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A SAMENA Telecommunications Council Newsletter

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SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Featured

Dr. Khaled Biyari
Group CEO
Saudi Telecom Company (STC)

CROSS-SECTORAL REGULATORY COLLABORATION FOR ACCELERATING DIGITIZATION

REGULATORY SUMMIT 2017

Driving the Digital Transformation in the Region

هيئة الاتصالات وتقنية المعلومات
Communications and Information Technology Commission

12th April, 2017
Ritz Carlton
Riyadh, Saudi Arabia

STC
الاتصالات السعودية

SAMENA Telecommunications Council's Regional Regulatory Summit is a region-wide conference, being held in Saudi Arabia in collaboration with the Saudi Communication & Information Technology Commission (CITC), to promote public-private co-operation for digital transformation in the region. It will bring together public-private stakeholders and government delegations.

The primary aim of the Regulatory Summit is to help understand imperatives in public sector and private sector cooperation in view of Saudi Arabia's national ICT vision as well as realities and transformation trends in regional digital development. The Regulatory Summit will explore ways for the public sector to be closely engaged with the private sector, and will serve as a platform for the regional industry's leadership to convene and bring the future of mobile market competition, technologies and services, and stakeholder priorities into perspective. Such areas have to be looked into diligently and should accommodate the imperatives to also address underlying industry needs that revolve around digital services, data regulation, spectrum allocation, and the industry's financial obligations.

By conducting this regional stakeholder activity in Riyadh, SAMENA Council looks forward to supporting the Saudi Vision 2030 in all ways possible, while representing the needs and the issues of the private sector of Saudi Arabia and of surrounding GCC markets.

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BUILDING DIGITAL ECONOMIES

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CONTENTS

ARTICLES

CONTENTS

Cross-sectoral Regulatory Collaboration for Accelerating Digitization

Today's converged world of digitization and digital applications and solutions is being built on the pillars of innovation, investment, and collaboration. As we transition into the world of digital products, hyper-connectedness, and always-on digital communication systems, we cause the role of digital economy in our lives to become ever more defined.

With the aim of engaging in fruitful activities in the data-driven digital environment; where cross-sector partnerships are being discussed and implemented, doing business , despite prevailing challenges, carries rewards for the innovation-driven market players. As a whole, the digital communications industry is redefining itself and how all market players conduct business in it; how policy and regulatory frameworks evolve to become more resilient and enabling; and how interests of operators, communications service providers, technology providers, and of the end-users are looked after.

In the context of national progress and socio-economic development -- which recognizably is now being driven by the digital communications industry -- cross-sectoral partnerships, including on regulatory matters, are increasingly being seen as a solution to contemporary challenges emerging within the business and smarter societies we are creating. Ongoing stakeholder dialogue and engagements indicate that public, private, and non-profit organizations like SAMENA Council, by leveraging their distinctive advantages, can contribute to the realization of regulatory collaboration and in improving sector-wide governance, efficiency, and can bridge communication gaps among regulators, policy-makers, and the private sector; ultimately, helping to address to digital and socio-economic issues.

Regulation -- which has made much progress over the course of five generations, starting with regulating monopolies, setting basic reforms, creating enabling environments, driving integration in regulatory frameworks, and finally, becoming more collaborative in nature -- has a special place in the equation where development, investment, and end-user experience are the major variables. In our part of the world, we are still struggling to address some basic regulatory reform requirements and create enabling environments, while also signaling to the world that our regulatory frameworks are moving into the next generation, which is collaborative regulation. With region-wide collaboration and with measureable ICT policy planning in mind, which can help accelerate digitization within the region and help reap over a trillion-dollar worth of socio-economic impact, this can be achieved.

As we progress toward collaborative regulation, innovation, openness, transparency, empowerment, stakeholder inclusiveness, and collaboration in general must be factored in. What needs to be put into perspectives, is that understanding of the challenges and needs of all the different stakeholders involved in building smart societies, evolutionary requirements for policy, regulatory, and economic as well as financial frameworks across the economy, will provide policy makers and regulators with the means needed to move forward and develop holistic cross-sectoral legal and policy mechanisms for a connected world.

It is generally understood that collaborative regulation would help address issues of interoperability, security, privacy, taxation, data regulation, digital services, and spectrum, among other things. All of these are integral to our efforts in promoting and accelerating digitization in the SAMENA region.

Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications Council

POST EVENT REPORT

Event Coverage & Outcomes

The month of March witnessed a strong, successful gathering of Omani stakeholders and decision-makers at SAMENA Telecommunications Council's Beyond Connectivity 2017 conference, held in Muscat's Al Bustan Palace. Attended by more than 180 representatives and speakers from various public sector and private sector organizations around the GCC region. Organized with the primary purpose of highlighting sustainability challenges and to help progress toward building the regional digital economy, digital services, regional digital transformation, and understanding the socio-economic value of cross-border communications, the Beyond Connectivity conference provided an open platform for a healthy dialogue on sensitive industry matters.

Beyond Connectivity was Diamond-sponsored by Omantel and Platinum-sponsored by Etisalat. Omantel is the Sultanate of Oman's most trusted telecommunications services brand, while Etisalat has been recognized as the most valuable brand portfolio in the Middle East.

Successfully executed under the theme "Building Corridors in Digital Development to Fulfill National Commitment", Beyond Connectivity reiterated the need to build corridors of communication, innovation, understanding, and digital enablement.

Successfully executed under the theme "Building Corridors in Digital Development to Fulfill National Commitment", Beyond Connectivity reiterated the need to build corridors of communication, innovation, understanding, and digital enablement. As was stated by Beyond Connectivity's Chief Guest, HE Said Bin Hamdoon Al Harthy, Under-Secretary for Ports and Maritimes Affairs, Ministry of Transport & Communications, the region cannot afford to ignore what is happening in relation to digital development. TRA's Executive President and Guest of Honor for BYC, HE Dr Hamed Salim Al Rawahi, stated that policy-makers and regulators have important tasks ahead of them, and that given the digital development trends, licensing and the overall regulatory frameworks are evolving, keeping industry stakeholders' priorities in mind.

Omantel CEO, Sheikh Talal Said Marhoon Al Mamari, recognized that, as a part of the industry's transformational phase, telecom operators and technology providers are trying to find their way; a necessity which resonates with the need to create a sustainable digital ecosystem. Acknowledging also that SAMENA Council has made it possible for operators and policy-makers to gain a clearer picture through the verbalization and alignment of priorities, Sheikh Talal emphasized the need to paint the true picture of how far the industry has come to-date and where it needs to go. Etisalat International CEO, Mr. Hatem Dowidar, shared his perspective on the soul-searching process, which is happening within the telecom operator community, and how critical it has become for operators and governments to cooperate in better ways.

Motivation for Beyond Connectivity 2017

The topics that SAMENA Council defined as the core agenda of Beyond Connectivity were also relevant to the current trends, talks, and worries that consume today's policy and business minds. The relevance of the topics and the discussion that took place, as was envisaged by SAMENA Council, could have a direct positive impact on Oman's future decision-making processes and on the industry's perceptions of what constitutes real challenges and where real opportunities exist.

Oman is a progressive ICT market, but it must continue to evolve, and iterative approaches in improving the status quo must continue. In the context of Oman's and the region's digital development trends, special attention was given to the following realities:

- Telecom operators make direct contributions to regional GDP. Given the commonality in challenges relating to sustainability, we need to approach the notion of sustainability from different angles. In doing so, old market practices, which have proven to impact sustainability and thus have been considered archaic and ineffective in today's context, should be re-assessed.
- Providing access to and encouraging the use of broadband infrastructure is integral to the advancement of the global data economy. In many countries, the telecom/ICT sector is a major contributor to GDP growth as well as a one where financial obligations exist the most; some in the shape of taxes while other as royalty fees. It is high time that industry fees imposed on telecom/ICT players are looked at holistically, in the context of the digital ecosystem and the economy as a whole.
- In the age of OTT play, where digital platforms and services have challenged traditional business approaches but have also created new possibilities for all stakeholders, it has become crucial to modernize the overall business environment.
- The ICT leadership imperative remains centered on the need to welcome varying views. It is important to understand what current governmental priorities are and what is being done to foster public-private partnerships to catalyze change.
- Data flows have real economic significance. Industry and cross-national trends in data flows are pointing to the need to examine the relationship between cross-border data flows and economic growth.

Participations & Panel Discussion

Beyond Connectivity witnessed the participation of Oman's government sector leadership, alongside a number of eminent national personalities, including CEO of Oman Broadband Mr. Said Al-Mandhari, as well as regional and international industry professionals, active within the region on multiple fronts. Speakers and moderators of Beyond Connectivity included Mr. Andrea Faggiano - ADL, Dr. Kamal Shehadi - Etisalat International, Mr. Adel Darwish - TRA Bahrain, Mr. Salim Bader Salim Al Mazrui - Omantel, Mr. Pankaj Asthaana - MasterCard, Chafic Chaya - RIPE NCC, Dr. Saoud Al Shoaili - Oman Ministry of Transport & Communications, Eng. Zyad Alkhwaiter - STC, Dr. Ibrahim H. Nasser - Orange Jordan, Mr. Sudhakar Ippatappu - Omantel, Mr. Riyadh Derouiche - AT Kearney, Mr. Nour Al Atassi - Syniverse, Mr. Alex Bennette - FRiENDi, Mr. Francisco Salcedo - Etisalat, Mr. Hisham Ibrahim - RIPE NCC, Mr. Jawad Abbassi - GSMA, Mr. Erik Almqvist - Goetzpartners, Mr. Jose Valles - du, Mr. Fadi Nasser - Omantel, Mr. Brahim Ghribi - Nokia, Eng. Khalid Al Farkh - ILA Group, Mr. Mohammed Al Ta'ani - TRA Oman, Mr. Juma Nasser Al Naabi - Omantel, Mr. Samer Bazyan - Yahsat, and Mr. Roberto Ercole, Ms. Imme Philbeck, and Mr. Izhar Ahmad - SAMENA Council.

Panel 1:

Panel 1 made reference to the need to protect an existing ecosystem and that the stakeholders must remain optimistic. While new regulatory lenses are needed to view things in new light, all stakeholders should renew their commitments to sustainable development. The panelist considered meeting requirements of each stakeholder as a good definition of sustainability. Considering interoperability as a key component of sustainability, and which requires trust among each other, the discussion recognized that we must continue to move ahead and find new ways as we cannot continue following the same ways (operator perspective); we must continue to support transformation (technology provider perspective); and that we can only move forward by following new rules and appropriate regulation (regulatory perspective).

instead of profits secured. Recognizing that an overall tax-reduction strategy needs to be followed, panelists did raise the point that governments need to rethink their own strategy of short-term taxation gains, which typically do not follow best-practiced taxation principles, in the interest of fulfilling long-term digital development and revenue objectives.

In the context of tax reduction, panelist deliberated on the approaches to reduce taxes and royalties, and that, sometimes, other fees tend to be even higher than the defined taxes themselves. The notion of optimized taxation reduction percentages was discussed, and that operators and regulators need to approach this matter with openness. A recommendation was made on conducting a joint effort among regulators and operators on the optimization of taxation percentage reduction.

The need to overcome traditional telecom services was named among the biggest challenges that telecom operators face, among others that include industry fees and taxation, true innovation, to name but a few.

As a whole, Panel 1 drew attention to the need for setting investment incentives, which includes, in particular, addressing discrepancies such as treatment of OTT service providers and telecom operators (be it in relation to services offered or in relation to competition or in relation to investment incentives and tax treatment). Recognizing the fact that most operators are challenged to find and employ new business models to transition, the new ecosystem coupled with old regulatory and tax systems was seen as creating significant disparities between OTT, other ICT players and operators.

The importance of taking into consideration local market conditions to help create a sustainable eco-system in the new digital era was highlighted; a perspective shared by TRA-Bahrain. Although regulators sometimes do appear to work against the interest of operators, they are considering all perspectives from all stakeholders. A multi-stakeholder approach in the evolving ecosystem of digital communications was seen as a good means to achieving progress and most favorable outcomes for the economy as a whole.

Panel 2:

Discussion in Panel 2 focused on the evolution of economics, as enabled by telecom operators. Rather than being due to specific, individual, isolated factors, systemic challenges within the telecom industry, especially in view of asymmetries that have emerged in the context of digital economy, were highlighted as a cause for concern for all stakeholders. Panelists discussed how, in the analogue world, it was known how and when telecom services could be taxed. However, as the contexts have changed in the digital economy, this issue is much more complex now. While expressing a general operator view that regional value-added tax is in the right direction, serious concerns were raised regarding royalties on revenues generated

Orange (Jordan) and STC highlighted SAMENA Council's role in facilitating a better regulatory environment, especially in view of the taxation talk. It was a common opinion that both operators and regulators are lacking understanding of the big picture. Therefore, both SAMENA Council and GSMA were asked by the panelists to conduct a study on the GCC region, so that better visibility on the taxation issue can be gained and advocacy efforts can be carried out with governments to better facilitate operators. In doing so, the involvement of World Bank and the World Economic Forum may also be sought. Such a study should also endeavor to obtain a common position from all regional operators on the issue of VAT and double taxation in relation also to OTT service providers and digital services.

Panel 3:

Panel 3 delved into discussing a program of partnering up among telecom operators, mobile virtual operators, technology providers, and other market players. It was discussed that telecom operators, given their integral role, should be able to act as the bank, the IT company, and any other service provider form that the end-user requires. The ability to adopt such a multidimensional role would also be of interest to governments.

Panel 4:
Panel 4 focused on regional digital transformation trends, which, according to data presented by GSMA, require 59 billion dollar worth of CAPEX investments by operators between 2016 and 2020. It was reiterated that regulatory frameworks, for them to be successfully transformed to meet needs of the industry, should be functionality-based, dynamic, and in line with current market realities. This was mentioned in view of higher spectrum prices or artificially induced spectrum scarcity, both of which usually imply lower quality mobile broadband services. Among the challenges discussed in transformation, culture transformation, partnership models, complexities involved in digital transformation specifically, were notable.

Panel 5:
Panel 5 highlighted the need for more education on the economics of data flows across countries, as the panelists showed that they each had their own understanding of what international data flows and data management really meant.

Summary of Outcomes and Conclusions

- Both mobile and fixed-line operators are facing difficult challenges as they move away from voice centric services (and revenues) to data. This will have an impact on their ability to invest and pay taxes. The issue of OTT further complicates this and regulators need to be mindful of having a level-playing field for OTTPs and telecom operators, if they want investment in coverage and capacity for mobile broadband networks from the private sector.

- Operators are not only social enablers but also economic drivers, and they need to sustain their investments in robust and secure networks.

- Taxes are a key issue in many markets and regulators need to be aware that these can affect investment decisions, or even the number of players in a market.

- Regulators do appear to understand difficulties faced by operators, but sometimes doubt the facts presented in some operator-funded studies. However, as was witnessed during Beyond Connectivity, they do acknowledge the need for more open dialogue and that they would like to work better with operators, to help better understand the trade-offs between tax levels, OTT regulation vs mobile investment, and viability of number of players in a market.

- Granting that challenges exist, it was expressed that the industry needs to overcome all forms of reluctance to be able to progress forward.

- SAMENA Council, as a sector development partner and as a recognized industry body, was publicly given the mandate to address some of the most critical issues that concern industry stakeholders and for which painting a clearer and an unbiased picture has become critical. In close coordination with GSMA and with regional regulators (particularly with TRA Oman), SAMENA Council will help drive key findings on the taxation issue.

- For the purpose of delivering on the expectations set forth for SAMENA Council by both operators and regulators, SAMENA Council will plan the execution of four deliverables to support the taxation study requested during Beyond Connectivity: **First,** a tax background paper that explains and highlights the issues of taxation in the digital economy, and which provides some guidelines on how to move forward on the most burning issues in relation to key asymmetries that arise in relation to taxation at the country and global levels. **Second,** discuss the possibility of doing a cost-based analysis on taxation for Oman together with TRA Oman and the impact on the Omani economy. **Third,** plan a joint study between SAMENA Council and GSMA on evaluating best tax reduction approaches (and optimizing tax percentages), and to obtaining a common position from all regional operators on the issue of VAT and double taxation in relation also to OTT service providers and digital services. And,



fourth, develop a background paper and explore prospects of aligning regional organizations, including regulators, on data management and cross-border data flows and associated issues within the context of the digital economy.

- Sustainability and competition related challenges faced by the industry have to be overcome, so that innovation and optimism continue to prevail within the industry. The challenge of over taxation and industry fees, and arriving at optimized levels of financial obligations for operators and other industry players have to be tackled, so that socio-economic and long-term benefits are enhanced. Regional transformational challenges, including regulatory frameworks, should be understood and should be functionality-based, dynamic, and in line with current market realities.

- Lastly, there is a need to conduct big analysis and define new rules that could facilitate converting data exchanged between countries into an economic and social value, befitting the regional economies and positively impacting the lives of the citizens.

Beyond Connectivity Sponsors

Omantel

Guided by its 3.0 transformation strategy, Omantel continues to innovate, streamline, and revolutionize its digital smart home and business services. Positioned as the digital partner of choice in the consumer arena as well as for public and private sector businesses, Omantel is enabling the digital society to flourish and grow across all sectors in the Sultanate, built on the pillars of trust and knowledge. Omantel is investing heavily in network expansion and modernization, which would further drive improved content delivery and contribute to knowledge expansion for Omantel's customers and Oman's citizens. Omantel is also a stakeholder in the the Asia Africa Europe-1 (AAE-1) submarine cable system in Oman; the third longest submarine cable in the world spanning approximately 25,000 kilometers, connecting 18 countries across Asia, Africa and Europe, all via Oman.

Etisalat

Etisalat is a trend setter in innovations and latest technologies. It has brought UAE into the top ten nations list. It is aiming to achieve similar successes across its 19 markets, in many of which Etisalat's corporate and social responsibility initiatives are driving partnerships among the governments and the private sectors. For Etisalat, in particular, with Expo 2020 on the horizon for the UAE, 2017 to 2019 are important years are ahead. Etisalat's technology strategy is aligned with Expo 2020 expectations and is on track to deliver quality services in the UAE, as one of the fastest, smartest, and best connected places in the world.

SAMENA Council to Host Telecom Leaders' Summit 2017 in Dubai

SAMENA Telecommunications Council will be holding Telecom Leaders' Summit on April 30 in Dubai under the theme "Aligning Visions to Meet the Demands of the Digital World". Widely recognized among the most prestigious ICT thought-leadership events in the SAMENA region, the Summit will bring together top telecom and ICT executives and decision makers from the private and public sectors. The Leaders' Summit is an annual event that offers a unique platform to the industry leaders who share a common interest in creating a roadmap for accelerating growth across the telecom and ICT sector. The Summit will provide a collaborative workshop and communication-centric industry experience to the participants from public and the private sectors. The Leaders' Summit is expected to host participation from more than 150 prominent key industry figures, experts and professionals including heads of regulatory authorities, chairmen and CEOs of leading communications service providers, and industry influencers. Commenting on the upcoming Summit, Bocar BA, CEO, said "One of the main objectives of the Leaders' Summit is to facilitate and encourage cross-stakeholder participation and open communication by bringing together industry decision-makers, policy-makers and regulators, as well as regional and global telecom and ICT leadership. It will provide an opportunity to supporting the creation of a business-conducive environment for telecom operators and explore new avenues of progressive stakeholder collaboration for the benefit of the industry and its ultimate stakeholders in the SAMENA region." "Since its inception in 2006, the Council, through its leadership events and platforms, has been playing an important role in the development of the ICT and telecom sector in the SAMENA region by setting the agenda and representing the interests of operators from South Asia, the Middle East and North Africa. Telecom Leaders' Summit is designed to verbalize critical business, policies and regulatory challenges and amendments, required for sustainable digital progress," BA added.

Our Vision is to Create a Network that Supports IoT Enabled by 5G

Dr. Khaled Biyari
Group CEO
Saudi Telecom Company (STC)

STC's vision for IoT

Positioned right in the heart of the mobile industry, I believe we have great challenges ahead in order to achieve the connected vision of tomorrow and in order to make the world a better place. However, I am proud to say that we at Saudi Telecom Company (STC) are very well prepared to take on the challenges that lay ahead together with our partners and maintain our position as the leading technology company within the region.

The industry is re-shaping itself – more is demanded of the operators and consequentially, STC has already been moving forward beyond its role as an incumbent operator. Current networks will evolve and reshape their business models as IoT and future technologies will drive operators to upgrade their networks to provide the necessary bandwidth and latency that allows IoT services to be delivered in the right form.

Our vision is to create a network that supports IoT which will be enabled by 5G. And then of course, we can better venture into things that are attached to it, such as M2M, Smart Solutions and cloud-based services.

Realizing 5G

We all understand 5G as the future of telecommunications; however, 5G is the future of much more as it will impact and evolve the world in ways beyond our general understanding of the future. The expansion of the Internet of Things (IoT) into our daily lives, with applications ranging from healthcare to education to transport – shifting towards the IoT ecosystem has created a dire need for telcos to gear up and live up to their role as the "backbone" of a data and knowledge economy.

Not all about speed?

5G is not simply about speed or more data. It is about a complete enabler to an unlimited number of applications and solutions that can truly evolve our lives. The

internet and social media are changing our lifestyle and will continue to do so – this digitization of lifestyle is dependent on networks that will keep pace with the vision of global connectivity. In terms of data, yes, 5G is partly about speed but it is also about intelligence, innovation and efficiency. However, in terms of its impact on our lives – I find "enabler" to be the most apt description of what the promise of 5G holds for us.

The true "enablement" by 5G goes beyond operators and requires cooperation between telcos, governments, regulators, OTTs, enterprises and other players in the digital ecosystem.

The Digital Divide?

It is important that we always keep other less developed markets part of the conversation whenever we talk about the future. 5G is now a reality, but the reality is also the unconnected, underserved markets around the world. With our operations in multiple countries across the region, we understand that less developed markets, emerging markets and developed markets are all at different stages in ICT development. As we continue to move towards 5G, we must reduce the digital divide that exists today. STC is striving hard to ensure that all its operations around the world are at par with the latest technologies – in fact all our companies are dedicated to be technology leaders in their respective markets.

"True Enablement"

While 5G is looked upon as a completely telecommunications issue – the true "enablement" by 5G goes beyond operators and requires cooperation between telcos, governments, regulators, OTTs, enterprises and other players in the digital ecosystem. The integration of different players around the ecosystem will enable us to unleash the true potential of 5G through which we will power our Smart Homes, Smart Industries and Smart Cities.

IoT - Challenges for telecom operators

Challenge or Opportunity?

To begin with, I believe that IoT is providing a new opportunity to everyone involved in the tech industry. Who exactly will benefit the most from this technology (besides the customers) however is completely dependent on one's ability to leverage their current abilities and evolve in accordance to the market. That is where the real challenge will be – for network operators, for device makers, for solutions providers and for everybody else.

When we speak of network operators there a few challenges that are highly likely.

Spectrum

First, we need more spectrum. IoT means millions of more connected devices and that simply mean we need more spectrum to accommodate that kind of traffic. It is not an STC specific challenge – it is a requirement that all operators around the world will face. I think here again, a key success factor between network operators will be one's ability to best manage the spectrum provided in order to serve the maximum customers with maximum quality and bandwidth.

IoT Devices are Different

Secondly, we have to look at the fact that IoT devices will probably communicate very differently as to smartphones and computers. Some devices, like smart meters for electricity etc., will connect to the network only at certain times and feed in the latest values of electricity usage which requires less bandwidth, in contrast to IP cameras that are always connected and an even better example would be connected cars which might be sending diagnostics and location information to a central hub while also offering mobile data for in-car entertainment etc.

The difference in this behavior has to be properly analyzed to optimize the networks and the pressure of this challenge is not only on the network but also the data centers responsible for these devices and solutions.

Security

Moving on, connecting the devices is just the beginning– securing these connections, the devices and the applications they connect to will be an even greater challenge. Cyber crime and DDOS attacks are on the rise and more connected devices will only create more opportunities for such activities. It is imperative that companies and solution providers ensure that their networks and solutions are secure, otherwise this factor will not only be a challenge to the industry but may also become a barrier to adoption.

However, it is quite clear that companies who will be able to leverage their abilities to rightly serve this demand and tackle the challenges will clearly by winners and for them it is an opportunity like no other.

STC's contribution to the Kingdom

CSR

STC is committed to supporting programs and initiatives that could develop the Kingdom's economy and help achieve the digital vision of the country. InspireU is the Kingdom's first corporate incubator/accelerator for start-ups focused on ICT/digital innovation. STC has launched this initiative for the Saudi Youth and to develop the economy of the country by creating a strong base and platform for young entrepreneurs to rise and develop their own ventures.

On top of that, STC's commitment to providing high speed internet in itself is serving the society at large. Today, investments in high speed networks significantly contribute to the GDP growth, boosting employment and enabling a digital society with better access to information, contribution and collaboration, enhance health, education and public services, thereby impacting the quality of life and social welfare.

Economy

STC has been instrumental in deploying state-of-the-art network and technologies putting the Kingdom firmly on the 'telecommunication map', so to speak, yielding substantial economic benefits directly or indirectly. STC has been named the top Telecom brand in Asia and consistently has been among the Top 500 global brands (currently 255th top global brand according to Brand Finance). This is a recognition of our continuous efforts. STC's contribution goes beyond the 16,500 jobs it has directly offered in the Kingdom to thousands of indirect jobs that have been created through retailers, vendors as well as people who simply utilize STC network, whether mobile or fixed or broadband to conduct their businesses and day-to-day activities.

STC's commitment to providing high speed internet in itself is serving the society at large. Today, investments in high speed networks significantly contribute to the GDP growth, boosting employment and enabling a digital society with better access to information, contribution and collaboration, enhance health, education and public services, thereby impacting the quality of life and social welfare.

