of the FCC's spectrum auction moved to its 18th round (Tuesday at 10 a.m.) after bidders upped their ante by about $21 million in round 17 late Monday (to $18,670,477,387 from $18,649,309,387 in round 16). At about the same time bidders were signaling they were not quite done, the FCC Currently, the clock price for a product is set for each round by adding a fixed 5% increment to the previous round's posted price. Beginning Wednesday, February 1, 2017, the FCC will use a 10% increment to set new clock prices for all products in each round. This 10% increment will be reflected in the next round clock prices announced after the last round of bidding. The FCC has been raising its ask for spectrum blocks by 5% each round, but with most of the auction action in smaller markets, that winds up being a bump of only a few thousand dollars. Starting February 1, the FCC will double that to a 10% increase per round over the previous price. (January 31, 2017) broadcastingcable.com

## Zimbabwe

The government is to use USD250 million from its Universal Services Fund (USF) to deploy 600 new wireless towers in rural areas of the country. A report from Daily News says that the rollout will be managed by the country's telecoms regulator POTRAZ, with local mobile service providers Econet Wireless, NetOne and Telecel encouraged to use the infrastructure under a new network sharing regime. ICT Minister Supa Mandiwanzira is quoted as saying: 'There is consideration for a USD250 million fund which will allow the regulator through USF to put up towers that will be shared by those operators in those areas we believe that investment will help in reducing costs.' All registered telecoms operators in Zimbabwe must contribute at least 1.5% of their gross revenue to the USF. The first tenders for the construction of the new base stations are expected to be announced later this year. (February 9, 2017) telegeography.com

The government has admitted using the country's Universal Services Fund (USF) to part-finance its acquisition of a 60% stake in local mobile operator Telecel. ICT Minister Supa Mandiwanzira told a parliamentary hearing that the USF paid USD10 million of the USD40 million cost of the shares on behalf of state-run ISP Zarnet, which is being used as a vehicle to assume ownership of Telecel. The remaining USD30 million was put up by the government pension fund, the National Social Security Authority (NSSA), though the Authority has said it is looking to see its investment repaid by Zarnet within three years. The 60% stake in Telecel was bought from companies controlled by VimpelCom. Zimbabwe's USF was established to pay for network deployment and expansion in unserved and underserved areas of the country, particularly rural regions, though the government maintains that the Fund has the right to make an equity investment in any company. Privately-owned mobile market leader Econet Wireless has been critical of government involvement in the cellular sector, with the state now controlling both of its rivals, Telecel and NetOne. It has complained of unfair practices with regards to license fee payments and contributions to the USF (February 7, 2017) TechZim

The state-owned mobile operator NetOne says it has made a down-payment of USD4 million towards the USD137.5 million cost of renewing its operating license, which was originally due in August 2013. The firm has negotiated with the government to repay the remainder in installments over a ten-year period. The country's other state-backed wireless operator Telecel has also negotiated to make staggered payments. The sole privately-owned cellco, market leader Econet Wireless, paid its own renewal fee in full back in 2013 and says the concessions made to the two government-backed firms are examples of the uneven playing field created by telecoms regulator POTRAZ. (January 31, 2017) Techzim