Saudi Arabia has traditionally been seen as an oil-based economy. However, increased telecommunication services have provided a much needed supplementary stream improving the ratio of non-oil based economy in the GDP. Going forward, telecom companies in general, and STC in particular, will continue to contribute greatly towards the vision of a knowledge-based digital economy in the country.

Looking Forward

In the end, I would like to say that STC's commitment to support socio-economic growth in the kingdom and in the region should continue to grow at brisk pace with visible efforts from our side as in the past. We are making investments and pursuing fast paced growth that matches our vision of the future. We are venturing into Digital Platforms and will explore M2M, Cloud Based Services, IoT solutions and more in the coming future as part of our commitment to not only be the network provider but become the true enabler of a better life for our customers and better productivity for our enterprise customers.

Brand Finance: STC is the Most Valuable Brand in the Middle East

Brand Finance has recently announced that there is 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 commented on this increase saying that "STC is embarking down a path of 'humanisation' 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."

Dr. Khaled H. Biyari, STC Group CEO, stated that "this growth reflects the stature achieved by the customers, shareholders and the reason millions of customers around the world have placed their trust in STC as their telecommunications service provider. The 11% increase in brand value will reflect positively on the future economic value for the group showing the company's commitment to its customers through continuous development of the business, products, services and innovative solutions in the telecommunications sector."

Brand Finance is the world's leading independent branded business valuation and strategy consultancy. Headquartered in the City of London and present in over 20 countries. STC ranked number one based on a number of quantifiable attributes, such as the company's financial performance and sustainability, as well as customers loyalty.

MEMBERS NEWS

New Awards for STC at Dubai-Lynx 2017; Success Hosting Top-level Domain

Further to its prominent role and leadership in the region, STC was awarded seven awards at Dubai Lynx 2017 in addition to Grand Prix Award, which counted to be the higher class of all awards. www.laywagif.com platform, #هاذي_السعودية campaign and MySTC application attained the awards. Cenk Serdar, SVP of Consumer Unit and Ahmed A. Alsahhaf, Marketing Communication GM, received the awards on behalf of STC. Also, STC in cooperation with Saudi Network information Center announced the success to host a copy of Top-Level Domain, which allow STC customers to immediate recognize sites belonging their local telecom providers, while giving STC the benefit of end-to-end control of all their domain names across all their businesses worldwide and will offer more security against the cyber-attack. Earlier, on the sidelines of the company participation MWC Barcelona, Speed test website, owned by Ookla Company, recognized STC network as the fastest mobile network in Saudi Arabia. This recognition, for the second year in row, proves STC leadership in telecommunications industry. Abdullah A. Alkanhal, Marketing VP in Consumer Unit, received the award on behalf of STC.

STC Announces 2020 Vision for Network Infrastructure; Introduces Remote Subscription Management Solutions

As part of STC strategic decision to cope with KSA 2030 vision for ICT, Network Sector formulated a future proof 2020 vision that takes into consideration M2M and IoT requirements for an "Agile" network infrastructure. Consequently, NFV/SDN Telco cloud has been chosen as an enabler that would be capable to host telco virtual functions. Such visionary target requires strong alignment with international players in order to make sure STC makes use of Tier1 operator's lessons learned and to allow STC team participate in shaping the strategy of such evolving technology. Accordingly, STC participated in ETSI -NFV ISG NOC, which is a committee of NFV enthusiastic operators. Recently STC also participated in a joint operators' white paper called "Network Operator Perspectives on NFV priorities for 5G" which directs the industry on priorities for NFV to deliver the industry vision for a future 5G network. Also, STC, Oberthur Technologies (OT), a leading global provider of embedded security software products and services, and Huawei, a leading global ICT solutions provider, have teamed up to be a pioneer in the introduction of remote subscription management solutions and develop new opportunities around eSIM technology. In this regard, STC is proud to announce that eSIM trial has been conducted successfully using GSMA compliant subscription management platform from OT and Huawei smartwatch. The eSIM technology allows users to order, install, and activate profiles over the air in a seamless, secure, and convenient way. It also brings additional advantage for smartwatch users as it enable them to make calls directly from the smartwatch even if the mobile phone is offline.

STC Enters into a New Chapter of Collaboration by Signing 5G MoU with Ericsson

STC signs Memorandum of Understandings (MoUs) with Ericsson to collaborate on the development of 5G network technologies and services. Together with other technology leaders, Ericsson will outline the road towards 5G, through joint market-leading trials of advanced technologies, incorporating network tests on "Very High Speed", "Ultra Low Latency" and "highly reliable extreme capacity broadband network". The aim of this initiative is also to enable the full digitalization transformation, supporting the Kingdom of Saudi Arabia's 2030 vision. STC has already successfully carried out unique 5G experiments and Lab tests, moving towards the successful deployment of the much anticipated 5G mobile services. These tests have set a new record in the speed of mobile data services, which in no doubt will lead to a new revolution in mobile network applications and services, through a new exciting 5G Era.

Zain Names New Chairman and CEO

Zain has appointed a new CEO, and a new Chairman to lead the company following a tumultuous 2016 for the telco. Bader Al-Kharafi was chosen to become CEO by the Kuwait-based operator's board at a meeting on Sunday. He succeeds Scott Gegenheimer, who has been appointed CEO of operations for the group. Al-Kharafi was also named vice chairman. Zain's board also elected Mohannad Al Kharafi as its new Chairman. The appointments were made a little less than a month after the company reported a 4.4% fall in full-year revenue in 2016. Gross profit

fell 6.4%. "The result of several factors beyond our control negatively impacted our overall operational performance in 2016, as we witnessed worsening social economic developments affecting Zain operations in Iraq and Sudan," Al-Kharafi explained. Indeed, the Sudanese pound was devalued by 60% versus the U.S. dollar at the beginning of November, wiping $92 million and $38 million off Zain's full-year revenue and EBITDA respectively. "Amidst these difficult circumstances, Zain still made strategic and operational progress, and in Saudi Arabia, for example, the decision from the Communications and Information Technology Commission to extend Zain Saudi Arabia's license for an additional 15 years was a significant boost to the operation there," Al-Kharafi said. Furthermore, Zain's Iraq unit reached a negotiated settlement with the government related to the imposition of a capital gains tax on its acquisition of Iraqna in 2007. The deal resulted in the lifting of restrictions on the trading of Zain Iraq's shares, access to its bank deposits, and the waiving of penalties

and interest on taxes. Going forward, Zain said it aims to capitalize on opportunities in the smart cities and enterprise sectors. "We are committed to our strategy to leverage our strengths, including our people, brand, customer experience, cutting edge technology innovations, and geographic coverage in our bid to become a diversified and innovative digital lifestyle operator," Al-Kharafi said.

Zain Joins 'Telecom Infra Project' to Develop Next-generation Telecom Infrastructure

During last week's Mobile World Congress in Barcelona, Zain Group, the leading mobile telecom innovator in eight markets across the Middle East and Africa, announced that it has joined the Telecom Infra Project, (TIP), an initiative co-founded by Facebook, Intel, Nokia, SK Telecom, Deutsche Telekom and others in 2016. The primary aim of TIP is to bring mobile operators, infrastructure providers, system integrators, and other technology companies together to collaborate on the development of new technologies and reimagine traditional approaches to building and deploying telecom network infrastructure. Operators and the broader telecom industry need to collaborate, be more flexible, innovative and efficient, and TIP looks to help achieve this goal. As a pioneer in telecommunications in the Middle East and Africa, Zain brings vast expertise and resources to the initiative as it will leverage its regional footprint and experience in network deployments across challenging territories to support TIP. TIP is exploring new approaches and technologies across these initial focus areas: access, backhaul, and core and management. The projects within these areas utilize the unique engineering and operational expertise of each member, focusing on developing new technologies and exploring new approaches to deployment in both developed and emerging markets. Each member contributes to the area of its expertise, while learning from others so that together all parties can collaborate and build better, faster, more efficient systems. Commenting on becoming a part of the TIP initiative, Scott Gegenheimer, Zain Group CEO said, "It could be argued that scaling traditional telecom infrastructure to meet the ever-increasing demand for broadband data is not moving as fast as it needs to ensure customers receive the mobile experience they demand and deserve. Zain recognizes there isn't a single solution for this, and that no one company can tackle the problem alone. We firmly believe collaboration in innovation will drive efficiencies in our business and we are keen to be part of such prime opportunities wherever they may arise." Gegenheimer continued, "Being a staunch advocate of the expansion of connectivity for all, Zain fully appreciates the power the internet has to enhance and empower the communities it serves. There are 4 billion people in the world who still don't have a data connection and we commend Facebook and the other founding companies for kick-starting TIP. We have high expectations that this initiative will result in bridging the digital divide by greater inclusion, and call on for

more of our regional and industry peers to join us in this initiative." Since the launch of TIP in February 2016, the initiative has achieved numerous milestones including the creation of 'TIP Ecosystem Acceleration Centers' that incubate local talent around the world and accelerate product development through support from leading global and local investors. A 'People and Process Project Group' was also created in order to develop and share cultural and process transformation best practices that can improve operators' key metrics. In addition, Facebook contributed Voyager, the industry's first white-box transponder and IP/MPLS routing solution that was successfully tested. Furthermore, Facebook's OpenCellular designs and schematics are now fully open source within TIP to accelerate the industry's ability to provide wireless access in remote areas of the world. Driving a faster pace of innovation in telecom infrastructure is necessary to meet new technology challenges and to unlock new opportunities for everyone in the ecosystem. Flexibility will be key in everything TIP does though and the goal is to allow mobile network systems to evolve without having to start over. Zain, together with other leading industry entities across the globe, are committed to exploring new technologies and approaches that will positively impact mobile users of today and the future.

Zain Group enters MoU with Myca Health Inc. to Rollout a World-class Mobile Health Platform

Zain Group, a leading mobile telecom innovator in eight markets across the Middle East and Africa, announces entering a Memorandum of Understanding (MoU) with Myca Health Inc. (Myca), an innovative Canadian-based leader in the development of unique proprietary software for scalable IT web based platforms. Myca's expertise extends to mobile telephone networks, permitting cost effective and time efficient management of access and delivery of health and medical services to its users. The MoU between the two organizations provides for the development and implementation of a world-class mobile electronic medical health record (EMR) platform across Zain's network, powered and customized by the telco for each specific market. The service is in alignment with Goal 3 (Good Health and Well-Being) of the UN's Global Goals for Sustainable Development and is planned to be gradually rolled out across Zain markets in the second-half of 2017. Once fully implemented, the project will allow Zain to offer to its users a controlled and secured mobile interface for access to physician services, scheduling of appointments, non-face to face mobile consultations, and access to electronic prescriptions, among other services. The Zain mobile health interface (patient portal) will also include secure storage of all health records on a user's mobile device, together with health and wellness applications that track nutrition and exercise, and allow monitoring of remote patient care management as needed. Commenting on the MoU, Bader Al Kharafi, Zain Group Vice-Chairman said, "This collaboration represents the very best of our efforts, combining technology and innovation, with the tangible improvement of people's health and well-being and ultimately, their lives. We believe the state-of-the-art digital solutions offered by Myca complemented by our local knowledge and strong customer base in the region will make for an extremely impactful interaction." Leonard B.C. Schlemm, Myca Health's Chairman, stated, "We are very excited about the prospect of being able to work with the innovating and dynamic leadership of Zain's management and technical teams. We strongly believe that the unique product that Myca has to offer, developed and refined over many years of extensive research and development, will adapt very well to the Zain mobile platform and secure Zain's continued leadership in the region in the delivery of mobile telephone services and applications. We expect that this will also add greatly to improving health outcomes of the region's population."

Microsoft to Host Tech Competition in Pakistan

Higher Education Commission and Microsoft are set to bring another edition of Imagine Cup to Pakistan, a student technology competition. Microsoft's Imagine Cup provides young innovators with opportunity to win $100,000 cash prize by competing with students from across the world to provide the best software solutions. The competition has two phases, first the competitors will compete at regional level and then will qualify for the national level. Both the stages will be judged by academicians as instructed by the HEC and industry experts. Microsoft first brought Imagine Cup in Pakistan in 2003. Besides the $100,000 prize, the winner will get an Azure grant and cash and mentor opportunity with industry leaders.

Ooredoo Ranked Among Top 50 Telecom Brands

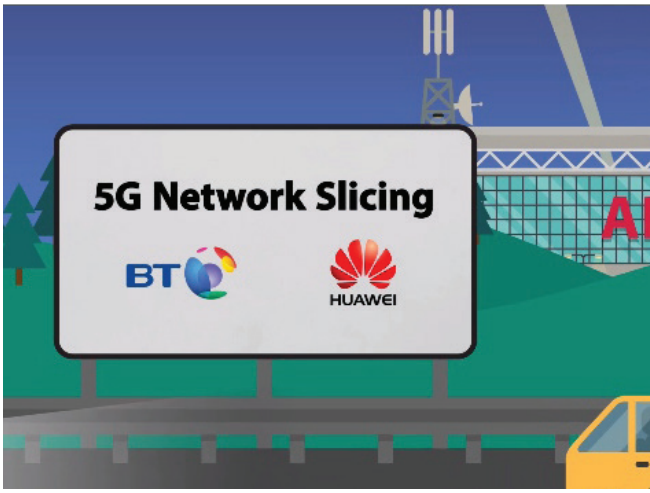
Ooredoo, the Qatar-based global telecoms company, features among the top 50 telecoms brands in the world, according to a new report by leading valuation and strategy consultancy Brand Finance. The news comes as Ooredoo hosts one of its largest and most technologically-advanced product demonstrations at Mobile World Congress 2017 taking place in Barcelona this week. Ooredoo Ranked Among Top 50 Telecom Brands. The report, Telecoms 500 2017, values the brands of operators and infrastructure companies around the world. Brands are first evaluated to determine their strength, based on factors such as marketing investment, familiarity, loyalty, staff satisfaction and corporate reputation, and this is used to determine what proportion of a business's revenue is contributed by the brand. This information is then used to rank the world's 500 most valuable telecoms brands. Ooredoo has risen to become the 47th biggest telecoms brand in 2017, appearing in the top 50 for the first time in its history. Since beginning the rebranding process in 2013 with a special ceremony at the Mobile World Congress, Ooredoo has rolled the Ooredoo brand out in eight markets in the Middle East, North Africa and Southeast Asia. During that time, its total brand value has grown from less than $1 billion to more than $3 billion, propelling it into the top 50. Sheikh Saud Bin Nasser Al Thani Group CEO Ooredoo, said: "Ooredoo continues to evolve and reach new customers and new markets around the world. We have set our operations the target of becoming data experience leaders across our global footprint, and to enable everyone to enjoy the internet on Ooredoo networks. This report demonstrates the progress we have made to date, and also the incredible momentum of our brand. According to the report, Ooredoo's brand value has consistently increased since the company began its global brand roll-out, which the report calculates as $3.1 billion in 2017. With more than 138 million customers, the Ooredoo brand is becoming one of the most widely-recognized communications brands in the world today.

Ooredoo Group 2016 Revenue Inches up 1%; Customers Grow 19% to 138m

Qatar-based Ooredoo Group's consolidated annual revenue increased by 1% in 2016 to QAR32.503 billion (USD8.919 billion), driven by sales growth in local currency terms in Qatar, Oman, Kuwait, Algeria, Tunisia, Indonesia and Myanmar, whilst underlying group B2B revenue increased by 6% y-o-y to QAR5.5 billion. Consolidated EBITDA climbed 3% in full-year 2016 to QAR13.379 billion, boosting the EBITDA margin by one percentage point to 41%, whilst net profit attributable to Ooredoo shareholders improved by 4% in FY16 to QAR2.193 billion. Ooredoo reported that its customer base increased by 19% annually to reach 138 million at the end of December 2016, driven by strong mobile growth at Indosat Ooredoo (Indonesia), Ooredoo Myanmar, Ooredoo Oman, Asiacell (Iraq), Ooredoo Tunisia, Ooredoo Kuwait and Ooredoo Algeria, whilst noting that 4G LTE networks are now operated in eight of its markets. At its domestic division, revenue grew 1% to QAR8.0 billion and EBITDA increased by 1% to QAR4.0 billion in FY16, as Ooredoo Qatar clocked up achievements during the year including upgrading its peak 4G speed to 325Mbps and launching a 1Gbps fiber broadband service. Indosat Ooredoo saw FY16 revenues improve by 10% to QAR8.0 billion and total mobile customers rise by 23% to surpass 85 million, boosting EBITDA by 13% to QAR3.7 billion, as the division highlighted its expansion of mobile data connectivity across the country. Ooredoo Myanmar boasted a 55% year-on-year rise in mobile customers to nine million at end-December 2016, helped by network expansion to 'the vast majority of the population', the launch of 4G services and additional 3G site rollouts. Myanmar revenues swelled by 38% to QAR1.5 billion, underpinned by data growth, and the annual EBITDA margin stood at negative 1%, an improvement on negative 7% the previous year. Ooredoo Oman's revenue increased by 7% to QAR2.6 billion in FY16, driven by both mobile and fixed data revenue, and EBITDA rose by 8% to QAR1.4 billion, with customer numbers climbing by 6% to almost three million. Ooredoo Kuwait's revenue was QAR2.4 billion in 2016, an increase of 5% compared to 2015, although EBITDA dropped slightly to QAR614 million versus QAR620 million due to 'market competitiveness'. By the end of the year the unit claimed to have covered 'the entire populated area of Kuwait' with its 4G network, driving a 3% increase in total subscribers to 2.3 million. Asiacell's full-year 2016 revenue decreased 14% to QAR4.2 billion, impacted by economic and political challenges in Iraq, although it highlighted successes in reactivating services and rolling out its 3G network to stabilized regions of the country, with overall customer numbers increasing by 11% in the twelve-month period to twelve million. EBITDA fell 10% to QAR1.9 billion, a decline which Asiacell said was minimized by cost optimization initiatives. Ooredoo Algeria reported 13.8 million customers at end-2016, up 6% compared with 2015, with revenues increasing in local currency terms by 1%, although currency depreciation caused a 7% revenue drop in QAR terms; Algerian EBITDA stood at QAR1.3 billion with an EBITDA margin of 35%. The division's 3G network reached all Algerian provinces in the year, whilst investing in 4G rollout in three provinces. Ooredoo Tunisia also grew its subscriber base by 6% in FY16, reporting 8.0 million users, although the Tunisian economy continued to suffer from slow tourism and the QAR results were impacted by the depreciation of the Tunisian Dinar. Consequently, 2016 revenues were QAR1.7 billion compared to QAR1.8 billion in 2015 (although increasing by 4% in local currency terms). Tunisian EBITDA stood at QAR686 million with a stable EBITDA margin in the 40% range.

Huawei Tackles Network Slicing with BT

BT and Huawei have announced a research programme into network slicing, a technique that will allow parts of 5G mobile services to be set aside for key customers and applications. The announcement follows a wide-ranging 5G collaboration agreement signed by the two companies in December 2016. But it also follows announcements from other vendors, especially Nokia and Ericsson that they are also working on network slicing. Deutsche Telekom said in December 2016 that it is working with Huawei on the theme. Howard Watson, CEO of technology, service and operations at BT, said: "It's our role to ensure that our fixed and mobile networks deliver the best possible experience for customers regardless of the demands placed on them." Network slicing will allow parts of an IP-based network to be ring-fenced for particular activities – such as enterprise services and live TV channels carried over 5G, but also including critical emergency services. The idea is that individual services will remain unaffected by bandwidth demands on the network as a whole. Yang Chaobin, president of the 5G product line at Huawei, said that network slicing will allow the industry to build "a common infrastructure serving different vertical industries". Network slicing "will be critical to effective delivery of services and improved efficiency". The companies said that new 5G slices can also be spun up in an agile way according to customer needs. "Customers are increasingly demanding converged networks that deliver a mix of flexibility, reliability and optimization," said Watson.



Sudatel Exhibits for the First Time at Mobile World Congress

Following the easing of US trade sanctions against Sudan, Sudatel Telecom Group will be exhibiting for the first time at the upcoming Mobile World Congress in Barcelona. The show will provide Sudatel with a platform to demonstrate its capabilities, achievements and corporate strategic direction to potential partners, suppliers and customers around the globe. Given Sudan's geographic location, Sudatel will continue to play a major strategic role in connecting Africa and the Middle East to the rest of the world. The company will be investing heavily in its domestic and pan-African operations during 2017 as demand for high-quality telecom services across the region continues to grow. Established in 1993, Sudatel provides both mobile and fixed (voice and data) services to businesses, residents and ISPs across North and West Africa, in addition to the provision of wholesale services to international carriers. Sudatel is partially owned by the Sudanese government and listed on both the Khartoum and Abu Dhabi Stock Exchange markets.

Turkcell Enters Strategic Cooperation with ZTE

Turkish mobile and fixed network operator Turkcell has signed a Memorandum of Understanding (MoU) with Chinese technology provider ZTE with the aim of collaborating on developments including 'Gigabit-capable passive optical networks (GPON), dense wavelength division multiplexing (DWDM) and the side-edged 5G', according to a press release from ZTE. The strategic cooperation may be extended to various other fixed and wireless network/product areas, including customer premises equipment (CPE) 'and more', ZTE added.

PCCW Global Teams with DHQ Tech to Develop Groundbreaking Services for Hengqin "Smart City"

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, and Zhuhai Da Hengqin Technology Development Company (DHQ Tech) which is headquartered in Hengqin, China, have signed a Memorandum of Understanding to jointly turn Hengqin, one of China's Pilot Free Trade Zones, into a "Smart City", offering superior quality of life for its residents as well as an exciting and innovative business environment. Hengqin, located 34 sea miles from Hong Kong, offers massive trade and business potential. It is optimally located, covering an area of 106.46 square kilometers and is less than an hour from Hong Kong via the new Hong Kong-Zhuhai-Macao Bridge. PCCW Global and DHQ Tech plan to develop Hengqin into a global business and communications hub, and to position Hengqin as one of the world's leading Internet business environments to attract foreign investment and to support enterprise customers, new start-ups and hi-tech research and development centers with the latest ICT technologies. The collaboration will leverage PCCW Global's advanced international infrastructure to maximum advantage in order to position Hengqin as a strategic gateway for China to communicate with the rest of the world, and for the rest of the world to communicate and trade with China. PCCW Global will assist in the design of world-leading smart city infrastructure, including operations, ICT consultancy, and regional mobile payment services that will facilitate international enterprises for development in Hengqin. PCCW Global will also serve to support all smart government, smart tourist, big data, smart education, smart health, and safe city initiatives. Mr. Marc Halbfinger, Chief Executive Officer of PCCW Global, said, "PCCW Global's technological know-how and vast international infrastructure will be key to further developing Hengqin as a globally leading Smart City. As a global telecommunications company, we are also excited by the opportunities Hengqin will bring to the region, and thus we are studying the feasibility of setting up a new local office in the Hengqin Pilot Free Trade Zone."

GBI Appoints Mohamed Saro as CCO

GBI, a global cloud, connectivity and content enabler, announces the appointment of Mohamed Saro as Chief Commercial Officer. Saro will play a key role in GBI's transformational journey by contributing to the organization next phase of growth. Amr Eid, Chief Executive Officer of GBI said, "Mohamed's breadth of expertise overseeing business strategies, ability to develop creative sales models for international portfolios and proven track record of expanding companies' footprint and their entry into core markets are the perfect fit for our company which is committed to deliver value to customers, partners and shareholders." Mohamed Saro said, "I am honored to join such an agile and innovative company that has left an imprint on the global telecom map. I look forward to working with the team in crafting business strategies and exploring emerging business opportunities across different verticals." Saro, an industry veteran, has extensive and versatile experience in the telecom and subsea cable fields in international markets spanning Asia, Europe and the Middle East. He has played a pivotal role in mega submarine projects in the Middle East as part of Telecom Egypt's submarine cable business. As part of his portfolio overseeing the International Customers' Data and undersea cable business within Telecom Egypt's International Customers Business Unit, Saro was instrumental in maximizing the company's revenues by capitalizing on the assets of the company's international network that led to an overall increase in Egypt's capacity. Prior to GBI, Saro has held a number of industry leadership roles including Vice President of Global Data and IP Solutions at Sygmatel where his portfolio encompassed consultancy for operators, carriers and multi-national corporates across the subsea and international infrastructure value chain. Saro was also a Technical Operations Director of TEData - the largest Internet provider in Egypt and a subsidiary of Telecom Egypt. Saro holds a Bachelor of Science degree in Communications and Electronics Engineering from Cairo University and post graduate studies in Business from the German University in Cairo.

Etisalat Named Most Valuable Telecoms Brand Portfolio in the Mideast by Brand Finance

Etisalat is recognized as the most valuable of any telecoms brand portfolio in the Middle East by leading London based brand valuation and strategy consultancy 'Brand Finance'. This recognition was mainly due to its focused programme on brand activities, management of significant global sponsorship properties and local events targeted at both consumer and business customers as well as the increased revenues has contributed to the brand value. Etisalat headquartered in UAE has its brand presence in Egypt, Nigeria, Sri Lanka and Afghanistan, the company has ownership stakes in Mobily in KSA, Ufone and PTCL in Pakistan, and Maroc Telecom and Moov brands in Africa. At a value of US$ 7,728bn, this places the Etisalat Group portfolio a comfortable US$ 1.5bn ahead of second-placed telco. A key contribution to this result was an increase in the strength of its flagship brand, Etisalat, jumping from a rating of AA- last year to AA+ for 2017. This is the first time the consulting firm has evaluated a brand based on its portfolio. Etisalat Group was also assessed on its focused programme of brand activities, mainly comprising of the management of significant global sponsorship properties such as FC Barcelona, as well as local events targeted at both consumer and business customers. Brand Finance values thousands of brands annually to compile its 'Global 500' and 'Telecoms 500' listings, as well as numerous other sector, region and individual market league tables. Commenting on Etisalat' s strategy, Brand Finance CEO David Haigh said: "As well as developing its core brand, Etisalat has pursued a broader brand portfolio strategy as a way to build business value through leveraging branded assets. Brands such as Mobily in Saudi Arabia provide access to very significant GCC markets and in addition, the portfolio approach has provided a foothold in key regional territories adjacent to the Middle East base - for example through Maroc Telecom in North Africa and in Pakistan. The latter gives the opportunity for branded development of a broader converged proposition, involving mobile and fixed line operators Ufone and PTCL. This brand portfolio strategy opens up a range of opportunities in the future to use brand as a means of growing further business value."

Etisalat Group and Ericsson Establish Strategic Partnership for the First Unified Delivery Network (UDN) Platform Across Middle East

Etisalat Group and Ericsson have signed an agreement to deploy the first-of-its-kind Unified Delivery Network (UDN) platform across the Middle East. The revolutionary content distribution platform aggregates and exposes network capabilities into the public domain, allowing services to be optimized and monetized in new ways. In addition, the UDN platform offers Service Providers the ability to efficiently scale the delivery of over-the-top (OTT) services and high quality video content. As a result, Etisalat will be able to address the needs of both service and content providers in its markets. Hatem Bamatraf, Chief Technology Officer International at Etisalat Group, said: "The growth of streaming media and high quality video technologies has ushered in a new era of content delivery. Partnering with Ericsson to deploy high quality content will enable us to offer our customers enhanced video quality of experience through seamless delivery, establishing Etisalat Group as regional leader in this area." Ericsson´s vision is to bring together the ecosystem of Service Providers and Content Providers to collaborate around how last mile edge delivery can enrich the consumer experience. New revenue streams and business models will be created through the seamless introduction of new services, enabling rapid innovation, cost savings, and faster time to market. Etisalat Group and Ericsson plan to deploy the UDN solution in 2017 Petter Järtby, Head of Etisalat Global Customer Unit at Ericsson Region Middle East says: "The launch of UDN delivers a disruptive new business model that offers a win-win situation for all players involved with traffic delivery. UDN uses the service providers' last-mile footprint to achieve amazing performance and open the opportunity for next-generation distributed cloud services. We look forward to deploying this first of its kind solution to the region together with Etisalat."

Etisalat Group Reports Strong Performance in Annual Financial Results

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; 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.

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."

ARTICLE

Regulatory Prerequisites for Effective Digitization in MENA

An effective digitization process in the MENA region requires some basic legislations. The most important five legislations that guarantee safe and sound transition to digitalized ecosystem are: data privacy and security, electronic transactions, cybersecurity, consumer protection and competition regulations[1]. Understanding the status of these legislations in most MENA countries can provide an indication about the status of development of digitization.

I. Regulatory Prerequisites

1) Data Privacy and Security

Digitization is all about the ability to collect, store, process, and transfer users information. In return, users are always concerned about the confidentiality and protection of their data. Personal data is the base for an internet economy, where companies are offering a wide range of digital products and services for 'free' in return for the rights to use customers' data for commercial and marketing purposes. Therefore, regulators should find the right balance between the ability of the market to use and create new or existing services such as Internet of Things and Cloud Computing and, at the same time, protect users from any unauthorized use of their data. Only a modern data privacy and security law can find this balance.

Digitization will facilitate commercial and financial transactions over the internet, which generates many legal uncertainties about the validity, enforceability and admissibility of electronic messages and signatures.

2) Electronic Transactions Law

Digitization will facilitate commercial and financial transactions over the internet, which generates many legal uncertainties about the validity, enforceability and admissibility of electronic messages and signatures. A primary modern electronic transactions law shall be able to remove these uncertainties and create a stable and secure electronic transactions system.

3) Cybersecurity

Digitization will open the door to criminal activities. Digitization requires adequate rules to deal with cyber-crimes such as identity theft, transactions fraud, hacking, piracy, child pornography, and many others. The existing and traditional criminal laws are not

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Director Legal and Regulatory Affairs
Ooredoo Group

able to address these kind of crimes. Therefore, a cybersecurity law that will define the crimes, investigation rules, proof procedures and penalties are important part of an effective digitization.

4) Consumer Protection

Digitization will facilitate e-commerce and other types of electronic transactions, which will greatly benefit consumers, but at the same time it will raise many concerns related to the quality, authenticity and credibility of the electronic products and services. Adequate consumer protection law that reflects the unique feature of electronic transactions are a prerequisite to enhance consumer trust and confidence in electronic transactions.

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5) Competition Law

Digitization represents a unique challenge to regulators' ability to regulate competition and stop or penalize any anti-competitive practices. Regulators should support digitization by creating effective domestic competition laws and regulatory authorities that can protect both the competition between market participants and the interests of consumers.

II. The Regulatory Status in the MENA Region

Accordingly, it is clear that, out of the seventeen MENA countries included in the above table, only Qatar has all the regulatory prerequisites for an effective digitization. Most countries have four, out of five, regulations necessary to guarantee an effective digitization. Except for Morocco, Qatar and Tunisia, all other countries are missing the data privacy and security law, which is the most important prerequisite.

For most MENA countries, the legal principles, that are regulating data privacy and security, are scattered in different old regulations, such as criminal codes, capital market and banking regulations[2]. These principles do not regulate the core functions of electronic transactions related to data's collection, storage, processing and transfer, which significantly undermine the ability of national companies to benefit and exploit the latest technologies and services such as the Internet of Things, B2B and Cloud Services. These services are "the next industry revolution or the next internet"[3].

	E-Transactions	Data Privacy & Security	Cybersecurity	Consumer Protection	Competition
Algeria	Yes	No	Yes	Yes	Yes
Bahrain	Yes	No	Yes	Yes	No
Egypt	Yes	No	No	Yes	Yes
Iraq	No	No	No	Yes	Yes
Jordan	Yes	No	Yes	No	Yes
KSA	Yes	No	Yes	Yes	Yes
Kuwait	No	No	Yes	Yes	Yes
Lebanon	No	No	No	Yes	No
Morocco	Yes	Yes	No	Yes	Yes
Mauritania	Yes	No	Yes	No	No
Oman	Yes	No	Yes	Yes	Yes
Qatar	Yes	Yes	Yes	Yes	Yes
Sudan	Yes	No	Yes	Yes	Yes
Syria	Yes	No	Yes	Yes	Yes
Tunisia	Yes	Yes	No	Yes	Yes
UAE	Yes	No	Yes	Yes	Yes
Yemen	Yes	No	No	Yes	Yes

[1] GSMA, A new regulatory framework for the digital ecosystem, 2016.
[2] BakerHostetler, 2015 International Compendium of Data Privacy Law, 2015.
[3] John Greenough and Jonathan Camhi, Business Insider, Here are IoT trends that will change the way businesses, governments, and consumers interact with the world, 29 August 2016.

ARTICLE

Authentic Leadership – The Success Factor

Are companies more successful if their managers are authentic? With all the enthusiasm surrounding the current discussion on authentic leadership, it's important to note: unfortunately, it's not all that easy. However, there is increasing evidence that suggests that clear and authentic leadership contributes to the success of companies – especially in times of uncertainty, such as we are experiencing with digital transformation.

Many people are quick to say that managers should act and communicate authentically, but in the daily grind between meetings, decisions and advancing one's own career, authenticity is quickly forgotten. The study "Clear stance, clear direction – How companies promote and benefit from authenticity" conducted by goetzpartners, Förster und Netzwerk, and Prof. Matthias Spitzmüller shows how companies can promote an authentic approach over the long term and how they can deal with obstacles.

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Acting on conviction

First and foremost, it is important to clarify a misconception: authenticity doesn't mean that you wear your heart on your sleeve. It doesn't mean expressing every emotion – positive or negative – and, for example, losing your temper with your employees just because you have a short-tempered personality. Conversely, authenticity does not necessarily mean that you should always be friendly and cooperative with employees: managers can still be authentic even if their individual leadership styles are rather distant or even authoritarian.

However, reliability and integrity are part of authentic leadership. Authenticity is defined as a basic attitude with which managers act in accordance with their inner values and own convictions, are minimally influenced by external factors, and steer their own actions rather than having them dictated by others. This has a positive effect especially for employees: they are more easily able to understand managers' decisions and tend to know what to expect. A clear mandate strengthens employees' trust and confidence in managers' actions.

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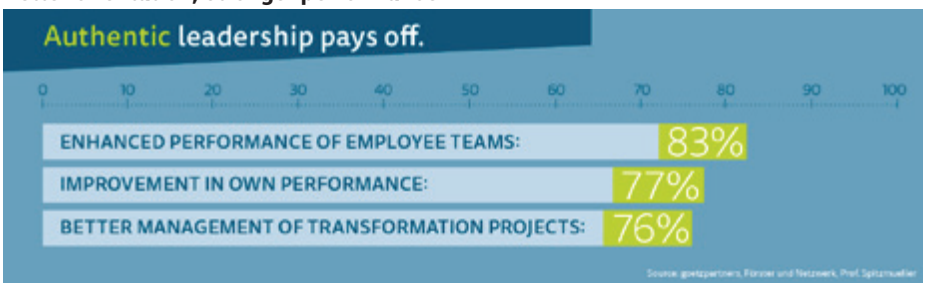
STRATEGY | M&A | TRANSFORMATION

Better orientation, stronger performance



Defined in this way, authentic leadership can have a positive effect on the success of companies – as the study by goetzpartners and Förster und Netzwerk suggests. As much as 83 percent of the managers surveyed said that authentic leadership had a positive effect on the performance of teams of employees, and as much as 77% indicated positive outcomes for their own performance. Two other questions showed how important authentic leadership is, especially during times of continuous transformation: 76 percent of those surveyed are convinced that transformation projects can be managed better when managers are authentic, and 77 percent agree that authentic leadership provides more orientation in uncertain times.

However, despite these high approval rates, it appears that an authentic approach is not fully accepted in all companies. Although 81 percent of those surveyed assume that employees value authenticity, only 58 percent agree that authenticity is valued by their own supervisors. In many companies, managers who have a clear approach and sometimes cause offense have a hard time as a consequence – despite what leadership models and other official documents say. However, as the study highlights, it may be worthwhile resisting these supposed pressures – for the individual manager and especially for the company.

Three starting points for more authenticity

Where can companies start when they are convinced of the benefits of an authentic approach? How can they not only demand authenticity but also support and promote it from a structural and cultural perspective? The study shows starting points for these two questions, too. The strongest driving forces behind authentic behavior in the company are:

1. **Authority based on professional expertise**

   At first glance, it seems obvious that power and authority are positively correlated with authentic conduct. In the end, managers who have more influence can make decisions autonomously more often and shape the company according to their values – and thus have greater opportunities to act in accordance with their inner values and ideas than less influential employees.

   But here the study reveals subtle yet decisive differences: managers whose authority is derived from professional expertise are significantly more authentic than those whose power is based solely on their position in the company. Simply put, the decisive factor for authentic conduct is not which position of power a manager nominally holds, but whether the manager can fill this position convincingly with professional expertise.

   This is a reminder for companies not to rely solely on functional hierarchies and structures. Authentic leadership is most pronounced when positional power and authority based on professional expertise go hand in hand. Companies can take this into account when selecting managers and it should also play a role in job transfers, continuing education programs and talent management.

2. **Sense of belonging and individuality**

   The second starting point for more authenticity is based on the company culture: the study shows clear relationships between the sense of belonging, individuality and authentic behavior. A sense of belonging to the company is thus a strong driving force for authenticity. This is primarily influenced by strong and healthy relationships between levels of hierarchy and among employees at the same level. Fostering precisely these kinds of relationships is thus an important task for company leadership.

   Managers who have more influence can make decisions autonomously more often and shape the company according to their values.

   The strongest sense of authenticity in their day-to-day work is experienced by managers who contribute the experience of individuality in addition to a sense of belonging. Interestingly, it is not simply a matter of managers bringing their own personality traits and characteristics to the job. Strong, positive effects of authenticity are only observed when individuality is coupled with a sense of belonging. A company culture that combines both of these aspects – without being too sectarian or promoting individuality excessively – thus creates the ideal conditions for authentic behavior.

3. **Freedoms**

   There is a clear association between authenticity and the organization of work in companies: the positive

effects of autonomy in one's work, identification with one's tasks as well the social support that managers receive in the course of their work are particularly noticeable.

In particular, autonomous or independent work with enough freedom to make one's own decisions has an extremely positive effect on authenticity. Companies are in a position to create the overall conditions that enable this autonomy, for instance by giving employees and management real responsibility and allowing them to decide for themselves when, how, where and with whom to perform a task.

Recognize and overcome obstacles

According to the study, there are four other factors that prevent authentic behavior: the size of the company and with that the experience of feeling like a small cog in a large machine almost always has the consequence of a certain degree of self-alienation. Highly hierarchically organized structures also have an inhibiting effect on authenticity, as do strongly felt conflicts between work and private life. When employees perceive their own work as significant and when they are aware of the relevance of their work "for the greater good," then the negative effect of these three obstacles is reduced.

However, the fourth factor, which is also one of the greatest, cannot be balanced out by other factors: if, while at work, employees and managers have to maintain a pretense of emotions they do not feel, the result may be a sense of self-alienation. This is known as "surface acting", and companies that want to foster authenticity should avoid expecting it as far as possible. Yet especially in professions with constant customer contact, such as in call centers or in sales, this is part of what is expected of a person in that position. In this context, managers could at least develop a better understanding of the roles and tasks of these employees and deal with them better.

More than paying lip service to authenticity

The study by goetzpartners, Förster und Netzwerk, and Prof. Spitzmüller concludes that companies can create the conditions that enable greater credibility and authenticity in company leadership and daily work. Practical starting points lie primarily in shaping the company culture and business processes – and companies are able to achieve far more this way than by merely prescribing authenticity in a leadership model.

You can download the full study here: www.goetzpartners.com/publications

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REGIONAL NEWS

Etisalat Plans 5G Trials Next Year, Commercial Launch in 2019

United Arab Emirates (UAE) telco Etisalat says it plans to begin testing 5G technology next year and hopes to launch commercially in 2019. A report from Gulf News quotes Etisalat's CTO, Hatem Bamatraf, as saying: 'We are trying to push the entire industry to be ready for 2019 and have signed a deal with Qualcomm. We are in talks with device manufacturers, vendors, applications providers and regulators.' He added: 'We expect mass adoption to start from 2020. What 5G is going to bring in is new revenue streams for telecom operators. 5G is going to connect things rather than people, so there are huge growth opportunities.' Bamatraf said that investment, spectrum availability and readiness of the ecosystem will be the key challenges for telecom operators when adopting 5G.

Oman Investment Fund Set to Close Loan to buy 51% Stake in Omantel

Oman Investment Fund (OIF), a wholly owned investment arm of the Omani government, is reportedly close to completing syndication of a USD600 million loan to acquire the Ministry of Finance's shares in Oman Telecommunications Company (Omantel), Reuters cites sources familiar with the situation as saying. In December last year the government said it was transferring its 51% stake in the country's incumbent telecoms operator to the OIF, which has an objective to build a diversified portfolio in the production and services sectors, projects and other related fields. According to sources, the USD600 million, five-year loan is in the final stages of syndication and should close in the coming days. The sovereign wealth fund would use the money to back the acquisition of the 51% stake, with the aim of improving efficiency and generating higher profitability for the company. TeleGeography's GlobalComms Database notes that the government reduced its stake in Omantel from 70% to the current 51% in the first half of 2014, following a private placement open to Omani individual and institutional investors in March that year, and an initial public offering (IPO) for local citizens in April.

Omantel Writes Off its Investment in WorldCall

Omantel, Oman's state run telecom company, which acquired 56.8% stakes in WorldCall back in 2008 against a sum of $193 million, has written off its investment in 2015-16. More recently, WorldCall services had agreed to buy Omantel's stakes for a value that wasn't disclosed to media. However, it is said that value of recent arrangement between WorldCall services and Omantel is a lot lesser than $193 million. Omantel, in response to the developing situation, clarified that while it had written off its entire investment in WorldCall, the latest deal is not going to impact its results this year. "Therefore, the disposal of the shares will not have a material impact on the financials of Omantel," the company said in a statement. Omantel has signed a sale purchase agreement (SPA) with the acquirer, WordCall Services Limited, which is now under the process of receiving the required regulatory approval in Pakistan. The consideration provided under the SPA is that the acquirer will be assuming certain liabilities of WTL, the company added in a clarification statement.

GCC Cyber Security Lab Inaugurated in Bahrain

C5 launched its Cybersecurity Laboratory which will be based out of the C5 offices in Sanabis, Bahrain. The goal of the lab is to drive better awareness and encourage the development of solutions to address the ever-growing threat of cyberattacks in the MENA region. The lab will also help to create groups of qualified individuals that can both face the challenges and seize the opportunities of a fast growing cybersecurity market. Cybersecurity is an important regional issue as businesses become increasingly digital. Whilst all industries are at risk of cyberattack, financial services, governments, healthcare, transport and manufacturing are the most commonly targeted. According to IBM, it takes on average 229 days for a business to realize that a 'hack' has occurred, by which time it is often too late to salvage, data, money and reputation. Ginni Rometty, IBM›s chairman, president and CEO, believes «Cybercrime is the greatest threat to every company in the world.» Some experts estimate that by 2019 the cost of Cybercrime to businesses around the globe will be approximately $2.1 trillion. Hadyah Fathalla, Executive Director of C5, said: "The resurfacing of the Shamoon virus that crippled Aramco's computers in 2012, was described by Former US Defense Secretary, Panetta as the most destructive cyber-attack on a private business. This is just one of many attacks that highlight's the very real threat of cybercrime in the region. Through our work with disruptive tech companies in the Cloud10 'Scalerator' programme, we have identified that the cybersecurity market, especially in the region, is suffering from a skills shortage. Bahrain's proximity to Saudi and its continued growth in finance and ICT, among other relevant industries, positions it well to serve as a regional hub." Ron Moultrie, Chairman of C5A and Former Director of Operations, US National Security Agency, said: "The GCC region is witnessing some very sophisticated cyber-attacks. C5 sees the threat landscape becoming more advanced and targeted, influenced in part, by the geopolitical situation in the region and the challenges brought on by major growth in Social, Mobile, Analytics, and Cloud. C5 and its portfolio companies are proud to be playing a role in this important arena." The Lab will draw on C5's network of expertise to enhance cybersecurity awareness in the Middle East. On a regional level, the lab will be structured to include seminars and training sessions. It also hopes to serve as an arena for strengthening partnerships between the public and private sectors. The Lab will aim to provide workshops for GCC governments and enterprises as well as opportunities to invest in training and education on increasing data security, in addition to encouraging cybersecurity-related trade between Bahrain and the Gulf. C5 has been working closely with the government, key industry players, and promising technology start-ups in the region to help grow and nurture the ICT ecosystem through its Cloud10 programme. The Kingdom is uniquely positioned to benefit from transformative technologies and developments in the cybersecurity sphere to become a regional leader and center for excellence. At the launch of the Cybersecurity Lab, Ron Moultrie, Chairman of C5A and Former Director of Operations, US National Security Agency gave an address followed by presentations by C5's portfolio of Cybersecurity companies from Europe, who presented their unique solutions. Ron Moultrie said: "This initiative will bring together the best cross-industry and sector minds to build awareness and better understanding, explore and develop cutting edge solutions, and inspire innovation in cybersecurity. Space to address the growing challenges. It is an honor for me to participate in the opening of the Cyber Lab. This represents an incredible opportunity for Bahrain and the GCC to become an area of excellence in this field." The Companies who presented included Balabit, a leading provider of contextual security technologies who help prevent data breaches without constraining business activity. Another of C5's portfolio companies, ITC provides assured IT and through NetSure360° which provides infrastructure and security services ("MSS") to some of the best-known companies in the UK. Also present was Omada, a technology leader in the strategically important Identity Governance & Administration market. Tom Millar, Chief Executive Officer of ITC Secure, said: "The next 3 years are going to be hugely defining in Cyber Security as more and more companies will be breached, you just need to look at the statistics and the sheer volume of incidents past 12 months. Our customers will have to plan for this eventuality. With the highly sophisticated cybercriminal's learning the very complex supply chain processes of business, with the ultimate goal of either disrupting or manipulating the supply chain for financial gain is a real threat to many with many current case studies in the market place. Our "less is more" and our focus on protecting your Crown Jewels is a very effective approach to Cyber Security Management and will define our future. We look forward to helping companies across EMEA on their own journey to reduce risk and enable business." Péter Gyöngyösi, Product Manager of Behavior Analytics at Balabit, said: «Privileged accounts are involved in 80 percent of data breaches: misused or hijacked accounts of users pose the highest cybersecurity risk. Organizations, being protected by the latest defensive technologies, are hackable no other way but through someone who›s already inside; we only have to look back to the latest wave of of Wikileaks revelations. Christian Stendevad, Executive Vice President of Omada, said: "Cybersecurity must be a high priority for the entire organization to protect IP, confidential and personal data and systems. The right IT cyber security infrastructure requires appropriate governance processes to enforce the right controls."

Saudi Ministry inks MoU with IBM

Saudi ICT Ministry has signed a memorandum of understanding with IBM to promote cooperative programmes at an advanced level. IBM will train and qualify more than 38,000 people over the next four years through thirty new educational institutions in various communication and information technology programmes. By 2020, about 19,000 trainees are expected to acquire certification for the field, Arab News reported. The ministry said in a statement that this step will help develop the telecommunication and information technology sector, build national capabilities and talents, and hold partnerships with numerous agencies. The ministry identified one of the aspects of Vision 2030, concerning "the shortage in specialized human capital, poor user skills in the communication and information technology field" as one of the main challenges that must be addressed. The ministry will put in place five initiatives under its supervision. Three initiatives involve training, qualifying, and employing professionals and experts in the communication and information technology sector.

PTCL and CTG Sign MoU to Establish Fiber-optic Network

Pakistan Telecommunication Company Limited (PTCL) and China Telecom Global (CTG) have signed a Memorandum of Understanding (MoU) which will make it possible for establishment of an optical fiber network that will run through many underserved areas of Khyber Pakhtunkhwa, Azad Kashmir and Gilgit Baltistan. The MoU was signed by PTCL Chief Business Development Officer Sikandar Naqi, and China Telecom Global Executive Vice President Network Operations Donald Tan at a ceremony held recently at China Telecom Global Headquarters in Hong Kong. Speaking on the occasion, Sikandar said, "This is an important milestone in our digital connectivity links. Our ongoing collaboration represents a strategic development which will create a number of business opportunities of mutual interest including IP bandwidth, capacity on Submarine Cables and establishment of optical fiber cable (OFC) links." The MoU will enable PTCL to deploy a new OFC link connecting China via Gilgit to Rawalpindi and Peshawar from where it would be connected to the PTCL national OFC backbone. The collaboration will enable China to extend carrier connectivity to Pakistan as well as neighboring countries. At present, PTCL's optical fiber network extends till Chitral and Kohistan Districts of KPK. PTCL has aggressive plans to extend the cable network to Gilgit through two different routes. An optical fibre link exists between Besham and Dassu. The extended PTCL OFC link will connect Gilgit to Rawalpindi and Peshawar from where it would be connected to the PTCL national OFC backbone. This collaboration will allow Chinese carriers to establish connectivity to neighboring countries through PTCL's terrestrial OFC link and major European destinations through PTCL's established submarine cables infrastructure including SEA-ME-WE-3, SEA-ME-WE-4, IMEWE and AAE-1, which offer extremely low latency compared to the existing solutions.

Batelco Taps Ericsson to Deliver LTE-A, Expanded VoLTE

Bahrain Telecommunications Company (Batelco) has enlisted Swedish vendor Ericsson to deliver LTE-Advanced (LTE-A) and expanded voice-over-LTE (VoLTE) services to end-users. It is also anticipated that the network upgrade deal will provide the foundation for future developments in 5G, the Internet of Things (IoT) and Cloud computing. The agreement represents the biggest deal to date in the two companies' ongoing working relationship; the pair began collaborating over 35 years ago.

SAMENA Council Emphasizes Telco Perspectives in the Meeting of the ITU CWG-Internet

SAMENA Telecommunications Council presented telecom operators' perspectives in the 4th Open Consultation Meeting of the ITU Council Working Group on Developmental Aspects of the Internet (CWG-Internet), held at ITU headquarters in Geneva on February 3, 2017, and emphasized various challenges in provisioning and opportunities associated with access to the Internet. SAMENA Council, invited to the panel by ITU and Member States, focused its discussion on the current state of connectedness, addressing its infrastructure, human, and business aspects, along with factors such as human capability, relevance, and affordability. The Council, represented by its CEO, Bocar BA, observed close correlation between well-aligned stakeholder priorities and policy-setting and sustainable investment, to enable and accelerate digitization. BA also drew upon the evolution of the Internet into an IoT ecosystem as seen from the eyes of telecom operators, and described approaches for helping stakeholders flourish in the evolving data-led economy. While recognizing with concern that more than 50% of the global population still do not use the Internet for reasons including lack of access, skills, relevant content, affordability, and relevance to lifestyle, global platforms and initiatives such as World Economic Forum's Internet for All and ITU's Connect 2020 are helping to change the status quo. In the discussion, SAMENA Council attributed the extent of progress already made in provisioning internet access to Member States' prioritization of digital development in their national agendas and to telecom operators' investments in advanced communication infrastructure and technologies. Panelists in the Meeting, including SAMENA Council, discussed developments of the Internet in multiple contexts, and deliberated on ways to achieve the shared vision of an interconnected society, where benefits of the Internet are realized for all members of society. Increased collaboration and dialogue between the public and the private sectors were identified as key to achieving this goal. Bocar BA highlighted that rather than focusing on challenges, the focus should be on the opportunities that the shift to a completely new interconnected ecosystem is bringing for each stakeholder group. First and foremost, such an interconnected ecosystem should allow for inclusion and ensure that access to it is understood as a basic human right. Working together to enhance ICT skills, relevance, foster human capital, strengthen efforts to making ICT access and services more affordable, and adapting regulation to reflect new relationships, are critical to fulfilling the shared vision of an interconnected and fully-inclusive human society. BA also stated that "Internet is a reality; as real as anything else that humans experience in life. Telecom operators, with recognizably good support from regulatory authorities and policy-makers, have made internet access a crucial part of their sustainability strategy; a factor without which digital services and true customer experience cannot be created. At the same time, however, operators are also concerned that, despite billions of dollars invested in building advanced infrastructure, and given we are now discussing 5G, a large portion of the human society still remains unconnected. SAMENA Council, which represents the interest and the views of telecom operators, feels that we need to truly and promptly implement the notion of stakeholder inclusion in the mechanics of our industry-wide working interactions and cooperation. Where operators recognize the need to transform themselves toward achieving many of the outcomes we have discussed, there is also a need to undergo transformation on the regulatory and policy plains. Fortunately, SAMENA Council, as a sector development partner to both the private and the public sectors, feels that progress is in the making. We are thankful to regulatory bodies for their willingness to work closely together with the private sector." CWG-Internet was established as a separate group by Council Resolution 1336, in accordance with Resolutions 102 and 140 of the 2010 Plenipotentiary Conference. CWG-Internet is limited to Member States, with open consultation to all stakeholders. After the Plenipotentiary Conference, which was held in Busan in 2014, CWG-Internet started to hold physical open consultation meetings after each online consultation.

Etisalat to Invest USD817m in Network Upgrades in 2017

Etisalat is planning to invest more than AED3 billion (USD817 million) in 2017 to develop its infrastructure and expand mobile and fiber-optic networks across its domestic market, Etisalat Group's CEO Saleh Al Abdooli said in an interview with Gulf News, adding: 'These investments will improve coverage across the country as well as prepare the network towards the deployment and requirements of 5G technologies.' Further, the executive added that his company is aiming to launch a pilot 5G network during the second half of 2017, while commercial services over the network expected to be introduced in 2019. Mr. Abdooli also revealed that on the back of continuous investments amounting to AED28 billion in the 'last few years', Etisalat currently boasts 3G network covering 99% of the UAE's population, while 4G LTE services are available to 95% of Emiratis. Fiber-to-the-home (FTTH) penetration, meanwhile, has grown over the last year to reach 93.7%.

UAE Becomes Global Leader in Fiber Optic Network

UAE, with a coverage of 93.7 per cent, has topped the global list of countries with the highest Fiber to the Home (FTTH) penetration for 2016, according to top industry body FTTH Council. The emirates was shortlisted in the category of countries with a FTTH penetration of over 40 per cent. There were 11 countries in this category, stated the council. It is a major boost to UAE telco giant Etisalat which has invested Dh28 billion ($7.62 billion) for building the network infrastructure. The UAE with a coverage of 93.7 per cent emerged winners beating countries such as Qatar (87.9 per cent), Singapore (85.4 per cent), South Korea (79.8 per cent), Hong Kong (73.7 per cent) and Japan (53.9 per cent). Saleh Al Abdooli, the chief executive of Etisalat Group, said: "This achievement was only possible due to the long term vision of the UAE leadership of development and modernization. Etisalat has worked in line with its strategy to boost the network infrastructure." "This has led to the launch of innovative services meeting the growing demand and changing requirements of our customers across the country and making the capital the first city globally to be covered with a fiber optic network," he added. Al Abdooli said with network enhancement and expansion, Etisalat has also focused on investing in innovation and next generation technologies and services. "This is in line to provide the best customer experience to our subscriber base and position our UAE leadership on a global map in the ICT sector as well as other sectors," he noted. Etisalat eLife customers now experience a high speed network at 1GBps enjoying the best in entertainment due to exclusive partnerships with leading TV entertainment international providers. eLife TV also includes the country's widest portfolio of on-demand movies and TV series with 150 TV channels in High Definition, he added.

Zain Selects Ericsson to Transform Infrastructure; Cisco, STC Ink Managed Services Agreement

Zain Saudi Arabia has selected Swedish equipment vendor Ericsson to transform its technology infrastructure in the forthcoming five years. Under the deal (valued at around USD70 million), Ericsson will be responsible for IT managed services, application development and maintenance. The end-to-end digital transformation will bring vital improvements in customer experience, the duo said. In related news, Cisco Systems and Saudi Telecom Company (STC) have signed a three-year managed services agreement to transform STC's core network and operations. The long-term contract delivers the full functionality of a Service Provider-grade Network Operating Center (NOC) to support STC's drive to introduce new services, improve customer experiences and enhance network agility and performance.

Zain & Viva Partner on VoLTE Interconnection

Zain and VIVA, Kuwait's leading telecom operators, jointly announced the successful establishment of the first Voice Over LTE (VoLTE) interconnection in the Middle East and North Africa region in partnership with Huawei, a leading global ICT solutions provider. The announcement was made during the GSMA Mobile World Congress 2017 held in Barcelona, Spain in the presence of executive management representatives from Zain, VIVA, Huawei, and the GSMA. The GSMA led initiative, a first in the MENA region, will allow a seamless and direct VoLTE-to-VoLTE HD voice experience between Zain and VIVA customers. The connectivity was established in a record time of five months, surpassing previously established records. The contribution of Huawei's highly-flexible infrastructure and expertise was key to the success of the interconnection and the record time achieved. Nabeel Mohammed, Chief Technical Officer of Zain Kuwait, commented: "Zain's strategic vision is centered on innovation and technological advancement, being the leading telecom company in Kuwait. Every investment we make is based on the prospect of improving customer experience, now and into the future. This latest agreement, in partnership with VIVA and Huawei is a prime example of innovation and collaboration in the Kuwaiti telecom sector on a regional level. Eng. Zarrar Khan, Chief Technology Officer at Kuwait Telecommunications Company VIVA, commented: "We believe it is vital to foster close partnership with "Zain" and "Huawei" in the Kuwaiti telecom market, to continue providing unique services and products that satisfy the aspirations of our customers. At VIVA, we have pledged to enrich the lives of our customers through our innovative strategy and vision not only as a technology leader, but also as a truly customer-centric company. Lan Yun, Vice president of Huawei ME region, commented: "It is a valuable step forward to enrich the lives of Kuwait's people. We hope that Huawei can have more contributions to the Kuwaiti telecom industry in the coming future and build a better connected Kuwait.". "This is a positive step for the region and will provide subscribers of all networks with enhanced calling and messaging experiences," said Alex Sinclair, Chief Technology Officer, GSMA. "In particular, all parties are to be congratulated for completing a complicated process in an incredibly short time frame. We hope this example will encourage other markets and regions around the world to follow suit." Voice over Long-Term Evolution (VoLTE) is a standard for high-speed wireless communication for mobile phones and data terminals. Voice calls over LTE are recognized as the industry-agreed progression of voice services across mobile networks, deploying LTE radio access technology as it provides a more efficient use of spectrum than traditional voice and meets the rising demand for richer, more reliable and clear voice services. VoLTE brings users a number of significant improvements. The service enhances the overall user experience without interrupting their LTE Internet experience. Connection times will be significantly shorter, which will come to complement and improve customers' experience. Additionally, customers making connections on the LTE network while on a phone call will be able to do so in a smooth manner without any time lag on the existing phone call. The VoLTE advancement technology offers users the chance to perform a clear phone call while surfing the internet in full speed capacity.

Mobily Signs a New Technical Services Agreement with Etisalat

UAE-based telecoms group Etisalat and Saudi Arabian mobile operator Etihad Etisalat (Mobily) have inked a five-year technical services and support agreement. The new deal supports Mobily's business development and improves its operating efficiency, while also including common procurement initiatives leveraging the scale of Etisalat. Mobily added that the new agreement is mostly performance-based and will not have material impact on its financial results. As reported by TeleGeography's CommsUpdate in December 2016, Etisalat's management agreement with its Saudi Arabian affiliate expired that month and the two companies decided not to renew the arrangement, opting instead to develop a new technical services deal. TeleGeography notes that at the time of its launch in 2005, Mobily's largest single shareholder was Etisalat with a 35% stake. In April 2008 a further 20% tranche was floated on the stock market (as had been agreed under the terms of its original license), and the sale saw Etisalat's stake diluted to 26.25%. Etisalat, however, has since modestly increased its holding in the company by buying out Mobily's outstanding shares, and currently holds 27.5% of the Saudi operator.

Ooredoo Qatar launches 4.5G LTE-A Pro with Nokia

Ooredoo has used the platform of Mobile World Congress (MWC) in Barcelona to announce the commercial launch of 4.5G LTE-Advanced Pro (LTE-A Pro) on its Qatar network, claiming a first in the Middle East. The 4.5G commercial implementation in Qatar is based on Nokia's '5G-ready' AirScale radio platform, utilizing carrier aggregation with 4×4 MIMO antennae architecture and 256 QAM technology to deliver mobile data speed peaks of 'up to 800Mbps'.

One-third of Iran's Mobile Users on Data Plans

Iran's Ministry of Information & Communication Technology (MICT) says that the country was home to 27.1 million active 3G and 4G mobile data users by the end of the third quarter of 2016, which equated to around one-third of all mobile subscribers. According to a report cited by The Financial Tribune, state-backed cellco Mobile Communication Company of Iran (MCI) is the largest provider, with 13.1 million data users, though the bulk of these – 12.8 million – are on 3G networks and just 297,000 are using 4G LTE services. Second-placed MTN Irancell, meanwhile, had twelve million data customers by September 2016, including 10.4 million 3G and 1.6 million LTE. Third operator Rightel had 1.9 million active data users at the same date, with no split given for 3G and 4G. In terms of network coverage, MCI covered 547 cities with 3G by September 2016 and 33 with 4G, while Irancell served 568 with 3G and 228 cities with LTE. Rightel has data networks which reach 520 cities. The Iranian government has been encouraging operators to disconnect inactive mobile accounts, with an estimated 30 million unused SIM cards having been wiped off the books of the three main cellcos in recent years.

Etisalat Signs 5G Acceleration Pact with Qualcomm

UAE-based telecoms group Etisalat and Qualcomm Technologies have signed a strategic agreement to work together on advancing the development of next generation network technologies, with a particularly focus on accelerating 5G standardization to bring forward a potential commercial 5G launch to 2019, reports TradeArabia. As part of the agreement, the two companies will also look to work with regulators (on enhancing next generation spectrum resources) and handset manufacturers (to quicken the establishment of the 5G network/device ecosystem). In addition, they aim to conduct a 5G demonstration in the Middle East/North African region, with US-owned Qualcomm providing the 5G chipset. Hatem Bamatraf, CTO for Etisalat's international division, said upon signing the deal: 'In this fast-changing digital age collaboration is king and we need to look at holistic business solutions to realize the opportunities that digital provides … By working together, and engaging with the wider mobile ecosystem, Etisalat Group and Qualcomm Technologies aim to advance the preparatory development of 5G, enabling us to make the service commercially available quicker than expected, which will enhance our customers' experience.'

ARTICLE

Achieving Success in Long-term & Affordable Digital Development

Telecom operators are currently operating at a time when a lot of sensitivities exist on multiple fronts, and the act of balancing these issues has become much more pronounced and difficult to manage. This is very much evident in the context of taxation, industry fees, and other associated charges. Operators struggle to maintain the balance between their financial obligations to the governments and the degree to which they can pass these on to the end consumers, who are savvy enough to first compare prices nationally before they commit to purchasing a product or a service.

One of the reasons as to why the balancing act for telecom operators on taxation matters has become a challenge, is due to the arrival of non-traditional competition like OTTs players and what operators feel is a persisting telecoms-only regulatory mindset. This is especially true when seen through the lens of business sustainability.

Operators struggle to maintain the balance between their financial obligations to the governments and the degree to which they can pass these on to the end consumers

Around the world, each country has its own priorities and taxation regimes. The mobile industry has been seen as a cash cow and governments are increasing taxes and regulatory fees. Such actions do not only restrict investment flows, which are critically required for ICT development and digital infrastructure, but also overburden the end-consumer. At the same, such approaches pose a threat at the long-term the growth of the industry and delay in general the socio-economic development.

Addressing short-term revenue needs, such as those in relation to the national budget deficit, with sector-specific taxes or increased industry fees, which sometimes get placed on a purely ad-hoc basis, does burden the industry. We see this in some markets of our region. Usually, taxation and other forms of financial commitments imposed on operators affect the pace and maturity of telecoms standards. Also it has an impact on the technology launches and availability, hampering efforts to harmonize spectrum, and slow progress in achieving economies of scale, for example.

Eng. Zyad Al Khwaiter
GM, Regulatory Affairs (Regulatory and Corporate Affairs)
Saudi Telecom Company

With such far-reaching implications inherent to the high taxation and fees of the industry, it is necessary to change perspectives on the micro and the macro-level impacts over-taxation creates.

What we fully realize, is the role of digital economy in elevating the human civilization's condition. The Internet is a reality on which digital economy is being built. Internet is empowering people in many new ways. In recognition of the important societal and economic benefits that can be derived from the use of the Internet, there is a need to set visions, supported by ICT development action plans, to enable telecom operators to do more for the benefit of the entire ecosystem.

Increased mobility, for instance, with cross-border roaming of data services, aided through cross-market subsidiary network operations, have created challenges for value-added tax (VAT) system. Such system, which, globally, raises a fifth of total tax revenues and is employed by the majority of the UN Member States, needs to be revamped. One of the ways, this could be achieved it, is by expanding the tax net to new market players in a fair and transparent manner, befitting the industry.

Between 2011 and 2015, telecom operators globally, including STC, invested more than US$800 billion, a major share of which went to mobile broadband and LTE expansion. In part due to such high investments, subsequent pressures on cash-flow margins emerged across the world. By some estimates, the mobile ecosystem has been generating close to 4% of global GDP since 2015, and over 30 million people across the globe are directly or indirectly employed by this ecosystem or by industries linked to it. According to GSMA findings, telecom industry also contributed combined US$520 billion in general towards taxation and spectrum auctions during the same period.

As the world is heading towards 60% internet connectivity by 2020, we are reminded of the fact that there will be an exponential rise in new types of digital transactions and the complex, but rewarding, outcomes of digital development.

So while telecom operators remain as a reliable contributor to the government revenue stream, it would be a much more effective strategy if the Telecom Operators are enabled to enlarge their contributions to the tax base through indirect means instead of direct taxation which can only produce limited revenues.

Telecom operators, governments, regulators, and all-digital ecosystem players have a role and responsibility to play in order to improve the level of affordable connectivity and to join the government's mission of fighting the high levels of poverty which is a major cause of low internet connectivity despite so much investment by telecom operators. The industry general sentiment is that we can safeguard benefits of digital progress by reducing the cost of service offerings, which can be ensured through a well-designed regulation and reduced taxation system.

In some countries fair tax jurisdictions for non-resident telecom operators will help them to invest more on the age of digital economy and will open new opportunities to develop more innovations services for the benefits of the ecosystem.

As the world is heading towards 60% internet connectivity by 2020, we are reminded of the fact that there will be an exponential rise in new types of digital transactions and the complex, but rewarding, outcomes of digital development. However, the affordability of the services will play a critical role in achieving such positive outcomes.

The Saudi government recognizes the importance of ICT development and has recently indicated its unprecedented commitments on initiatives that will help Saudi Arabia achieve leadership in ICT.

In Saudi Arabia, fortunately, the Kingdom's leadership and the ICT leadership are endeavoring to address these challenges and issues much ahead of the time. The Saudi government recognizes the importance of ICT development and has recently indicated its unprecedented commitments on initiatives that will help Saudi Arabia achieve leadership in ICT. In support of the government's Vision 2030, STC too has now leaped into a new world of ultra-high speed broadband with its STC Leap Froward strategy. This initiative is well-aligned with STC's belief that the Communications sector will penetrate into every aspect of future society connecting everything with everything. STC believes that its future network will offer seamless connectivity between people and things in Gbps speeds.

As part of its contribution to fostering digital economy in KSA, STC is prepared to extend its full cooperation and looks forward to a very close relationship with both the ICT and regulatory leadership and anticipates to be at the forefront of enabling and fostering affordable digital communications across the Kingdom and across the markets where STC operates.

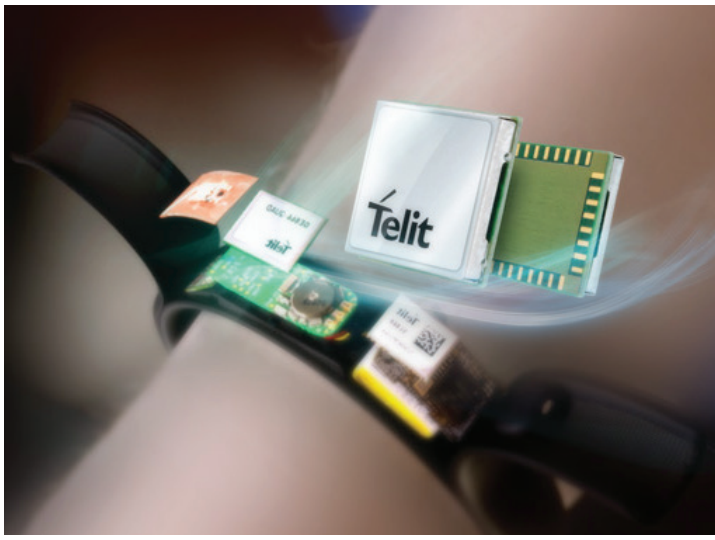
SATELLITE NEWS

Kratos to Provide Ground System Solutions for Yahsat Fleet

Kratos Defense & Security Solutions announced that Yahsat has selected Kratos to support its expanding satellite fleet with Command and Control (C2), signal monitoring and data analysis solutions. Kratos' Epoch Integrated Product Suite (IPS) will provide C2 for Yahsat's Al Yah 3 satellite, a High-Throughput Satellite (HTS) with a global reach over three continents scheduled for launch this year; as well as for Yahsat's existing Al Yah 1 and Al Yah 2 satellites, where it is replacing legacy systems. Additionally, Kratos' Monics carrier monitoring system will provide carrier monitoring and interference detection services to support Al Yah 3, set to serve multipurpose satellite solutions for broadband, broadcast, government and communications use across the Middle East, Africa, Europe, South America, Central and Southwest Asia.

Telit Introduces New GNSS Modules with Integrated Antenna

Telit announced the introduction of new positioning modules in the SE868xx-Ax family featuring multi-constellation Global Navigation Satellite System (GNSS) receivers with a 9 mm by 9 mm patch antenna. According to Telit, the SE868Kx-Ax series is ideal for space-constrained applications such as wearables, tracking, telematics, and security. The new integrated antenna modules include features that increase Radio Frequency (RF) sensitivity, allowing for simpler integration without external components. Telit designed the new module variants with the same, ultra-compact 11 mm by 11 mm cavity Printed Circuit Board (PCB) package as the other modules in the series, with the bonus of a second Low Noise Amplifier (LNA) and Surface Acoustic Wave (SAW) filter. With the different options available in the SE868Kx-Ax series, customers can design once and interchangeably mount the solution most appropriate for the environment. This enables developers to select the right technology for their use case without having to redesign the entire application when it comes time to transition. The SE868Kx-Ax smart antenna modules will be available in the second quarter of 2017.



AsiaSat Posts Revenue Decline in 2016 Annual Results

Asia Satellite Telecommunications Holdings (AsiaSat) announced its 2016 annual results for the year ended Dec. 31, 2016. Revenue for the year was HK$1.2 billion ($163.7 million), a decrease of 3 percent compared to 2015 due primarily to reduced short-term revenue from AsiaSat 3S. 2016 profit attributable to owners maintained at HK$430 million ($55.3 million) as a result of lower income tax charges following the reversal of a provision made in previous years. Combined new and renewed contracts during the year valued at HK$1.8 billion ($240.6 million), while the value of contracts on hand increased 16 percent to HK$4.06 billion ($523.5 million). "In the coming year, the Board of Directors is cautiously optimistic on the economic prospects for the region, which, despite relatively flat indicators for some markets continues to invest in new telecommunications and media infrastructure, as well as renewing and updating existing facilities. New Direct-to-Home (DTH) platforms focused on smaller emerging markets remain attractive, especially given the need for relevant local-language services," said Ju Wei Min, chairman of AsiaSat. "AsiaSat will continue to evaluate opportunities to develop its High Throughput Satellite (HTS) Ka-band capabilities."

Satellite Imaging Market to Grow 11 Percent Through 2021

Technavio market research analysts forecast the global commercial satellite imaging market to grow at a Compound Annual Growth Rate (CAGR) of more than 11 percent between 2017 and 2021, according to their latest report. The market study covers the present scenario and growth prospects of the global commercial satellite imaging market during the forecast period. Also, the report discusses the key trends influencing market growth and the challenges faced by the key vendors and markets. Technavio aerospace and defense analysts highlight the following three drivers contributing to the growth of the global commercial satellite imaging market:

Advances in satellite imaging technologies

Government organizations interpret satellite imagery for sectors such as defense, oil and natural gas, mining, meteorology, and agriculture. New image-enhancing equipment, including high-resolution cameras and advanced remote-sensing technology, have enhanced the quality of satellite-based Earth Observation (EO) images. The defense, science, and Research and Development (R&D) domains use these images extensively. The technology used to capture satellite images has been improving over the years, thereby raising the expectations of the end-users. For example, users have started demanding more clarity in the images captured by EO satellites so that they can use these images effectively for applications such as weather information collection and forecasting, farming, and forestry.

Use of satellite imaging in geological research

Apart from aiding in mineral exploration projects and the identification of roads, inhabited regions, and forests, satellite imaging has successfully unearthed several natural and manmade foundations. Such findings are useful for geological research. With an increase in the demand for reliable telemetry infrastructure, the demand for satellite-based telemetry has also increased. Satellite telemetry is used for various civil, commercial, government, and military applications; for example, researchers use it to track the movement of targets (such as animal and birds) on Earth. The satellite receives radio signals from transmitters attached to the target. Military and defense applications also widely use satellite telemetry.

Increasing demand for EO imaging systems

Advanced remote-sensing technology and image-enhancing equipment such as high-resolution cameras have led to an improvement in the quality of satellite-based EO images. "Such equipment provides all the users with a single internet access point to obtain EO data from both existing databases and the new up-to-date portals. This facilitates direct access to information for users from different domains," said Avimanyu Basu, a lead analyst at Technavio for space research. The users can be surveyors, farmers, miners, fishers, engineers, and other decision makers seeking EO data to meet their business objectives. Defense agencies, science institutions, R&D organizations, and private users also extensively share and use EO data. Thus, the satellite manufacturing and launch companies are expecting significant returns.

Virgin Orbit Announces Its Entry to the Small Satellite Market

Virgin Galactic has announced that its family of space companies now numbers three. Virgin Galactic will continue to provide commercial human spaceflight services and The Spaceship Company will continue to offer design, manufacturing and testing services to build vehicles for Virgin Galactic. But its small satellite LauncherOne team will become a new company: Virgin Orbit, led by President Dan Hart, who joins Orbit after 34 years at Boeing. Virgin Orbit is the newest addition to Virgin Group's commercial space portfolio, Galactic Ventures, led by Chief Executive Officer George T. Whitesides and owned by the Virgin Group and Aabar Investments PJS. According to the Washington Post, Virgin Orbit "already has several commercial and government customers signed up" and will operate out of a manufacturing site in Long Beach, California. It plans to air launch its rockets from Virgin Galactic's 747-400 aircraft, nicknamed "Cosmic Girl." The company stated it will share more details in the coming months, launch new websites and unveil Virgin Orbit's brand identity.

Comtech Announces $4 Million in Government Satellite Tracking Orders

Comtech announced that during its third quarter of fiscal 2017, Comtech's command and control technologies group, which is part of its government solutions segment, received approximately $4 million in orders from a Fortune 100 U.S. government contractor and an international government science and technology institute for several antenna tracking systems with radomes that will be used to support precision location tracking of satellites. "These orders support our view that we are a trusted provider to both domestic and overseas companies that have a need for complex precision tracking," said Fred Kornberg, president and chief executive officer of Comtech in a statement.

Intelsat Epic Increases Bandwidth 220 Percent on Marlink Sealink VSAT

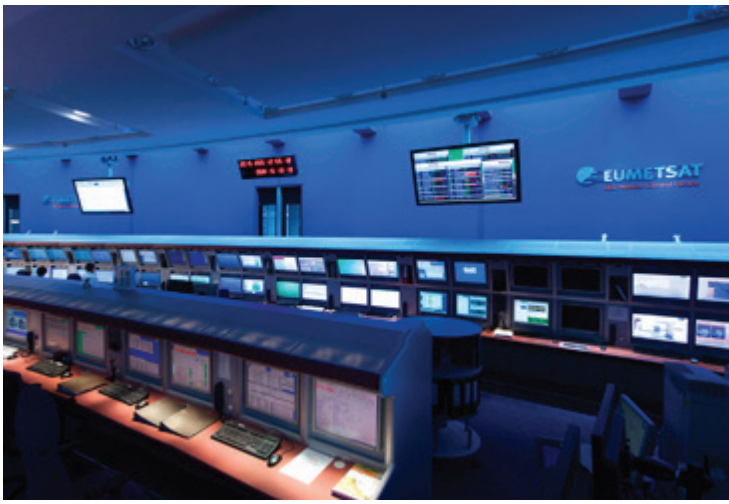
Intelsat and Marlink announced that their partnership to deliver High-Throughput Satellite (HTS) services to cruise and passenger vessels using Intelsat EpicNG has contributed to an increase in bandwidth delivered on Marlink's Sealink Very Small Aperture Terminal (VSAT) service of more than 220 percent during 2016. This growth in bandwidth enabling broadband connectivity for Marlink cruise and passenger segment customers is more than three times larger than what Marlink was delivering at the beginning of 2016. The global services capability that Marlink offers on its Sealink VSAT service portfolio has driven this growth, enabled using the Intelsat Globalized Network, including the Intelsat Epic platform and strategically located teleports around the world, the company said. According to Marlink, the ability to deliver a consistent, high-quality broadband experience on Sealink VSAT to vessels, regardless of location, is becoming increasingly important, as the cruise industry is attracting more passengers than ever and taking them to new destinations around the globe. Supporting this growth and changes in traffic patterns, especially a shift to users uploading photos and video content, could only have been supported with a global network of satellites that includes HTS, wide beams, teleports and support teams. Marlink is a long-standing Intelsat customer, with services on multiple Intelsat satellites and the IntelsatOne terrestrial network. The Intelsat-Marlink strategic agreement for services on the Intelsat Epic platform began in 2014. Marlink already provides services via Intelsat 29e and Intelsat 33e, which combined, cover the Americas, Caribbean, and the heavily traveled North Atlantic route, Europe, Africa and Asia. Marlink will add coverage via Intelsat 35e when it begins operations later in 2017, and will complete global coverage when Horizons 3e is launched in the second half of 2018. The Intelsat Epic service allows Marlink to push more throughput per unit of capacity, improving economics for its customers. The open-architecture design and backwards compatibility of Intelsat Epic enables Marlink to incorporate high-throughput services into its network, meaning maritime customers do not have to take vessels out of operation to perform expensive equipment upgrades. "The surge in demand for data connectivity across the maritime sector helped drive the creation of the partnership, and it continues to pay immediate, measurable dividends for Marlink and Sealink VSAT customers," said Tore Morten Olsen, president of maritime at Marlink.

NASA Recognizes MDA for Robotic Servicing of International Space Station

Space Systems Loral (SSL) announced that NASA's Johnson Space Center (JSC) recognized MDA US Systems, a division of MDA managed by SSL, for its support of a robotic upgrade to the International Space Station's (ISS) power system which took place in January. According to NASA, the MDA team based in Houston played a critical role in planning and validating the robotic maneuvering both before and during the mission. NASA JSC ground controllers used the 15-degrees-of-freedom Special Purpose Dextrous Manipulator (Dextre) arm to install six new 430-pound lithium-ion batteries in two power channel integrated electronics assembly pallets. Dextre first removed 12 older and depleted 740-pound nickel-hydrogen batteries from the pallets, nine of which were put on the Japanese H-2 transfer vehicle's external pallet to burn up on re-entry with it. By using the Dextre robotic arm, only two astronaut Extravehicular Activities (EVAs) were required to replace the batteries instead of six EVAs, which reduced the risk to the crew and freed up time for them to spend on space science work. During the mission, MDA's Houston staff supported several weeks of two-shift days. The company is also working on a variety of next generation government missions, including the Restore-L mission for NASA's Goddard Space Flight Center, which will demonstrate satellite servicing in Low Earth Orbit (LEO); NASA's Discovery Mission to explore the metal asteroid called Psyche; and the Dragonfly program for NASA and DARPA, which will demonstrate on-orbit satellite assembly. SSL also announced earlier this month that it was selected to partner with DARPA on the Robotic Servicing of Geosynchronous Satellites (RSGS) program.

Serco Wins Contract to Operate European Meteorological Satellites

The European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) has awarded Serco a new contract to continue managing operations for the Meteosat series of geostationary meteorological satellites. Serco's team of specialists will be responsible for around-the-clock monitoring and control of the four Meteosat meteorological satellites in orbit, operating the mission control center, ground stations and antennas, and managing the transmission of data between the satellites, mission control center and EUMETSAT's clients. Serco and its subcontractor Telespazio Vega Deutschland have managed operations for EUMETSAT's Meteosat missions since 1995. The new contract is for a period of six years, with the option of three one-year extensions. The contract will see Serco provide continuity of service for the present Meteosat Second Generation Program, which involves four satellites currently in orbit, while at the same time building up a new team of analysts and controllers for the Meteosat Third Generation Program, which is set to involve six new satellites. The Meteosat meteorological satellites monitor Earth's atmosphere, ocean and land surfaces 24 hours a day, 365 days a year, supplying data to the national meteorological services of the organization's member and cooperating states in Europe, as well as other users worldwide. According to EUMETSAT, the services the satellites provide play a crucial role in protecting public safety by helping meteorologists identify and monitor potentially dangerous weather situations and issue timely forecasts and warnings to emergency services and local authorities.



Velconet Selects Eutelsat 115 West B for Southern Cone Broadband

Velconet has signed a multi-year agreement with Eutelsat to provide broadband services across Argentina, Peru, Paraguay and Chile via the Eutelsat 115 West B satellite. Velconet will use Eutelsat 115 West B's Ku-band coverage across the Southern Cone to provide broadband connectivity in areas located beyond the reach of terrestrial networks. The service will target corporate customers mainly in the agricultural industry, which represents one of the largest economic sectors in Argentina with more than 250,000 farms, in addition to tourism, construction, banking, and small businesses.

Eutelsat, STMicroelectronics Announce SoC for Interactive Satellite Terminals

Eutelsat Communications and STMicroelectronics have developed a new-generation chip that will power Eutelsat's SmartLNB interactive terminal. ST's low-power System-on-Chip (SoC) STiD337 represents a step down in the overall cost of interactive satellite terminals. Eutelsat's SmartLNB is the first to adopt the STiD337, lowering cost, upgrading service and reducing power consumption. The SmartLNB is an electronic feed that replaces the traditional Ku-band reception of Direct-to-Home (DTH) satellite signals, embedding one or more satellite tuners/demodulators directly inside the Low-Noise Block (LNB) and adding a narrowband return link optimized for transmissions of Internet Protocol (IP) packets. The SmartLNB enables a wide range of connected TV applications, providing a transparent bidirectional IP link compatible with existing services. Not limited to the TV and broadcast market, applications also cover the exploding sector of connected objects with a cost-effective solution via satellite. ST has employed its low-power 28nm Fully Depleted Silicon on Insulator (FD-SOI) process technology that enables deep sleep and auto wake up for the system. It has a maximum 3.5W power dissipation at full speed and less than 50mW during sleep. The STiD337 adds the latest DVB-S2X satellite standard for the forward link, as well as Generic Stream Encapsulation (GSE) for efficient data handling; it can achieve throughput of over 100Mb/sec. The return path implements a software-radio approach that is optimized for the enhanced spread-spectrum technique with asynchronous access typically used for the SmartLNB. The device also includes the full complement of hardware mechanisms to support real-time multiple-access techniques. The return modulation is calculated on the internal processors. The platform includes a dual ARM Cortex-A9 core with NeonTM co-processors and four ST231 DSP offload coprocessors to enhance its computing power and ensure complete flexibility in the choice of return-channel modulation type. The new SoC will be available in secure and standard versions. The secure version includes pre-loaded encryption keys, serial numbers, safe-boot, and many other features to increase the level of protection of data-delivering and gathering operations by the SmartLNB.

ULA Commemorates US Air Force 70th Anniversary with WGS-9 Launch

A United Launch Alliance (ULA) Delta 4 rocket carrying the ninth Wideband Global Satcom (WGS-9) satellite for the United States Air Force (USAF) lifted off from Space Launch Complex-37 on March 18. "This launch commemorates the 70th anniversary of the USAF," said Laura Maginnis, ULA vice president of government satellite launch. "We are absolutely honored to play a role in this important milestone, while safely delivering WGS-9 to orbit." Orbital ATK provided propulsion, composite and spacecraft technologies for the launch. For WGS-9, Orbital ATK produced both loop heat pipes and standard heat pipes, which provide payload, spacecraft bus and battery thermal management, at its Beltsville, Maryland, facility. Additionally, Orbital ATK manufactured the payload pallet boom tubes at its Magna, Utah, location and the payload module at its San Diego, California, site. For the Delta 4 rocket, Orbital ATK provided four 60-inch diameter Graphite Epoxy Motors (GEM-60). The 53-foot-long solid rocket boosters burned for 90 seconds and provided more than 1.1 million pounds of thrust. Orbital ATK produced the solid rocket motors at its Magna, Utah, facility, where it has manufactured 84 GEM-60s in support of the 36 Delta 4 launches since the initial flight in 2002. In addition to the GEM-60 propulsion, Orbital ATK supplied a combined eighteen Delta 4 and GEM-60 key composite structures, which provide lower weight and higher performance. The largest composite structures are five meters in diameter, range from one to 14 meters in length, and are produced using either advanced wet winding or hand layup, machining and inspection techniques at Orbital ATK's manufacturing facilities in Iuka, Mississippi, and Clearfield, Utah. Orbital ATK also manufactured the propellant tank for the Delta 4 upper stage roll control system at the company's Commerce, California, facility, and designed and manufactured the nozzles for Delta 4's RS-68A liquid engine and GEM-60 solid motors at its Promontory, Utah, facility. Orbital ATK also designed and produced the nozzle's thermal protection material. The WGS-9 satellite is part of a larger system that increases military communications capabilities for U.S. and allied forces deployed worldwide. WGS-9 supports communications links in the X-band and Ka-band spectra and will be able to filter and downlink up to 8.088 GHz of bandwidth.

NASA Turns to Small Business Projects to Advance Space Innovation

NASA has selected 133 proposals from U.S. companies to conduct research and develop technologies that will enable NASA's future missions into deep space and benefit the U.S. economy. The proposals, valued at approximately $100 million total for contract negotiations, were selected under Phase 2 of NASA's Small Business Innovation Research (SBIR) program. SBIR Phase 2 projects will expand on the results of recently completed Phase 1 projects. Phase 1 projects received six-month contracts of as much as $125,000. NASA awards Phase 2 contracts up to $750,000 with a period of performance of no more than two years. Successful Phase 2 projects may go on to Phase 3 of the program: commercialization of the innovation. NASA selected the proposals according to their technical merit and feasibility, in addition to the experience, qualifications and facilities of the companies, and their work plans and commercial potential. The fundamental requirement, however, is that the proposals answer needs that are core to the agency's future exploration goals, such as: Multifunctional, lightweight metallic materials that can be used to create the advanced structures needed for future deep space missions and next-generation aeronautics capabilities;

- Compact, high-powered 3-D Light Detection And Ranging (LIDAR) system for unmanned aircraft that significantly reduces the size and weight of object-detection sensors, with applications ranging from autonomous aircraft to space missions;
- A technology that integrates a plastic recycling system, a dry-heat sterilization system and a 3-D printer to create materials that can be used to print food- and medical-grade devices, lowering mission costs and trash generated on long-duration manned missions;
- A technology that will allow constellations of individual satellites to fly in precise formation and perform coordinated science, enabling new capabilities such as autonomous rendezvous and docking, and precision formation flying both for human and robotic exploration missions.

NASA's Ames Research Center in California's Silicon Valley manages the SBIR program for the Space Technology Mission Directorate (STMD). STMD is responsible for developing the new technologies and capabilities the agency needs to achieve its current and future missions.

Hughes Launches Satellite Network, Updated Jupiter LTE Technology

Hughes Network Systems announced the launch of the what the company states is the world's largest and fastest satellite broadband network, as well as updated Long-Term Evolution (LTE) technology for its Jupiter System. The new network will support a variety of consumer, business, enterprise, in-flight and cellular backhaul applications across two continents. The network uses the latest Jupiter system technology operating on the recently launched Hughes EchoStar-19 satellite. It will also operate over EchoStar-17 and the Hughes hosted payload on the Eutelsat 65W satellite. Next year's launch of Hughes' hosted payload on the Telstar 19V satellite will further enhance the network and provide additional coverage in South America. Supported by 49 gateways and hundreds of spot beams, the network will deliver more than 400 Gbps of capacity for use by consumer and business customers across North and South America. Hughes also introduced its next evolution of Jupiter system technology, which includes advanced LTE acceleration to support cellular backhaul requirements for mobile network operators and Very Small Aperture Terminal (VSAT) service providers as they expand their cellular services into areas without suitable terrestrial backhaul. The Hughes HT2500 terminal has native support for accelerating LTE protocols. With support for more than 7,500 simultaneous Transmission Control Protocol (TCP) sessions, the terminal is able to deliver accelerated performance for many devices connected simultaneously to the LTE eNodeB. Speeds of 200 Mbps enable the HT2500 to deliver the LTE performance required by mobile operators around the world. Recognizing that satellite networks supporting cellular backhaul will often start out small and scale over time, Hughes is also introducing the HG220 gateway configuration to cost-effectively address such small networks. The HG220 supports up to five networks over up to 5 satellites and with extensive QoS, IP features and bandwidth management options, the HG220 gateway and the HT2500 terminal provide an effective solution for satellite cellular backhaul links. The HT2500 and the HG220 use the Jupiter system's wideband DVB-S2X forward channel, with support for 5 percent channel roll off as well as 64APSK modulation.

Mohammed bin Rashid Space Center and KARI Sign MoU

The Mohammed bin Rashid Space Center (MBRSC) has signed a Memorandum of Understanding (MoU) with the Korea Aerospace Research Institute (KARI) in South Korea with the goal of cooperating on various space-related activities and transferring expertise. Yousuf Hamad Al Shaibani, director general of MBRSC, and Gwang-Rae Cho, president of KARI both signed the MoU. Commenting on the signing, Al Shaibani stressed the importance of the close relationship between MBRSC and KARI. He also referred to the knowledge transfer program with MBRSC's strategic partner Satrec Initiative, which started back in 2006 with the launch of the first UAE satellite project DubaiSat-1. "This MoU provides a concrete basis for the ongoing cooperation and partnership between the UAE and South Korea with respect to transferring the know-how of space technology, within coherent frameworks that will boost the UAE's position in this regard, especially knowing that South Korea currently has a high profile with its notable achievements in the world space society," Al Shaibani added.

Eutelsat to Launch Satellite on Jeff Bezos' Space Rocket

Eutelsat has become the first major customer of Blue Origin, the space flight company owned by Amazon's founder Jeff Bezos. The contract covers the launch of a geostationary satellite in the 2021-2022 timeframe on Blue Origin's New Glenn orbital rocket, which is scheduled to debut in 2020. Its reusable launch system will be compatible with virtually all Eutelsat satellites, said the company, providing flexibility in its planning process.

Canadian Government Awards Maerospace Multi-Year AIS Contract

Orbcomm announced that its Canadian partner Maerospace has won a multi-year contract with the government of Canada. Through its Canadian subsidiary SkyWave, Orbcomm will provide satellite Automatic Identification System (AIS) data used for ship tracking and other maritime navigational and safety efforts in conjunction with Maerospace's TimeCaster technology to the Government of Canada for monitoring Canadian and global maritime traffic. The contract award was the result of a competitive procurement process among providers and integrators of space-based AIS data service and is funded for one year with one-year options, which could potentially extend the contract for a total of three years. The initial task order for this new contract received by Maerospace is more than three and a half times the value of the previous contract.

GATR Technologies Introduces Ultra-Portable Sub-meter Satellite Terminal for HTS

Cubic Corporation announced that its subsidiary GATR Technologies, which operates within the Cubic Mission Solutions (CMS) business division, will introduce the GATR-FLEX, an ultra-portable, foldable 0.75-meter satellite communications antenna, and the GATR 950 modem, which is based on iDirect Velocity technology. The GATR-FLEX and GATR 950 together make a highly efficient data transfer terminal designed to maximize portability of sub-meter satellite communications leveraging High Throughput Satellites (HTS). The GATR-FLEX terminal provides high transmit power while achieving low size, weight and power (SWaP) pack-out, according to the company. "The GATR-FLEX and GATR 950 enables users to transfer large amounts of data, such as multiple high-definition video streams, at the same time as Command and Control (C2) traffic, data exfiltration and voice," said Roark McDonald, vice president and general manager of Cubic GATR Technologies. "The high-throughput capability makes interoperability with Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) applications possible with an ultra-light, sub-meter satcom terminal."

Intersil Introduces 32-Channel Driver for Satellite Applications

Intersil Corporation has introduced a radiation hardened 32-channel driver with integrated decoder that reduces the Size, Weight and Power (SWaP) of satellite command and telemetry systems. According to the company, the ISL72813SEH is the industry's first high current driver to integrate the decoder, level shifter and driver array in a single monolithic (IC), allowing satellite manufacturers to significantly increase system capacity and reduce solution size by up to 50 percent. The device's integrated level shifter eliminates several peripheral components. The ISL72813SEH driver leverages Intersil's proprietary silicon on insulator process, which provides Single-Event Latch-Up (SEL) robustness in heavy ion environments. The driver's integrated decoder interfaces directly to the general purpose Input/Outputs (I/Os) of Field-Programmable Gate Arrays (FPGAs) and Central Processing Units (CPUs) in the satellite's flight computer, dramatically reducing pin count compared to competitive 1-input to 1-output driver arrays. Each of the device's 32 channels of common-emitter open-collector driver outputs can generate pulses of up to 42V and 600mA. The ISL72813SEH addresses latching relay and solenoid commanding for most satellite control functions, including redundancy management, mechanism drive enables, propulsion component relays and enables, battery management, and payload switch control. The ISL72813SEH's low Vce saturation levels eliminate a major customer concern by reducing the overhead voltage required to drive the load. The driver's power efficiency and high integration reduces the amount of circuitry required on the bus, allowing customers to add more spacecraft functionality and processing power, according to Intersil.

Eutelsat, Viasat Create European Broadband JV

Eutelsat Communications and ViaSat created an European broadband joint venture combining Eutelsat's European broadband business with ViaSat's broadband technology know-how and ISP business expertise. The partnership will expand Eutelsat's existing wholesale broadband business and launch a new consumer retail service in Europe. Headquartered in Lausanne, Switzerland, the joint venture will consist of two businesses coordinating efforts to expand the European broadband market, namely Wholesale Services and Retail Services.

Satellite Radio to be Launched in Morocco

Satellite radio NRJ will be soon launched in Casablanca on March 25 via the internet and a mobile application. Morocco will be the first African country and the second Arab location to adopt this digital radio outlet. NRJ radio stations are operational in Russia, Canada and many other European countries including Norway, Sweden, France, Finland and Belgium. "NRJ will offer its listeners an unprecedented musical program, bringing together all their favorite hits entertainment programs," said the NRj group during a press conference. According to the same source NRJ radio aims to provide Moroccan listeners with a fresh and diversified and unique musical and entertainment programs." CEO of NRJ group, Richard Mazeret stated that "NRJ radio is considered one of the most powerful media and entrainment provider internationally." He went on to say that NRJ Morocco project is the result of a successful association with Radio Planète, which is in turn a part of the DNA of the NRJ group. "The strategic partnership with radio Planète is part of the ambitious plan to develop NRJ group on the African continent," Mazeret added. In response to this, founder of radio Planète, Hakim Chargaoui expressed his gratitude for this partnership saying that, "radio Planète is proud of the trust placed in them." Chargaoui then added that "NRJ is a global media group of youth par excellence whose uses of media consumption has profoundly changed."

He also noted thatall of the studies they have carried out show that Morocco is a market with great potential for the development of the NRJ group in different segments, namely radio, events and entertainment." The launch celebration will take place March 25 in Casablanca. International and Moroccan celebrities will take participate in the event.

GomSpace to Provide Satellite Constellation for UK's Sky and Space Global

Denmark-based GomSpace has entered a procurement deal to develop and deliver a constellation of satellites for the UK's Sky and Space Global (SAS) within four years. The contract is valued between €35m and €55m depending upon various options, including development, services and choice of satellites. Delivery of the first set of units is expected by next year. GomSpace CEO Niels Buus said: "With this project, we believe that Sky and Space Global, seconded by GomSpace, is on the verge of a breakthrough for nanosatellites in the professional low-earth orbit satellite business." SAS is currently preparing to launch its first 3 Diamonds nanosatellite constellation from the Satish Dhawan Space Centre in Sriharikota, India. The satellites are planned to be sent aboard a Polar Satellite Launch Vehicle (PSLV), and are due to be launched by the second quarter of the year. Sky and Space Global CEO Meir Moalem said: "We are getting very close to the launch of our first 3 Diamonds mission, to which GomSpace is already a key supplier, and our goal is to build a communication network based on a constellation of nanosatellites. "This contract with GomSpace is another step towards a commercial, revenue generating service. We are very happy to continue working with GomSpace, which has proven its value and capabilities. Construction of the 3 Diamonds satellites' hardware and operating systems was completed in January.

Intelsat, OneWeb Confirm Merger Agreement

Satellite operators Intelsat and OneWeb have confirmed plans to merge, with financial support from OneWeb's investor Softbank. The share-for-share transaction includes a pledge from Softbank to invest USD 1.7 billion in shares to be issued by the new company. The deal is contingent on a debt exchange offer from Intelsat, which along with the Softbank investments, is expected to reduce the company's debt by around USD 3.6 billion.

Leading DTH broadcasting in the MENA region

eutelsat

7/8° West
The N° 1 DTH neighbourhood in MENA

With 250 million TV viewers from Morocco to the Gulf, Eutelsat-Nilesat 7/8° West is the Number 1 DTH neighbourhood in MENA.

Powerful broadcasting resources deliver over 1300 TV channels, 175 in HD, to homes across the region equipped with a single small dish.

Leading HD growth in MENA, with a 50% increase in HD channels in the last 12 months, over 20 million homes at 7/8° West are HD-equipped.

Find out more at www.eutelsat.com

ARTICLE

Satellites Spur TV Growth in MENA

Eutelsat's key satellite neighbourhoods are leading the expansion of SD, HD and Ultra HD TV services across the Middle East and North Africa.

The Middle East and North Africa TV market continues to be one of the most exciting and dynamic in the world. Overall growth of all television viewers is higher than ever before, with exciting opportunities particularly in High Definition and Ultra HD.

Eutelsat, one of the world's leading operators of communications satellites, operates the most popular satellite neighbourhoods in the region and continues to develop innovative services that enable TV platform operators and broadcasters to maximise the potential of their markets.

The 7/8° West position, commercialised by both Eutelsat and Nilesat, is the leading broadcast neighbourhood for MENA and already reaches 90% of TV homes in the region.

Satellite in the MENA region remains the backbone of digital TV infrastructure, reaching into 56.1 million homes.

The second most important TV neighbourhood in MENA is 13° East. Home to the HOTBIRD family of satellites, it reaches 38 million homes across the region and is a unique bridge between MENA and Europe.

The new 7° East orbital position has also seen important growth for customers in South-East Europe, Turkey and the Middle East with over 8 million homes. It is a growing hotspot for Farsi-speaking audiences with over 30 channels joining the neighbourhood in the last 12 months.

Vibrant market

TV channels reach into more than 52.3 million homes in 14 Arab countries

The Middle East and North Africa region continues to show powerful growth, according to the latest consumer survey from the Eutelsat TV Observatory. The total number of homes in 2016 stands at 64.7 million with TV ownership at 94%, and as high as 98% in some countries. A staggering 91% of TV homes are served by satellite.

Markus Fritz
Executive Vice President of Commercial Development & Strategic Partnerships
Eutelsat

"Our 2016 survey takes the pulse of the vibrant Arab TV market and shows key trends that include the acceleration of High Definition broadcasting and the diversity of free-to-air channels in the region," said Markus Fritz, Eutelsat EVP Commercial Development and Strategic Partnerships.

"The survey confirms the pole position of the 7/8º West neighbourhood that today enables TV channels to reach into more than 52.3 million homes in 14 Arab countries. The new wave of growth is also reflected in the 40% increase in High Definition channels in 2016, further confirming 7/8° West as the video neighbourhood of reference in the Middle East and North Africa."

No.1 in the region

Satellite in the MENA region remains the backbone of digital TV infrastructure, reaching into 56.1 million homes. Over the last three years, 75% of the 3.4 million new homes that have selected satellite as primary means for TV reception have chosen the 7/8° West neighbourhood, further anchoring its leading position, up 2.6 million since 2014. The pull of 7/8° West is driven by a strong channel line-up of 1,264 Arabic and international channels, of which almost 150 are in High Definition, as well as the vast choice and unique offer of free-to-air content (44% of channels are exclusive to this position).

HD and beyond

2016 marked a tipping point for HDTV

HD is gaining traction, with the number of HD-equipped homes crossing a threshold of 20 million, up from 14.4 million and now accounting for 34% of TV homes in the region. This percentage is even higher within the 7/8º West audience (46%).

HD channels are continuously being added to the offering, with free-to-air channels in HD now outnumbering pay-TV channels. The most recent addition includes five channels launched by Kuwait TV and Echourouk News HD, the 24/7 Algerian news channel.

Ali Fodil, Managing Director and founder of the Echourouk Group, said: "With the launch last December of our all-news channel in HD via the EUTELSAT 7 West A satellite, we are fully embracing key technology trends and giving viewers the benefit of the superior image quality."

Across all Eutelsat satellites, there are now more than 1,000 HD channels. "2016 marked a tipping point for High Definition TV across our video neighbourhoods, reaching a new landmark of 1,000 channels, many of which are exclusive to Eutelsat," said Eutelsat's Fritz. "We are fully equipped to accommodate this accelerating pace and work closely with broadcasters as they transition to an enhanced viewing experience."

Fast-growing Ultra HD

"We are proud to reinforce our partnership with Eutelsat"
Prashant Chothani, Travelxp 4K

Exclusive Ultra HD content continues to expand on Eutelsat satellites, helping spur growth for the next generation of high-end delivery. GfK data reveals that 1.2 million Ultra HD sets were sold by the end of 2015 in the region.

FunBox UHD joined the HOTBIRD neighbourhood in 2016, offering amazing Ultra HD content to cable networks, IP network operators and DTH communities across the satellite footprint, from Germany to Dubai, Qatar to Turkey. HOTBIRD already has an addressable Ultra HD connected market of 5 million homes, and a potential cable subscriber base of 550 million homes.

Two more Ultra HD channels have also launched on HOTBIRD. Fashion TV's new Ultra HD channel, FTV UHD and Travelxp 4K, the world's first 4K travel channel, have chosen HOTBIRD's market-leading penetration into cable and IPTV networks across Europe and MENA.

Building on the one-of-a-kind Fashion TV brand, FTV UHD is setting a new standard in fashion and lifestyle broadcasting through original programming on style and trends offered with exceptional image quality.

FTV UHD's CEO, Michel Adam Lisowski, commented: "We are excited to pursue our commitment to the highest quality of broadcasting standards through an Ultra HD channel offering Eutelsat's HOTBIRD homes exceptional images of the latest fashion events from around the world."

Available in seven languages, Travelxp 4K, features world class travel programmes filmed all over the world. The 4K channel follows the success of Travelxp HD, which offers 100% originally-produced premium travel and lifestyle programming distributed to over 50 million homes globally.

Travelxp 4K CEO, Prashant Chothani, commented: "Travelxp 4K is all about bringing the world to homes in stunning resolution. It's not just about more pixels in 4K but better pixels. We are proud to reinforce our partnership with Eutelsat and to benefit from their vast knowledge of the Ultra HD broadcasting chain. Joining the HOTBIRD neighbourhood and gaining access to a unique and ethnically diverse population pool is a natural step for us that will fast-track penetration of Travelxp 4K into homes across Europe, North Africa and the Middle East."

Eutelsat added: "The launch of FTV UHD and Travelxp 4K is new evidence of the move by content producers to Ultra HD. Their trust in Eutelsat reflects our commitment to delivering service that guarantees viewers an enriched and unrivalled Ultra HD experience. We are proud to support these new channels and look forward to accelerating their distribution across the vast footprint provided by our HOTBIRD video neighbourhood."

Overall, the exciting Middle East and North Africa market is a crucial focus for Eutelsat as broadcasters look to attract new audiences, launch new services and connect with people in their homes and on the move.

Deliver the best experience and maximum choice

"Eutelsat shares our vision"
Robert Le Merle, Manoto TV

Manoto TV, the popular Persian-language channel, has recently completed its switch in SD and HD versions to the EUTELSAT

7B satellite. The channel is now available exclusively from Eutelsat's HOTBIRD satellites and EUTELSAT 7B, which together form a single neighbourhood for Persian-speaking viewers in Europe, the Middle East and Iran.

More than two million HOTBIRD homes in Iran are already equipped for dual-feed reception from HOTBIRD and the adjacent EUTELSAT 7B satellite to benefit from the superior image quality of Manoto TV in HD and a diverse line-up of free-to-air content.

Robert Le Merle, Manoto's Operations Director said: "Manoto TV has become the most popular Persian-language channel by staying ahead of the competition. Viewer expectations are rising all the time. The audience won't settle for cheap pop-up channels anymore. We want to deliver the best experience for our viewers with larger scale production and high resolution pictures. We are working with Eutelsat to deliver premium quality entertainment into this growing market. Many satellite providers in this territory can only grab short-term opportunities. We need to work with a company that has a vision for the future. Eutelsat shares our vision."

Dual-feed maximises choice

A low-cost, dual-feed solution makes it simple for audiences to access services on both Eutelsat's 7º East satellites and 13º East, home to EMEA's prime HOTBIRD broadcast neighbourhood.

The easy-to-install monoblock LNB enables an 80cm satellite dish pointed at 13° East to access both neighbourhoods seamlessly. It means broadcasters can cost-effectively reach millions of TV homes across Europe, North Africa and the Middle East served by HOTBIRD, while 7° East satellites provide a key orbital position for audiences in South-East Europe, Turkey, the Middle East and North Africa.

Homes can receive over 1200 TV channels from the 13° East and 7° East orbital locations, creating even more value for audiences.

Multiscreen delivery with SmartBEAM

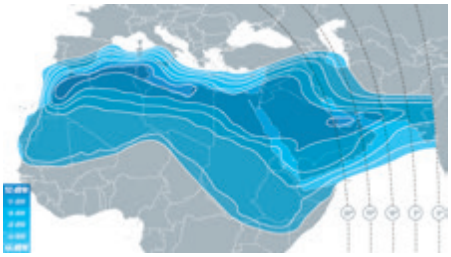
Eutelsat's SmartBEAM service provides a satellite-based solution for multiscreen video delivery to connected devices and WiFi Hotspots.

SmartBEAM is a game-changer for extending access to video content on mobile devices beyond terrestrial networks and has a competitive edge for mass market delivery of OTT services via satellite.

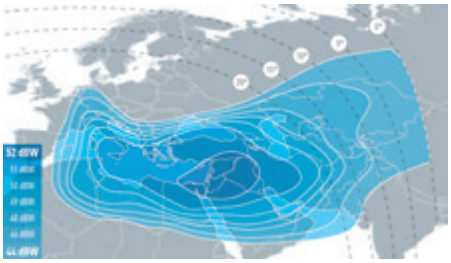
The service enables broadcasters and pay-TV operators to leverage the ubiquitous coverage of satellites to broadcast video content in IP format, creating a network that is completely dedicated to IP-native terminals, including tablets and smartphones. SmartBEAM works with any WiFi-enabled device, supporting instant channel change, DRM security and low latency.

Tricolor TV, the operator of one of the world's fastest-growing TV platforms, is already preparing to launch SmartBEAM to complement its linear Pay-TV service in Russia, going beyond the four walls of user homes to reach viewers on their mobile devices in public.

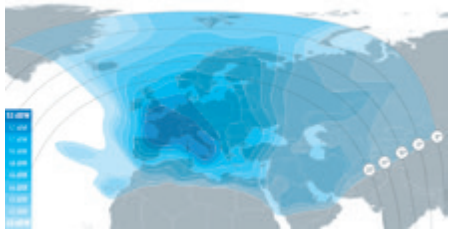
Key satellites for MENA



7/8º West
EUTELSAT 7 WEST A & 8 WEST B
The Number 1 broadcast neighbourhood in MENA with 250 million TV viewers.



7º East
EUTELSAT 7A & 7B
New video hotspot for South-East Europe, Turkey, the Middle East.



13º East
HOTBIRD 13B, 13C, 13E
A unique bridge for Arab communities living in Europe and Europeans living in MENA.

ARTICLE

The Data-driven Digital Economy needs a new ICT Legal Environment

To enable the growing data-driven digital economy, governments in the SAMENA (South Asia/Middle East/North Africa) region need to review their legal environments. This will allow them to build on the progress achieved over the last 15 years and position their countries to take advantage of the impact of new data-driven technologies. New legal frameworks will have five features: promote information and communications technology (ICT) development, ensure accountability and consistency, have a modern definition of the ICT sector, encourage private sector participation and investment, and improve sector governance.

SAMENA countries have made considerable advances in their ICT sectors. These countries began with market liberalization to attract local and foreign investment into ICT. They then drove the development of new ICT markets in infrastructure and services. Most recently they have started the process of digitization in government and industry verticals. The result has been thousands of new jobs in the ICT sector, and elsewhere thanks to economic growth created by digitization. There have been significant gains to private and public sector firms, while society has benefited from improved services and communications.

The next phase in the development of the ICT sector is data-driven, which new legal frameworks must enable. The demand for data services is coming from such technologies as the Internet of Things (the connection of devices and sensors to the Internet), Blockchain (an encrypted ledger technology), drones (unmanned vehicles which are now being used for such tasks as deliveries and inspections), and 3D printing (creating physical objects using digital technology). New business models such as the sharing economy and pooling (such as ride sharing) and crowdsourcing (such as for finance) are also accelerating the demand for data services.

The legal frameworks will have to regulate the use of drones, define and protect intellectual property rights for 3D printing, and safeguard the rights of consumers whose information and money is affected by Blockchain transactions.

These new technologies are disrupting multiple sectors at once and blurring boundaries. The first characteristic of new legal frameworks is to accommodate and promote the continued evolution of ICT. Legal changes will have to deal with such issues as the privacy rights of consumers who are giving up large amounts of personal information. The legal frameworks will have to regulate the use of drones, define and protect intellectual property rights for 3D printing, and safeguard the rights of consumers whose information and money is affected by Blockchain transactions.

Bahjat El-Darwiche
Partner
Strategy& (formerly Booz & Company), part of the PwC network

Bassam Hajhamad
Partner
PwC Middle East

In the past, governments could manage with one ICT law. Today, what is needed is a series of complementary legal frameworks that can cover key concerns (such as consumer protection, cyber security, intellectual property, and privacy), or are industry specific, or can cut across topics and industry verticals. A national ICT law will be an important component in these frameworks but not their sole element.

The second characteristic of the legal frameworks is coordination among laws so that there is accountability and consistency. The new legal frameworks must be integrated as well as comprehensive. For example, a law on electronic transactions would ensure agreed standards among government entities on electronic signatures and transactions, which would help to define regulations for national digital transactions. Similarly, a law on competition would do more than just protect against anti-competitive behavior and mergers, and define penalties for such conduct. In the data-driven era, competition law inevitably overlaps with laws covering ICT and digital sectors. This means that legislators need to identify linkages among these legal frameworks and ensure that there are no loopholes. In particular, personal data protection laws are an important component.

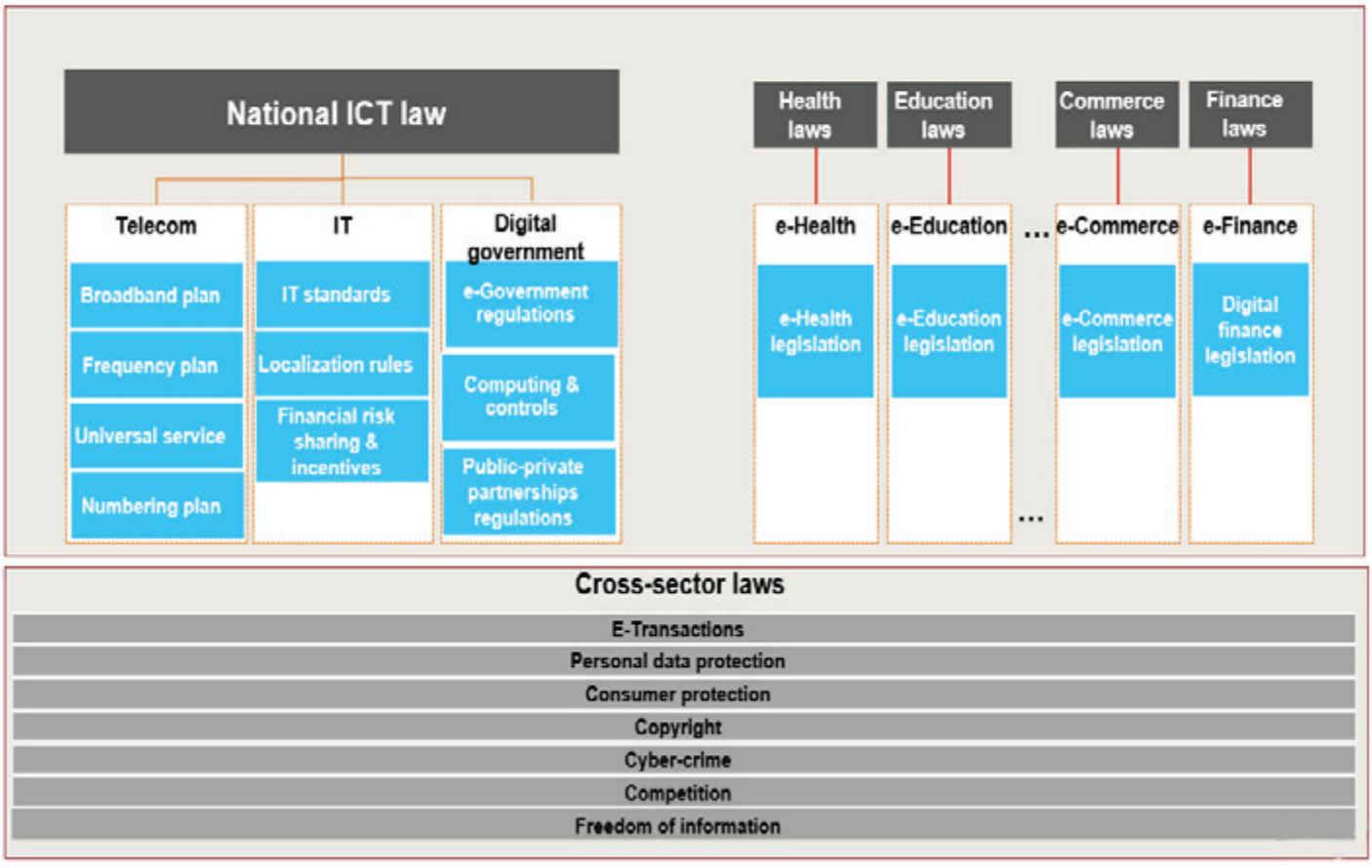
The third characteristic of these legal frameworks is that they must provide a modern, up to date definition of the ICT sector. The scope should be broad enough to enable data-driven digital activities that encompass growing technological converge and make ICT efficient beyond the telecom industry. This means covering communications, IT infrastructure and services, horizontal digital platforms that span multiple industries, and vertical digital services.

The fourth characteristic of these legal frameworks is that they should provide incentives for private sector participation and investment. These new laws should incentivize the private sector to invest in national broadband, digital horizontal and vertical platforms, and digital consumer, corporate, and government applications. This will make ICT more vibrant, innovative, and increase its contribution to national economies.

The fifth characteristic of these legal frameworks is that they should improve sector governance so that policymaking, regulation, sector development, and digital enablement are effective, efficient, and transparent. Regulations should balance the interests of consumers, providers, and the government effectively. Decisions should be made with high standards of independence, efficiency, transparency, and non-discrimination.

Having the right legal environment should be a priority for SAMENA region governments. Such policy, legal, and regulatory efforts are high impact undertakings as they are vital to building the future data-driven digital economy.

ICT sector development requires a set of complementary legal instruments



Source: Strategy&

WHOLESALE NEWS

NBTC Approves TOT's 2300MHz Plan

The telecoms committee of the National Broadcasting and Telecommunications Commission (NBTC) has approved TOT's revised 2300MHz mobile broadband wholesale proposal, The Nation reports. The brief news item, which cites NBTC Secretary General Takorn Tantasith, provides no supporting detail. As recently as last month the state-backed telco's proposal hung in the balance, after regulatory officials claimed that it violated 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 Advanced 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. A binding contract is expected to be signed in the third quarter of 2017, with network deployment commencing in 4Q17. 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.

Vodafone Leads in 4G Roaming Survey

Vodafone is the world's best carrier for 4G roaming, offering significantly more 4G roaming destinations than any other operator, a report from independent research firm Ovum has found. According to the study, Vodafone Malta is the clear leader in Malta, providing 4G international roaming to 65 destinations. The countries range from Germany, France, Switzerland and the UK to Australia, the United Arab Emirates, Brazil, Thailand and South Africa. The other local operators do not offer 4G services while roaming. Simply put, roaming enables mobile customers to use their phones while abroad without buying a subscription to a local service or relying on Wi-Fi. Many operators have already launched 4G for domestic use but, at present, not all have made the investment required to enable roaming. Before customers can enjoy super-fast data abroad, their mobile providers need to enable 4G roaming, destination by destination, network by network. As a result, 4G roaming footprints vary significantly by operator. The study also found that Vodafone is the global industry leader in 4G roaming, leading in all 18 markets analyzed. Furthermore, in most of them, Vodafone offers over 100 4G roaming destinations – more than double the number when compared with other operators in those markets.

Brussels Court Cancels BIPT's Fixed Termination Rate Cut

The Market Court, which operates as part of the Brussels Court of Appeal, has annulled the Belgian Institute for Post and Telecommunications' (BIPT's) decision from 25 August 2016, which introduced a fixed call termination rate of EUR0.00092 (USD0.00099) in the country. The court ruled that the BIPT should have consulted the Belgian Competition Authority before the introduction of the rates, as it used a new method (i.e. LRIC) for establishing the levies. As a result of the procedural error, the BIPT announced that the tariffs of EUR0.00514 (peak times) and EUR0.0027 (off-peak), which were introduced in March 2012, are now valid again. Going forward, the authority is planning to initiate a new market analysis and introduce new fixed termination rates before the end of 2017.

Telenor & Zain Partnered for LTE Roaming Deal

Telenor & Zain Partnered for LTE Roaming Deal. A leading telecommunication operators Zain and Telenor have signed an agreement. This agreement will enable Zain subscribers to enjoy 4G roaming coverage. This partnership will help Zain to reach 420 LTE mobile networks including 13 mobile operators of Telenor. Zain KSA, customers' 4G experience will continue while traveling abroad. Saad Al-Sadhan, Senior director at Zain said: "Providing an integrated experience is one of the main pillars of our transformation strategies. As part of that, we are working alongside the biggest operators globally to provide industry-leading 4G roaming and international voice services to our subscribers. With their experience and ability to rapidly deploy high-quality services, Telenor is one of our key partners, and we are looking forward to furthering our cooperation." Wansit Jeremy Saiyawan, chief sales officer in Telenor, added: "The partnership with Zain allows all subscribers of both companies and our direct peering partners to roam in each other's networks with superior quality. They are now able to access the same high speed services abroad when roaming as they do at home. We are delighted to have strengthened the partnership with Zain Saudi Arabia. Our focus areas going forward are VoLTE and Wifi Calling. We are looking forward to explore these services' potential together with Zain." Now all subscribers of both companies, plus direct peering partners will be able to roam with each other's networks having superior quality. Customers will be able to access the same high speed services abroad when roaming as they do at home.

ComReg Opens Roaming Cap Investigation

Irish regulator ComReg launched an investigation into mobile operator tariff changes to assess if they breach forthcoming EU roaming regulations. In a statement, ComReg confirmed it asked one of the country's operators to provide further information on proposed contractual changes which would see it define all you can eat data as a "service benefit" with a separate, capped, contracted data allowance. The regulator said: "We are aware that a mobile operator has recently informed its customers of new contractual arrangements that purport to draw a distinction between a contractual data allowance and an unlimited all-you-can-eat-data 'service benefit'." "We have sought information from the operator concerned so that we can assess whether the operator is in compliance with its existing obligations, as well as with the new roaming rules that will come into force on 15 June." Although the regulator didn't name the operator involved, the statement follows a row sparked by 3 Ireland informing customers it intended to change the terms of its contracts and introduce a specific data roaming allowance of as little as 1GB on plans which currently offer unlimited data. The operator's announcement led to speculation in the Irish media other operators were looking at similar changes. It also raised the interest of the European Commission, which released a statement warning operators in Ireland against offering "selective roaming" to get around full compliance with new regulations. Last week, the country's minister for communications Denis Naughten urged ComReg to ensure Ireland's operators were fully compliant with the new EU roaming regulations due to come into force on 15 June. Until yesterday ComReg had remained silent on the issue, but in its statement clarified: "In order to avoid prejudging the outcome of compliance investigations, we generally do not comment on compliance matters until we have completed an investigation. However this should not be taken as implying a lack of concern on our part."

Zain, Viva Partner on VoLTE Interconnectiont

Kuwaiti telecoms operators Zain and Viva have announced the successful establishment of a voice-over-LTE (VoLTE) interconnection in partnership with Huawei, Kuwait Times reports. The GSMA-led initiative, which the duo claimed was the 'first VoLTE interconnection in the MENA region', will allow seamless and direct VoLTE-to-VoLTE HD experience between Zain and Viva's customers, with significantly shorter connection times.

China Operators Agree to End Domestic Roaming Fees

China's three mobile operators will end domestic consumer roaming charges by October and offer pricing incentives to encourage the use of enterprise cloud technology in the country, Bloomberg reported. Speaking to reporters on the day the government unveiled new sector initiatives at the opening of the National People's Congress, the chairmen of China Mobile, China Telecom and China Unicom confirmed they would end surcharges levied on cross-province services and long distance domestic calls. The measures are part of an official bid to cut consumer costs and encourage use of new technologies by companies across China. As part of the initiative, operators will offer price incentives to small- and medium-sized businesses to encourage the use of next generation networking technology, including cloud computing. Alongside the press conference from the country's network providers, China's Ministry of Industry and Technology announced it had given the green light for a number of private companies to market and sell telecoms services. In a pilot scheme, 198 private enterprises have been approved to supply broadband services. The China Daily reported comments from China's Premier Li Keqiang highlighting the government's intent to enable more cost effective communications, which includes the elimination of roaming and reduction of long-distance call changes discussed by China Mobile, China Unicom and China Telecom. Li said: "In the age of internet, faster and more cost-effective information networks are crucial to the development of every sector."

Domestic Roaming End to Slow China Unicom Recovery

China Unicom, the second largest operator in the mainland, showed some continued signs of improvement in 2016, but the end of domestic roaming charges is expected to reduce its quarterly revenue by about CNY1.6 billion ($232 million) and slow its recovery through 2017. The country's three mobile operators said in early March they will end domestic consumer roaming fees by October, which is part of a push by the government to cut consumer costs. All three issued statements saying the cut will have "a certain impact" on their operating revenue and net profit. Unicom chairman and CEO Wang Xiaochu said at a press conference the roaming cut would have a major impact on its revenue each quarter. While the operator's profit fell sharply in 2016, service revenue increased as did mobile turnover and its subscriber base. Net profit for 2016 dropped 94 per cent to CNY625 million ($90.6 million), and EBITDA fell 9.1 per cent to CNY79.5 billion. The company said it will not pay a dividend for the year and will "strive to enhance its profits while paving the way for paying a dividend for 2017".Unicom, with 20 per cent market share, issued three profit warnings last year, with the last coming in late October. It forecast a profit of CNY460 million in Q1, which is about 50 per cent higher than the same period of 2016. Total revenue last year was down 1 per cent to CNY274 billion, while service revenue rose 2.4 per cent to CNY241 billion. Mobile service revenue returned to growth, rising 1.7 per cent from the previous year to CNY145.02 billion. Voice revenue dropped 15 per cent to CNY145 billion and data revenue increased 20 per cent to CNY49 billion. Its 4G user base more than doubled to 104.6 million after adding 60.4 million 4G subscribers in 2016. The operator's 4G subscribers accounted for 40 per cent of total mobile connections. After losing mobile subscribers in 2015, it added 11.5 million subs last year, bringing its total to 264 million. ARPU increased slightly to CNY46.40, while 4G ARPU was steady at CNY76.40. The operator said despite a 46 per cent reduction in capex to CHY72 billion, it "attained substantial improvement in network capability". It added 337,000 4G base stations to take its total of 736,000. In addition, 70,000 4G base stations and about 16,000km of fiber cable were co-built and co-shared. Through a network sharing partnership with China Telecom, China Unicom said it saved about CNY3.3 billion in capex and CNY35 million in operating expenses. The two companies plan to continue to open existing base station resources and strengthen sharing, while enhancing cooperation in operational maintenance.

ARTICLE

Towards Digital Transformation

Why is there a need for digital transformation?

Recent advances in digital technologies are bringing about significant and extraordinary changes in many aspects of our social and economic lives. Digital technologies are considered to be combinations of information, computing, communications, and connectivity technologies, such as social media, mobile devices, analytics, and cloud computing. These consumer-driven technologies have become central to every workplace and home, having become a part of our daily routines; essentially, fundamentally changing the way we communicate, participate in the digital world, and conduct ourselves socially and commercially.

So before we answer the question above, let us talk about consumer behavior and reflect on the needs of humans, which keep changing. A couple of years ago, one of the lifestyle trends was only about availability of things. Taking mobile services as an example we found that it's only about communications using voice calls or short message service (SMS). After a while MNOs in partner ship with third-party contents provider(CPs) developed new services called value added services (VAS) that colored customer's lives including entertainment and

Due to technology revolution and its impact on the daily life, transformation is must, so most of the services and products have to be introduced in a modern way in its shape and the way they are delivered to the beneficiaries and end users as well.

deferent, targeted multi-media content. Subsequently, with the growth of smart phones and tablets telecom operators and service providers started developing more digital services that satisfied customer's needs and wants. By the time these new services grew and created new revenue streams, their impact on other traditional services (Voice, SMS etc.) from perspectives of usages and revenue became visible.

With regard to technology-driven transformation, a shift concerning people's interactions with digital products is taking place, moving from evaluating performance to researching experience. This change is partially due to increased connectivity, mobility, and domestication of digital

Eng. Asim HAJO
Director, Digital Services Center & Innovation
Sudatel

products and services, which reflects the increasing relevance of digital devices in our lifestyle, and how people choose to express their identities. New digital services (e.g., M-Health, E-Learning, Mobile Money, IoT etc.) are contributing greatly to our lives.

There are some dimensions for describing a technology-driven transformation that are:

1. The new processes
2. The user experience
3. Change in relationships
4. Change in markets
5. Creation of new organizations
6. Change in the amount of customers
7. Disruptive impact

A technology must impact three or more of these dimensions in order to be classified as transformational. The dimension of change in processes was given considerable attention in the development of process virtualization theory, which describes the transition from a physical process to a virtual one in which the physical interaction between people and/or objects has been eliminated (e.g., electronic commerce, online distance learning, online banking). Process virtualization can be compared to the phenomenon of digitizing, i.e., the technical process of transforming analog signals into a digital form. Furthermore, the phenomenon of digitization has recently been discussed in the context of digital transformation in applied managerial literature, where digital transformation was defined as "the use of new digital technologies (social media, mobile, analytics or embedded devices) to enable major business improvements (such as enhancing customer experience, streamlining operations or creating new business models.

Sudatel Telecom Group (STG)'s contribution in forming digital transformation in Sudan is vital due to infrastructure that STG owns, in addition to wide experience in developing services and products, which are leading to achieving digitization.

Due to technology revolution and its impact on the daily life, transformation is must, so most of the services and products have to be introduced in a modern way in its shape and the way they are delivered to the beneficiaries and end users as well.

So to achieve this digital transformation first of all it has to respond and enhance the customers experience and maintain it in a better way not just for making users happy but also it becomes important for the providers of the services to survive in today's tough competition markets and changing business world. Also things have to be considered in implementing deferent digital services that are:

- Market segment
- Availability and continuity of the services
- Security

Also the main stakeholder's accountabilities and roles have to be stated very clear before start the journey of transformation. stakeholders might essential to be addressed:

1. The government
2. The regulatory bodies
3. The operators and ICT providers
4. The beneficiaries

Sudatel Telecom Group (STG)'s contribution in forming digital transformation in Sudan is vital due to infrastructure that STG owns, in addition to wide experience in developing services and products, which are leading to achieving digitization.

With a vision to be the leading ICT provider in the region Sudatel developed a lot of services and has planned for full transformation by 2020 in deferent areas such as E-Learning, e-health, mobile money, M2M, IoT, and cloud computing, etc.

Sudatel, as a part of its digital transformation portfolio, has introduced mobile financial services to achieve digital financial inclusion. Sudatel launched its mobile money services in collaboration model with central bank of Sudan under brand name Gorooshi.

Gorooshi service provides many services to end user such as money transfer p2p, settle invoices and top-up for telecommunications, payments for government services, purchase and payments of utilities etc.

Sudatel, as a part of its digital transformation portfolio, has introduced mobile financial services to achieve digital financial inclusion. Sudatel launched its mobile money services in collaboration model with central bank of Sudan under brand name Gorooshi.

Gorooshi is available with two options for interact with the customer:

1. USSD for all types of mobile phones include even feature phones
2. Mobile App for smart phone users and tablets.

These two options allow high-value customers and low-value customers as well to benefit from this service.

Also Sudatel launched its local store for android applications under brand name Sudan Store which allows developers and designers of mobile apps to upload their applications in local store with high standards criteria lead for reachability and accessibility for the local users to download the favorable apps very easy, an example for these apps, is Natigaty app, which provides the result and details for the Sudanese students' secondary and primary certificates.

Finally, the needs of digital transformation become very crucial and it is s a main driver for every country's development, consumer's satisfaction and prosperity of life. With digital transformation, new digital possibilities can be created to elevated the socio-economic activity of a nation. In Sudan, Sudatel is walking this path, and we aim to make even bigger things happen for our customers and for the Sudanese citizens.

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ARTICLE

Slice of 5G

The concept of a 5th generation of mobile networking is gaining traction, not only among policy makers but also in technical standardisation work.

The 3rd Generation Partnership Project (3GPP) started work on the next generation architecture (SA2) late last year, and in March the work on the radio layers (RAN) is expected to move to the phase where the actual technical standards will be defined. While many 5G concepts do not immediately touch the Internet, some of the new concepts and the expected increase in network speeds, capacity and mobility will have some impact on our industry.

The concept of a 5th generation of mobile networking is gaining traction, not only among policy makers but also in technical standardisation work.

The work in the radio layers is set to profit from much higher frequencies in the millimetre bands and will benefit from more interference robustness, increasing the potential throughput to gigabits per second. Together with other changes, such as direct communication between devices instead of via the central base station, the new standard is also expected to decrease latency.

One of the big concepts introduced by 5G is "networking slices". Recognising an ever more diverse base of users, devices and applications, a 5G network is expected to adapt and fine tune network parameters to closely match the application's needs. That way, assisted by a high level of virtualisation of the network functions, a small sensor (such as will become increasingly common as part of the Internet of Things) that only sends a few bytes per hour but requires a ten-year battery life, can share the network with an Ultra-HD video device that might require speeds in excess of 10 gbit/s.

Marco Hogewoning
External Relations Officer - Technical Advisor
RIPE NCC

Whether such speeds are really achievable remains to be seen, of course, but regardless, it's likely there will be a bit more separation between applications based on their needs – and that separation might not stop at the device. The architectural debate already focuses on methods to separate different traffic flows from a single device and forward those streams via the different "slices" that are available.

On the conceptual level, such methods are of course not new; traffic classification, quality-of-service, priority lanes, tunnels and virtual private networks all are iterations of essentially the same idea of making forwarding decisions based on criteria other than finding the shortest path for a particular destination IP address.

How these developments will impact the work of the RIPE NCC or the RIPE community in general is not yet clear. As the standardisation work continues and some of the draft outputs become available, we will hopefully get a clearer picture. Recently, our colleagues in the IETF started a mailing list that aims to identify any gaps in the current standards in relation to network slicing; an initial zero draft is available.

One of the big concepts introduced by 5G is "networking slices". Recognising an ever more diverse base of users, devices and applications, a 5G network is expected to adapt and fine tune network parameters to closely match the application's needs.

In the context of RIPE Policy, as the architecture aims to have a device connected to different logical networks, the actual means of separation are still open for discussion. Some of the proposed solutions aim to have this separation at or even below the IP network layers. In such a scenario, a single device could end up with a number of different IPv6 subnets, some of which might originate from different networks or which might not all be visible in the global routing table.

We are not there yet and commercial implementations might still seem far away, but as opportunities arise to participate in and give input to the relevant standardisation processes, it is the right time to think about the potential impact this could have on you and the RIPE community.

For more information about RIPE and RIPE NCC, please visit https://www.ripe.net. More information about the 3GPP 5th Generation project is available from the consortium's website at http://www.3gpp.org."

TECHNOLOGY NEWS

AT&T confirms test of 400 Gbps Ethernet connection between NY, DC

AT&T said it successfully tested a 400 Gbps Ethernet (400GbE) test using live traffic on the carrier's network between New York and Washington, D.C. "A software-defined network (SDN) controller created a service along the direct path between the two cities, and through software control rerouted the service to a second path to simulate a response to a network failure," the company said in a release. The test essentially represents the first phase of a three-part 400GbE trial that AT&T initially outlined last year. The company promised the first test would happen early this year and would use Coriant's optical gear to carry a 400GbE service across a long-distance span of AT&T global backbone from New York to Washington, demonstrating that AT&T's nationwide software-centric network is 400G-ready. Part of the reason for the tests is to encourage interoperability, the company said late last year. "One of the networking realities we see on the optical side is when you have a certain metro and you have gear from vendor and when you want to connect to another metro or another service provider, you have to have the same gear," Dan Blemings, director of Ethernet product management at AT&T, told FierceTelecom in November. "Even though it's all-optical, vendors still put their own special sauces onto their platforms." Added Blemings: "The way we do it today at AT&T is we have network people in the field who literally pick up the phone and call another service provider we want to connect to and ask what gear they are using because we want to put a ROADM in between us. That sort of behavior needs to change in the future because we need to move faster and have our gear work together more seamlessly." AT&T said its 400GbE tests would help the company's customers transmit more high-quality video. AT&T said these tests now pave the way for phase two and three of its 400GbE efforts. The second phase will implement a 400GbE end-to-end service transported across AT&T's OpenROADM metro network. And the third phase "will test the first instance of a 400GbE open router platform. The 'disaggregated router' platform uses merchant silicon and open source software—another industry first," the company said. Of course, AT&T isn't the only player testing 400GbE. Just last week, Acacia Communications, Optelian, Precise-ITC, Spirent and Xilinx said they

plan to demonstrate the industry's first interoperability across the technology spectrum to support 200GbE and 400GbE connectivity over standardized during this week's OFC 2017 trade show in Los Angeles.

British government publishes 5G policy paper

Following the publication of the UK's spring budget, the government has released a policy paper entitled 'Next Generation Mobile Technologies: A 5G strategy for the UK'. Among the headline elements of the paper, the state has announced its intention to create a new 'national 5G Innovation Network' which will be used to trial and demonstrate 5G applications. Detailing its plans, the government will initially invest up to GBP16 million (USD19.5 million) on a 'cutting edge' facility equipped with appropriate technology to run the trials, which it says will be delivered via several leading 5G research institutions working together in 2017/18. Looking further ahead, an end-to-end 5G trial is expected in early 2018, with a number of 'testbed spokes' coming on stream from 2018/19. Funding for future trials will be awarded on a competitive basis, the paper notes. Concurrently, the government is establishing a new center of 5G expertise in the Department of Culture, Media and Sport (DCMS) to 'ensure that work across the UK to develop 5G capabilities is joined up in a way that meets the strategic objectives of the programme'. Meanwhile, a further GBP200 million will fund a programme of local projects to test ways to accelerate market delivery of new full-fibre broadband networks. The programme envisages the setup of better connections to business and residential premises across the UK and helping to deliver fiber connections that will support 5G. In revealing the funding plans, the government said it recognized that having 'access to fiber is a critical limiting factor in the deployment of 5G and will continue to drive the deployment of new fiber networks'. The policy paper also notes that the government intends to work with local telecoms regulator Ofcom to identify and tackle unnecessary barriers to infrastructure sharing. In that vein, it will look to ensure that operators can get fair access to fiber on reasonable terms, while exploring the scope for a duct and pole access remedy as part of the next Business Connectivity Market Review conducted by Ofcom; it expects to report on progress in this area by the end of 2017. Ofcom will also be tasked by the government to review and report back to the DCMS by the end of this year on the scope for the spectrum licensing regime to facilitate better 4G and 5G deployment at national, regional and local levels – including in-building usage. Finally, the government will work with the watchdog to assess the feasibility of 5G sharing in the 3.8GHz-4.2 GHz band, and to agree clear timescales and milestones for further work in this area.

IoT Revolutionizing the Healthcare Industry

A shift in how trusted identities are used across the healthcare continuum is fueling the demand for advanced smart card technologies and mobile solutions, as healthcare institutions become more connected. The new focus on ID technology is changing how institutions operate, how they manage access to patients, data and equipment, how they protect patient privacy, and how they improve billing accuracy — all without compromising the quality of care. "Healthcare organizations are increasingly seeking to improve the physician, staff and patient experience by employing a combination of strong authentication and new IoT applications to address their challenges," said Sheila Loy, Director, Healthcare Industry with HID Global. "Trusted identities will simplify and connect all aspects of healthcare operations, from opening hospital doors, accessing healthcare records and e-prescribing of controlled substances, to how healthcare professionals interact with patients and log their activities." The healthcare industry is embracing new ways to establish, create, manage and use trusted identities, which is redefining the meaning of trust as healthcare organizations embrace the IoT in smarter environments. This will drive a number of key technology trends: Integrated, compliant systems that are convenient and connected Multi-factor authentication will incorporate One Time Password (OTP) tokens, Public Key Infrastructure (PKI) and biometrics to comply with the DEA and HIPAA for Electronic Prescription of Controlled Substances (EPCS). The same solutions for EPCS will be used to protect patient records and data; secure access to facilities; authenticate remotely to VPNs using mobile devices; and enable new IoT use cases. Unified platforms will also add intelligent visitor management systems and automate other manual workflows to provide an access management solution that integrates with access control, IT security and other applications. Connected environments drive the need to ensure the Internet of Trusted Things (IoTT) Continued adoption of electronic visit verification (EVV) will help streamline in-home patient visits and eliminate billing fraud using "proof of presence" applications that make it easier to document the time, location and accurate delivery of prescribed care. Healthcare institutions will embrace trusted IDs, predictive analytics and new IoT solutions that use real-time location-based services to effectively connect, monitor and manage patients, mobile clinicians and staff. These solutions will also help quickly locate critical medical equipment, beds, crash carts and other medical devices by providing the missing link between physical assets and a trusted ID ecosystem. Growing role for biometrics in patient and provider authentication and EPCS applications Biometrics will be used to ensure the right patient is receiving the prescribed care, and that providers are authorized to manage confidential patient medical records. Biometric solutions will also be used for e-prescribing to authenticate the issuer, pharmacy staff and/or the patient, with fingerprint biometrics continuing to be one of the most widely used due to its ease of use. Biometrics sensors and modules will continue to deliver improved capabilities for the healthcare environment, including faster finger image capture for a better user experience, and certifications to key industry standards for accuracy and image transfer performance. HID Global anticipates that the healthcare industry will be impacted by these trends in 2017 and beyond as the shift in the use of identity technology continues to influence product development and the user experience in the coming years.

China Mobile to kick off large-scale 5G field trials in 2019

China Mobile, the world's largest wireless provider by subscribers, has announced plans to launch large-scale pre-commercial 5G field trials in 2019, laying the groundwork for a 2020 commercial launch, Telecom Asia writes, citing the general manager of the cellco's technical department, Wang Xiaoyun. Explaining the operator's roadmap for 5G, the official commented: 'At this time we [have] finished field trials on key technology component validation and will focus on proof of concept system field trials this year, and move to pre-commercial trials for [interoperability] tests in 20 sites or cities in 2018.' The trial is expected to expand to over 100 sites or cities in 2019, before the rollout proceeds to the commercial launch stage in 2020. The operator notes that it has already established what it claims is the world's largest 5G field trial – in Huairou district in northern Beijing – in partnership with equipment vendors Huawei, ZTE, Ericsson, Datang, Samsung and Nokia and chipset manufacturers Intel and Mediatek. The official added that China Mobile has carried out trials of key technologies with these partners, including: massive multiple-input, multiple-output (MIMO) using the 3.5GHz band; performance testing of mmWave spectrum on the 15GHz, 28GHz and 73GHz frequency bands; and tests of new waveforms (filtered orthogonal frequency division multiplexing, F-OFDM), new multiple access (sparse code multiple access, SCMA) and channel coding (polar code).

22 firms propose acceleration of 5G NR standardization

A group of 15 mobile providers and seven equipment vendors have called for the acceleration of the 5G New Radio (NR) standardization process to open the way for large-scale trials and deployments as early as 2019. The first 3GPP 5G NR specification is scheduled to be part of Release 15 – the global 5G standard that will make use of both sub-6GHz and mmWave spectrum bands – but, based on the current 3GPP Release 15 timeline, the earliest deployments based on standard-compliant 5G NR infrastructure and devices will likely not be possible until 2020. Instead, a new proposal put forward by the 22 companies advocates the introduction of an intermediate milestone to complete specification documents related to a configuration dubbed 'Non-Standalone 5G NR' to enable large-scale trials and deployments starting in 2019. Non-Standalone 5G NR would utilize the existing LTE radio and evolved packet core network as an anchor for mobility management and coverage while adding a new 5G radio access carrier to enable certain 5G use cases starting in 2019. The new proposal and the intermediate milestone also solidifies the schedule for the complete standard, including Standalone 5G NR in Release 15. A statement from the group added that they are: 'further committed to make forward compatibility a key design principle for the standardization of the first release of 5G NR. This will enable in-band introduction of new capabilities and features in subsequent releases critical to enabling yet to be identified industries and use cases and achieving the 5G vision to connect everything to everything.' The group comprises the following 22 companies: service providers AT&T, NTT DOCOMO, South Korea Telecom (SKT), Vodafone Group, BT Group, Telstra, KT Corp, KDDI, Telia Company, Swisscom, Telecom Italia (TIM), Etisalat, Sprint, LG Uplus and Deutsche Telekom; and vendors Ericsson, Qualcomm Technologies, Intel, Vivo, LG Electronics, Huawei and ZTE.

AT&T, China Mobile, NTT DoCoMo, Vodafone, Nokia, Qualcomm and more get behind unified 5G standard

Consistent with its message that agreed-upon, industrywide standards are the way to go with 5G, AT&T is among a slew of operators and vendors pledging to support a unified, global 5G standard achieved through 5G testing, trials and cooperation. During the Global 5G Test Summit here Wednesday, AT&T, China Mobile, NTT DOCOMO, Vodafone, Ericsson, Huawei, Intel, Keysight, MediaTek, Nokia, Qualcomm, Rohde & Schwarz, ZTE and Datang jointly declared a statement promoting unified, global 5G standards achieved through 5G testing, trials and cooperation between telecom operators, vendors and vertical industry partners to build a unified end-to-end (E2E) ecosystem. The summit, supported by ITU, GSMA, 3GPP, NGMN and GTI, invited all participants to declare their commitment to facilitating and ensuring a unified, high-quality and competitive 3GPP 5G specification by June 2018 for Release 15 and December 2019 for Release 16. The participants aim to build a unified 5G E2E ecosystem (including chipset, terminal, network, test instruments and more) for seamless global roaming and enlarging the global market scale for low cost. AT&T's Tom Keathley, senior vice president/wireless network architecture and design, has previously said how important it is that his company participate in the standards work, where economies of scale work in the operator's favor. "Through advanced testing and trials, we're addressing key standards issues early in order to accelerate standards and provide the fastest path to large-scale, global 5G deployment," he said in a prepared statement this week. "We're collaborating closely with leaders across our industry on 5G. Pre-standard, fragmented 5G specifications can distract from the end-goal and cause future roadblocks. It's critical that we're all unified and aligned on this technology." Participants are starting the early trial and interoperability testing for a variety of use cases, including mobile broadband, for 3GPP Release 15 specifications to drive the 5G ecosystem and to ensure a quick and efficient time to market. They also appeared to inspire innovations on 5G key technology and to validate the smooth evolution capability of technologies toward 5G, including 3D-MIMO LTE, NB-IoT/eMTC and C-V2X. Of course, getting other industries to get involved is a key part of making 5G a success if it is to live up to its vision. The statement also encouraged and welcomed partners from vertical industries to participate in the testing and trials for innovative 5G services and to jointly create new value for the entire global society. "Standards are the foundation of new technologies, and it is Nokia's firm belief that the implementation of robust standards will be pivotal to the long-term success of 5G, and all the new business opportunities that it will create," said Hossein Moiin, chief technology officer of the Mobile Networks business group at Nokia. Durga Malladi, SVP of Qualcomm, said, "It is important that, as an industry, we work together towards a global 5G standard to ensure timely interoperability trials and commercial deployments. Qualcomm Technologies is dedicated to close cooperation with all of the companies participating in the Global 5G Test Summit as well as those contributing to 3GPP, and look forward to what we can achieve together."

Telecom operators push for united front on 5G

The fifth-generation (5G) wireless mobile phone technology is still largely a concept at this point and the wireless industry hasn't settled on any standards around the new network. But 5G is certainly down the road and it is coming and is going to help operators build a platform that enables all access technologies and all service types. With standardization work under way now, 25 telecom operators such as Deutsche Telekom, AT&T, Verizon, KT, NTT Docomo, China Mobile, Vodafone, Orange, Telefonica, TeliaSonera and more have already announced that they are lab testing 5G, demonstrating the wide support for the technology at this early stage. Approval of 5G standards is not expected to be completed until 2020 but regulatory agencies including ITU, 3GPP, and Ofcom reached agreements on unifying standards, implementing spectrum collaboration, accelerating 5G standardization, and driving the entire industry to focus on 5G technology innovations. It is the evolution of 4G with faster speeds of 10Gbps and a latency of one millisecond compared to 100Mbps speed and a latency of 40 milliseconds with 4G. The 2G technology was for voice and 3G was for data. 4G is a faster version of 3G. According to Huawei, 5G will allow you to download an 8GB high-definition movie in six seconds versus seven minutes over 4G or more than an hour on 3G. Joe Kelly, vice-president for international media affairs at Huawei Technologies, told Gulf News on the sidelines of the Barcelona Mobile World Congress, that 4G was for smartphones to access the internet and a consumer service but 5G is going to be about M2M (machine-to-machine) and IoT (internet of things) and for enterprises. "Latency is important but not for consumers, so latency of around 40 milliseconds is not important but if you are driving a driverless car, latency is important. When you are driving a car at a speed of 70 miles per hour and when the network says stop, at 30 or 40 milliseconds latency, the car would have travelled 1.5 meters. It might be a problem if a child is standing on the road," he said. One millisecond is therefore the right level of latency apart from many other benefits, Kelly said. Carriers will be able to set their network dimension for each industry. The other big change is that 4G has a limit to the number of connections it can support and it is not enough for IoT. He said that 5G will offer a capacity of 100 billion connections, so IoT will become possible. When asked about the new network standard, he said that there is no standard at the moment, because the standard won't be agreed until at the end of 2018 by 3GPP. "There is a high-level of consensus today as to what that standard needs to be but there is a formal process to go through to validate that standards. There is a certain amount of testing going on for the past 18 months. The data and the knowledge that come out of the tests done are helping to form the standard," Kelly said. Once the standard is agreed, he said that there will be another phase of testing — both in the lab as well as in real world — to help the world to meet standard needs. Some of the carriers are testing with multi-vendors. Dino Flore, chairman of 3GPP RAN, said that the first release of the 5G specification will be completed by September 2018. The second release is to be completed by March 2020. The commercial launch of 5G is planned in 2020 but many operators don't expect mainstream 5G everywhere, maybe until 2025. Big cities may have 5G by launch timeKelly said that the 4G network went live in 2009 but it wasn't until 2014 and 2015 when most carriers moved to 4G. "The standardization process is working and it is getting updated as it is not static. There is a consensus to have one global standard as it will reduce the cost. There is still debate about components of the standard. The point of a single standard is to remove interoperability issues," he said. Wang Xiaoyun, general manager of China Mobile's department of technology and vice-chair of the IMT2020 Promotion Group, said that an important task is to establish the overall industry ecosystem. She said that this is critical for bringing in vertical partners across many industries. The operator already has 98 partners in its 5G Innovation Centre. China Mobile has already tested lab speeds of 20Gbps and aims to launch phase two product validation trials in 2018 and have a commercial launch in 2020. Takehiro Nakamura, vice-president

and general manager of NTT Docomo's 5G Lab, said it is discussing how to best deploy 5G, as it would be difficult to do a nationwide rollout in 2020. He said that NTT will deploy 5G in areas where high performance is required, and of course around the Olympic facilities in 2020. It will gradually expand coverage after 2020, depending on the availability of handsets and access to spectrum bands.

Singtel, Ericsson testing Massive MIMO, Cloud RAN in drive towards 5G

Singaporean operator Singtel and Ericsson are working together to trial Massive MIMO and Cloud RAN – both key components in 5G evolution – on Singtel's 4G LTE network, a press release from the Swedish vendor disclosed. The Ericsson AIR 6468 radio system, providing 64T64R Massive MIMO capabilities (combining MIMO with beamforming on advanced antennas to boost capacity and coverage) will be tested and 'progressively deployed' alongside a joint trial of Cloud RAN which the release says will provide Singtel with 'the flexibility to centralize, distribute, scale and virtualize radio access network functions to efficiently meet performance requirements today and on the road to 5G'. Ericsson and Singtel first signed a 5G Memorandum of Understanding in January 2015 and claimed to be the first to showcase a 5G system in Southeast Asia in August 2016, achieving a downlink speed of 27.5Gbps.

Nokia inks MoUs with STC, Zain to develop 5G, IoT technologies

Nokia and Saudi Telecom Company (STC) have signed a Memorandum of Understanding (MoU) to collaborate on the development of 5G and Internet of Things (IoT). Under the deal, Nokia and STC will carry out trials of technologies such as 4.5G Pro and 4.9G, key steps on the path to 5G to build the capacity and throughput speeds needed for new applications. Eng. Nasser Al Nasser, Senior Vice President for Technology & Operations at STC, said: 'Our mission is to enrich our society by introducing pioneering services to the people in the Kingdom, and we are proud to enter into this MoU with our long-term partner Nokia to achieve this mission. We aim to bring the first commercial 5G network to the Gulf region, and we are confident that Nokia's innovations toward the development of 5G technologies and IoT use cases, and their trials around the world, will provide a clear path for this.' In related news, Nokia has inked a similar MoU with Saudi operator Zain, under which the duo will combine their expertise to develop use cases, requirements and deployment scenarios for 5G technologies. Peter Kaliaropoulos of Zain Saudi Arabia, said: 'With this MoU, we are now taking this strong partnership [with Nokia] to the next level, evolving toward building the next-generation 5G networks. We are confident again that in this journey we will mark many more industry-firsts, which will enable us to play our role in the digital transformation of the country toward the knowledge based economy.'

Verizon aims to deploy small cells in 3.5 GHz when practical

Verizon's intent to deploy small cells is no secret, so its interest in deploying small cells—both low power and high power—using the 3.5 GHz/Citizens Broadband Radio Services (CBRS) band shouldn't come as any big surprise. A member of the CBRS Alliance, which advocates for LTE-based solutions in the CBRS bands, Verizon plans to use 3.5 GHz spectrum "as soon as practically possible," according to Adam Koeppe, vice president of Network Technology Planning for Verizon. Companies in the CBRS Alliance—including Google-affiliated Access Technologies, which is part of Alphabet, as well as Federated Wireless, Intel, Qualcomm, Nokia, Ericsson and Ruckus Wireless—have been working hard to establish the framework to make the 3.5 GHz band suitable for sharing under the FCC's directive. The FCC finalized rules for the band last April, making 150 MHz available for mobile broadband and other commercial uses. "We have already conducted infrastructure testing," Koeppe told FierceWirelessTech in response to emailed questions. "The commercial timelines are dictated by the availability of the spectrum access server (SAS), commercial-grade network equipment, and capable devices. We expect this to occur in early 2018." As for what Verizon plans to do with the 3.5 GHz spectrum, he said it intends to deploy two types of base stations utilizing low-power small cells and high-power small cells. Low-power small cells are suitable for indoor applications, including enterprises, hotels, airports, convention centers and stadiums, while the high-power small cells are suitable for outdoor applications such as large campuses, metro areas, downtown areas and suburban areas. Prior to the FCC's vote last year, wireless operators weren't entirely on board with the sharing principles outlined for the 3.5 GHz band in the U.S., but they've since mostly come around, and now all four major U.S. carriers are members of the CBRS Alliance. Asked if Verizon has any concerns about sharing spectrum in the band, Koeppe said a key requirement to make 3.5 GHz successful is the commercialization of the spectrum access server (and certification of same by the FCC), developed with fair rules and good coexistence mechanisms, thus enabling the use of 3.5 GHz spectrum by multiple operators and different types of small cells. Verizon is actively working with multiple vendor partners and testing 3.5 GHz equipment this year in both lab and field tests, he said. Rival AT&T has also been busy conducting tests in the 3.5 GHz band and is interested in doing more experiments in other bands, including the 3.7-4.2 GHz band, where the propagation characteristics are similar to those of the 3.5 GHz band and the 3.55-4.2 GHz range. The 3.5 GHz range is being considered in other regions of the world for 5G, increasing its chances for providing spectrum for international harmony, but the sharing regime set up in the U.S. is unique and other nations are likely watching to see how it all works out. Evangelists in the CBRS Alliance are encouraged that for the first time, spectrum will be made available to entities other than entrenched wireless operators, enabling different technologies and applications to compete in the band, living up to its moniker as the "innovation band." Verizon has also been a longtime proponent of LTE-U technology, which enables LTE small cells to be introduced in unlicensed spectrum. The company plans to have an initial rollout of devices and equipment ready for that market this spring. Verizon formed the LTE-U Forum in 2014 with Alcatel-Lucent (now part of Nokia), Ericsson, Qualcomm Technologies and Samsung to develop specifications for implementing LTE-U to coexist with Wi-Fi and other technologies.

3GPP accelerates Non-Standalone 5G NR standardization process

The 3GPP has agreed with proposals from operators and vendors to accelerate the standardization process for the 'interim' Non-Standalone (NSA) 5G New Radio (NR) air-interface for enhanced Mobile BroadBand (eMBB), setting a new finalization target of March 2018. The 3GPP release notes that in NSA mode the connection is anchored in 4G LTE while 5G NR carriers are used to boost data rates and reduce latency; the 3GPP target for completion of the Standalone (SA) 5G NR mode remains set at September 2018. Last month a group of 15 major mobile network operators and seven equipment vendors called for the move to support large-scale trials and deployments of NSA 5G NR starting in 2019 utilizing existing LTE radio and evolved packet core networks; since the proposal was made, two additional major companies, Telefonica and Nokia, have added their weight to the plan (whilst a notable large global player remaining uncommitted to the NSA scheme is Orange Group). In the wider 5G standardization timeline, another 3GPP key target is 'Overall 5G Core Network' standards to be completed 'by June 2018'.

Industry bodies align to standardize on-device NFC service management no matter where it is hosted

ETSI, GlobalPlatform and the NFC Forum detailed a standardized approach to implementing and managing NFC services across all technologies and platforms. The shared work initiative explains how to ensure that NFC services successfully coexist within a device and operate as intended. The standardized approach clarifies how the ecosystem details the expected behavior of multiple NFC services hosted in the same device and simplifies the end user experience. This benefits service providers offering NFC services in devices such as smartphones. This covers services such as payment, transport, loyalty or access control. The approach will also be of interest to original equipment makers (OEMs) developing devices that support NFC services. For consumers, this clarity brings guarantees that services will work as advertised, regardless of the hosting contactless environment selected by the service provider.

The defined framework supports:

- Multiple NFC service applications coexisting within a device, with the ability to detect any potential conflicts.
- The activation of multiple NFC services at the same time within a single device.
- A consistent approach to the lifecycle management of NFC services to ensure standardised behaviour.
- Simplification of the end-user experience when selecting NFC services for entities such as mobile wallets providers.
- Secure Elements (SEs) already in the field, as all specifications are backward compatible.

Klaus Vedder, chairman of the ETSI Technical Committee Smart Card Platform, explained: "The range of SE technologies available, such as UICC, embedded SE, host card emulation and MicroSD as well as a number of solutions still based on proprietary technology creates an unnecessary fragmentation in the mobile contactless market, at the expense of end-users, service providers and the ecosystem.This fragmentation can cause unpredictable behavior of NFC services depending on the model and configuration of the device, implementation choices and presence of other NFC applications. The harmonization of the behavior of NFC services, regardless of the underlying technology, is thus of utmost importance for the success of the services in the market." "ETSI, GlobalPlatform and the NFC Forum all share the same goal; we want to provide a standardized ecosystem that encourages the mass adoption of NFC services without compromising service integrity," added, Gil Bernabeu, technical director of GlobalPlatform. "The synchronisation across our three technical bodies is key in supporting service providers and ensuring that consumers can activate NFC services as and when they need to." "Significant progress has been made over the years to ensure service providers can accelerate the deployment of NFC services, regardless of how the service is hosted in the device," said Paula Hunter, executive director of the NFC Forum. "Legacy contactless systems were not always designed to work together, so the NFC service management framework no provides a way to integrate these different contactless applications into one NFC-enabled smartphone. This collaboration among three industry partners will have a positive impact on the market in the coming years." The standardized approach is detailed in a joint white paper – Ensure Interworking Between Multiple Contactless Card Emulation Environments. The related industry specification, GlobalPlatform Managing Entity Specification will be released in 2017. This will be supported by the latest versions of ETSI TS 102 221, ETSI TS 102 622 and NFC Forum NCI Technical Specification Version 2.0, currently a candidate specification that is to be published before the end of this year.

DOCOMO, Ericsson, Qualcomm partner for 5G NR trials

Japanese network operator NTT DOCOMO has announced plans to conduct interoperability testing and over-the-air field trials in Japan based on the 5G New Radio (NR) specifications being developed by 3GPP. The trials will operate in mid-band spectrum at 4.5GHz, as well as millimeter wave (mmWave) spectrum at 28GHz, showcasing the unified 5G NR design across diverse spectrum bands. The trials intend to drive the mobile ecosystem toward rapid validation and commercialization of 5G NR technologies at scale, enabling timely commercial network launches based on 3GPP Release-15 standard compliant 5G NR infrastructure and devices, a press release stated. The trials will utilize device prototype and base station solutions from US-based Qualcomm Technologies and Sweden's Ericsson respectively, along with trial environments from NTT DOCOMO, to simulate real-world scenarios across a broad set of use cases and deployment scenarios. 5G NR trial operations at 4.5GHz will allow a large bandwidth resulting in high data rates and good capacity with reasonable coverage to address the large number of envisioned 5G use cases. The trial will showcase advanced 3GPP 5G NR technologies including Massive Multiple-Input Multiple-Output (MIMO) antenna technology, beamforming techniques, adaptive self-contained TDD, scalable OFDM-based waveforms to support wider bandwidths, advanced coding and modulation schemes, and a new flexible, low-latency slot structure based design. In addition, trial 5G NR operation in mmWave spectrum at 28GHz will employ advanced 5G NR antenna technology to deliver robust and sustained mobile broadband communications, including non-line-of-sight (NLOS) environments and device mobility. The interoperability testing and trials, which will launch in Japan in the first half of 2018, are intended to track closely with, as well as help accelerate, the first 3GPP 5G NR specification that will be part of Release 15 – a global 5G standard that will make use of both sub-6GHz and mmWave spectrum bands. Note that DOCOMO is among a group of 22 major companies proposing the acceleration of the 5G NR standardization.

Mobile operators push for united front on 5G

The consensus among speakers at the Global 5G Test Summit during Mobile World Congress was it is important to give other industries a taste of what's coming with 5G so they can explore new usage models and applications. Participants said early testing gives verticals the chance to understand the actual requirements of various applications. Testing, of course, is needed to ensure full interoperability across the network as well as end-user devices. In addition to debugging issues on the technology side, it enables stakeholders to start working with governments on future regulations. Despite approval of 5G standards not expected to be completed until 2020, 25 mobile operators have already announced they are lab testing 5G, demonstrating the wide support for the technology at this early stage. The event highlighted global operators' development strategies and plans on 5G testing and trials. Wang Xiaoyun (pictured), GM of China Mobile's department of technology and vice-chair of the IMT2020 Promotion Group, said besides developing a united 5G standard and pushing trials to validate the technologies, an important task is to establish the overall industry ecosystem. She noted this is critical for bringing in vertical partners across many industries. The operator already has 98 partners in its 5G Innovation Centre. China Mobile aims to launch phase two product validation trials in 2018 and to have a commercial launch in 2020, she said. Gordon Mansfield, VP of RAN and device design at AT&T, said the reason for early trials is to get feedback from users, both consumer and business, to validate the technology in various applications. Magnus Ewerbring, Ericsson's CTO for APAC, agreed, saying it wants to be educated about their industries to help them transform their businesses. He noted the industry "needs to keep up with the global momentum on 5G." Luke Ibbetson, director of Vodafone Group R&D, said the industry is starting to see a clear roadmap, which is encouraging. "We have to keep ourselves aligned to build scale as rapidly as possible, and resist any attempt at fragmentation, which will slow us down from reaching our goals." Regarding the actual deployment, Takehiro Nakamura (pictured, left), VP and GM of NTT Docomo's 5G Lab, said it is discussing how to best deploy 5G, as it would be difficult to do a nationwide rollout in 2020. "We will deploy in areas where high performance is required, and of course around the Olympic facilities in 2020." It will gradually expand coverage after 2020, depending on the availability of handsets and access to spectrum bands. The operator will focus on enhanced mobile broadband in the first phase as its current LTE network is used for IoT services, and expects LTE-Advanced to be able to support massive machine-type communication services in the beginning.

LTE Nano mobile network demonstrated

Quortus today announced that it has partnered with operator Telefónica España, to drive the rapidly emerging trend towards the use of private cellular networks in a broad range of applications. The two companies will illustrate their private cellular capabilities via LTE Nano, a low-footprint, ultra-compact and highly scalable 4G network-in-a-box implementation built around Quortus' award-winning EdgeCentrix (ECX) Enhanced Packet Core. LTE Nano will be on display at the Telefónica Booth (Hall 3, Booth 3-K21) at Mobile World Congress from February 27th to March 2nd 2017. Private cellular – deployed on licensed, license-exempt or deregulated spectrum – enables a variety of innovative services, including DECT replacement and mixed voice/secure data services for enterprises and other organizations. Quortus provides a complete 2G/3G/4G virtual core network solution for such applications that can run on any hardware platform, and is scalable from tens to tens of thousands of connected users. Telefónica, as a leading global operator, is pioneering the use of private cellular, particularly amongst its industrial and enterprise customer base. LTE Nano delivers an all-IP mobile broadband mobility solution which can be used to provide a discrete voice, video and data network in a range of scenarios including emergency situations, remote industrial locations and temporary deployment at events. Its small form factor and light weight allows it to be carried in a backpack, or elevated via a drone. The network can be deployed within minutes, providing an instant hotspot for users with specific coverage requirements beyond the capabilities of public LTE networks. In remote, underserved areas it can function as a standalone "hot-spot", or utilize cable, satellite or microwave technologies for backhaul. As well as full 'network in a box' applications, Quortus' virtual mobile core solution is also being used for private cellular deployments where low cost, small footprint infrastructure is required for IoT connectivity over cellular, proving particularly effective in industrial environments. The demonstration at MWC will show a battery-powered, backpack-based LTE Nano implementation, providing communications support to a rescue team, including streaming video coming from a drone viewable on a tablet. This demonstration illustrates how a portable, rapidly deployable LTE network can serve as basis for communications to tactical and rescue teams in locations with no coverage. According to Javier Gutiérrez, director of Network Strategy and Development at Telefónica España: "This innovation's initiative is in line with Telefónica's efforts in bringing the features of latest-generation LTE networks to all our customers, enabling services that were not possible before, and helping them in developing new revenue streams for their business. In this scenario, the combination of the highly efficient virtualized solution from Quortus and the benefits of a licensed LTE spectrum, is helping us in pushing the limits of what we thought possible and bring the reliability, quality, and security of LTE communications to completely new markets. Quortus has proven to be an excellent innovation partner in pursuing these objectives." Andy Odgers, Quortus Founder and CEO, commented: "The emergence of initiatives such as Multefire and CBRS illustrate the rising interest in the use of cellular technology in a private context. The rising demand for reliable, secure connectivity exists across a range of enterprises, rural and remote settings and in the public safety arena. LTE Nano takes this to its logical conclusion, providing a completely discrete network which can be rapidly deployed anywhere. We are proud to have been selected by Telefónica as a key component of LTE Nano."

Verizon names 5G pilot markets; AT&T completes 39GHz 5G tests

US mobile giant Verizon Wireless has announced that it will deliver pre-commercial 5G services to select customers in eleven different markets during the first half of 2017. Verizon has claimed that its 5G network build represents the 'largest proving ground in the world and encompasses several hundred cell sites that cover several thousand customer locations'. In the coming months, Verizon will begin offering 5G technology to pilot customers in the following metropolitan areas: Ann Arbor (Michigan), Atlanta (Georgia), Bernardsville (New Jersey), Brockton (Massachusetts), Dallas (Texas), Denver (Colorado), Houston (Texas), Miami (Florida), Sacramento (California), Seattle (Washington) and Washington, DC. Adam Koeppe, vice president (network planning) at Verizon, commented: '5G technology innovation is rapidly evolving. Network density is increasing to meet the demands of customers, and following the Federal Communications Commission's (FCC's) aggressive action on 5G spectrum, the time is right to deliver the next generation of broadband services with 5G.' In other US 5G news, AT&T and Nokia have confirmed that they have successfully completed fixed-wireless 5G tests in the 39GHz band, using the vendor's commercially available AirScale radio access platform. The pair have noted that both the 39GHz band and the 28GHz band are particularly attractive 5G options due to the large amount bandwidth available, although there is 'significantly more' 39GHz spectrum available. Nokia began testing mmWave technology with AT&T in 2016. Its most recent test phase involved the delivery of AT&T's DirecTV NOW IPTV service over a 5G radio access system, and took place at the AT&T Labs facility in Middletown, New Jersey.

5G for Europe Action Plan

Very high-capacity networks like 5G will be a key asset for Europe to compete in the Global market, with worldwide 5G revenues for mobile operators expected to reach €225 billion annually by 2025. On September 14, 2016, the Commission launched a plan to boost EU efforts for the deployment of 5G infrastructures and services across the Digital Single Market by 2020. The action plan set out a clear roadmap for public and private investment on 5G infrastructure in the EU. A staff working document accompanies the action plan communication.

To achieve that, the Commission proposes the following measures:

- Align roadmaps and priorities for a coordinated 5G deployment across all EU Member states, targeting early network introduction by 2018, and moving towards commercial large scale introduction by the end of 2020 at the latest.
- Make provisional spectrum bands available for 5G ahead of the 2019 World Radio Communication Conference (WRC-19), to be complemented by additional bands as quickly as possible, and work towards a recommended approach for the authorization of the specific 5G spectrum bands above 6GHz.
- Promote early deployment in major urban areas and along major transport paths.
- Promote pan-European multi-stakeholder trials as catalysts to turn technological innovation into full business solutions.
- Facilitate the implementation of an industry-led venture fund in support of 5G-based innovation.
- Unite leading actors in working towards the promotion of global standards.

The EU Public-Private Partnership (5G-PPP) launched in 2013 has put Europe clearly in the forefront of the current research phase, as compared to other regions. The research results are now feeding the global standardization process and being used to prepare the first large scale trials and demonstrators in Europe, in cooperation with several key sectors. The 5G Action Plan will leverage these initial research successes.

Regulatory framework

The new European Electronic Communications Code and the 5G action plan are closely related: they are both aimed at fostering the competitiveness of our industry in the Digital Single Market. They will both support the deployment and take-up of 5G networks, notably as regards the timely assignment and availability of radio spectrum, more favorable conditions for small cell deployment or sectorial issues preventing the deployment of particular services, investment incentives and favorable framework conditions, while the recently adopted rules on Open Internet provide legal certainty as regards the deployment of 5G applications.

Application of 5G

5G will enable:

Industrial transformation through wireless broadband services provided at Gigabit speeds. 5G should offer data connections well above 10 Gigabits per second, latency below 5 milliseconds and the capability to exploit any available wireless resources (from Wi-Fi to 4G) and to handle millions of connected devices simultaneously), the support of new types of applications connecting devices and objects (the Internet of Things) and versatility, by way of software virtualization allowing innovative business models across multiple sectors (e.g. transport, health, manufacturing, logistics, energy, media and entertainment). It opens up prospects for new pervasive mobile virtual services, important for the economy and society ranging from virtual reality for remote collaboration to on-line health monitoring or connected cars, and possibly drone delivery or automated driving.

ITU agrees on key 5G performance requirements for IMT-2020

Membership of ITU including key industry players, industry forums, national and regional standards development organizations, regulators, network operators, equipment manufacturers as well as academia and research institutions together with Member States, gathered in Geneva, as the working group responsible for IMT systems, and completed a cycle of studies on the key performance requirements of 5G technologies for IMT-2020. Draft New Report ITU-R M.[IMT-2020.TECH PERF REQ] is expected to be finally approved by ITU-R Study Group 5 at its next meeting in November 2017. "IMT-2020 will be the global cornerstone for all of activities related to broadband communications and the Internet of Things for the future – enriching lives in ways yet to be imagined," said ITU Secretary-General, Houlin Zhao. "The IMT-2020 standard is set to be the global communication network for the coming decades and is on track to be in place by 2020. The next step is to agree on what will be the detailed specifications for IMT-2020, a standard that will underpin the next generations of mobile broadband and IoT connectivity," said François Rancy, Director of ITU's Radiocommunication Bureau. We can anticipate that there will now be a number of early technical trials, market trials and deployments of 5G technologies based on the foreseen developments slated for IMT-2020. These systems may not provide the full set of capabilities envisaged for IMT-2020, but the results of these early activities will flow forward into, and assist the development of, the final complete detailed specifications for IMT-2020. IMT is the on-going enabler of new trends in communication devices – from the connected car and intelligent transport systems to augmented reality, holography, and wearable devices, and a key enabler to meet social needs in the areas of mobile education, connected health and emergency telecommunications. E-applications are transforming the way we do business and govern our countries, and smart cities are pointing the way to cleaner, safer, more comfortable lives in our increasingly urbanized world.

Telcos struggle to define next generation

Consumers may have only recently upgraded to the 4G standard on their mobile handsets, but telecoms carriers are already looking ahead to the next wave of wireless development, known as 5G. Many are openly discussing the possibility of rolling out this updated version commercially by 2019. The European Commission, keen to keep ahead of the debate, has published a 5G action plan. It estimates that sectors such as healthcare, transport, cars and utilities will see economic benefits of €113bn by 2025 from the technology. Building new 5G networks is expected to cost €56bn and could create about 2.3m jobs. The telecoms industry is still struggling to define exactly what 5G technology is. The current generation of mobile transmission technology, 4G, has delivered on the promise of turning a mobile phone into a computer. Its predecessor, 3G, offered data services such as video calling. However, it is only since the advent of faster 4G networks that streaming video and live sports to a mobile phone has become a reality. The goal is that 5G should enable better delivery of streaming services and faster download times. While there is much talk about the need for universal standards for 5G, Europe, the US and South Korea are racing to define the technology in potentially different ways. All participants in the 5G chain — hardware makers, carriers and businesses developing software to take advantage of the internet of things — want to speed up the process and have formed numerous standards bodies to deliver on one common goal. The industry is desperate to learn from history. Rolling out 3G was messy and took 10 years because of competition around standards, whereas 4G deployment, with only two variations were used, took place in half the time. Companies are also vying to take a lead in the race toward 5G. Telecom Italia in 2015 pushed ahead with tests of a virtual radio access network technology called vRAN that prepares the ground for 5G. This was the first successful trial in Europe and the carrier has launched the "5G for Italy" plan alongside Ericsson to encourage researchers and companies to test 5G technology. A global 5G event in Rome last November brought together engineers, European commissioners and standards experts to thrash out a plan. Turin has already begun testing some elements of a 5G network. The UK telecoms regulator has set a timetable for the launch of 5G services in Britain by 2020, with early trials set to take place as soon as next year. Ryan Ding, executive director and president of products and solutions at Huawei, the Chinese telecoms equipment company, says that 5G "will be the cornerstone of the digital industries, and a global single standard is critical if all things are to be connected". But there is a high risk of more fragmentation and some companies fear that failure to agree a common path quickly could jeopardize 5G's benefits. Derek Aberle, president of Qualcomm Incorporated, warns against regulatory intervention in the standards process. "Predictability means keeping standards as a voluntary process. One thing we have to be very careful about is changing the rules after significant investment has been made in the technology. "Such changes can cripple industries and create uncertainty that will mean less investment in deployment. Balance and predictability are needed to make the internet of things a reality." Mr. Aberle adds that the industry must ensure 5G complexity does not overwhelm the development of applications. "We need to make sure the technology is very easy to adopt. If we are not able to make it easy and cheap to adopt, it won't happen," he says. The biggest stumbling block for the industry is perhaps the least obvious. Equipment makers are concerned about which parts of the spectrum band 5G will sit in. Different countries have allocated different portions of the airwaves to carry 5G signals. For a device to work across all of them requires eight antennas, making phones both very heavy and very expensive. "We talk about avoiding the fragmentation of 5G technology but don't forget, we have to work to avoid the fragmentation of spectrum," says Mr. Ding. Mark Keenan, chief executive of advisers Real Wireless, adds: "Many of those applications identified under the 5G vision are highly demanding, with significant spectrum requirements. "The success of 5G requires legislators and regulators to begin investigating spectrum allocation and sharing principles as soon as possible to help overcome any challenges well in advance of the technology being deployed."

Bouygues, Ericsson achieve 25.2Gbps speeds in '5G' trial

French telecoms operator Bouygues Telecom has carried out trials of '5G' technology in cooperation with equipment vendor Ericsson, using a radio station equipped with active 5G antennas connected simultaneously to two mobile prototype terminals. The companies claim to have achieved aggregated rate of 25.2Gbps on the 5G antenna with a latency of the order of three milliseconds. This demonstration highlighted the ability of 5G to implement adaptive beamforming, which when used with massive multiple-input, multiple-output (Massive MIMO), will increase the capacity of mobile networks and the range of signals for 5G terminals.

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We make mobile work

ARTICLE

LTE Roaming Study Underscores Importance of IPX in MEA

LTE is growing globally, and growing fast, and in few other places in the world is it expected to grow more quickly than in MEA. Syniverse recently examined some of the ramifications of this at this year's Mobile World Congress, where a study we released on LTE roaming patterns revealed some important implications for the development of LTE in MEA in the next few years.

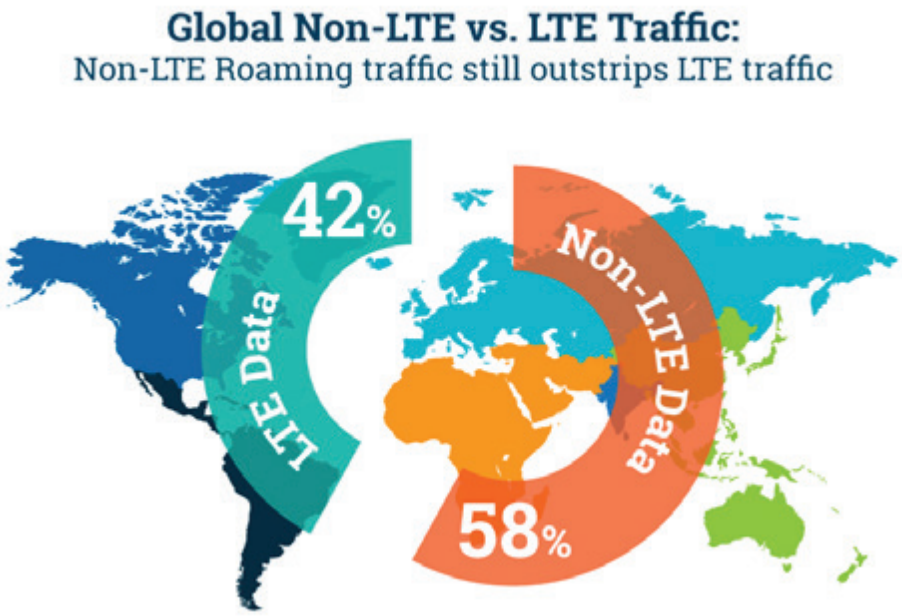
MEA's large population, surging mobile data use and lack of fixed-line internet connectivity promise a tremendous opportunity for LTE and rich mobile services in the next few years. From 2014 to 2020, for example, the GSMA projects that the percentage of mobile broadband connections will shoot from 34 to 69 percent just in MENA. Moreover, the lack of fixed broadband infrastructure means that the fixed-line stage of internet connectivity will largely be skipped, and many people will move directly to mobile for their method of going online.

MEA's large population, surging mobile data use and lack of fixed-line internet connectivity promise a tremendous opportunity for LTE and rich mobile services in the next few years.

Our study aimed to shed more light on this opportunity and across other key regions of the world. It analyzed the regular course, or "trade winds," of global roaming traffic from across Syniverse's customer base of more than 1,000 mobile operators, and it divided the traffic according to six regions: MEA; Asia Pacific (including Australia); India; Europe; North America (categorized as the U.S. and Canada for this study); and Latin America.

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

Syniverse
We make mobile work



The study showed that while international roaming routes carry some traffic, a major part of the trade winds of inter-regional traffic exchange takes place within the Americas, to and from North America and Latin America. The biggest findings were as follows:

- Only 42 percent of inter-regional data roaming taking place around the globe is LTE, while non-LTE roaming traffic represents 58 percent.
- The overwhelming majority of inter-regional LTE roaming traffic – 81 percent – takes place between North America (U.S. and Canada) and Latin America.

In regard to MEA, these were the most important findings:

- In MEA, just 20 percent of total outbound data roaming volume is LTE traffic. On a related note, in Asia Pacific, a region thtat includes some of the world's most advanced mobile networks, this volume is only 26 percent.

Only 42 percent of inter-regional data roaming taking place around the globe is LTE, while non-LTE roaming traffic represents 58 percent.

- Only 19 percent of MEA's total inbound data roaming volume is LTE traffic. Similarly, for Europe, this number is just 21 percent.

Ultimately, the study revealed that as far as global LTE roaming, the tipping point hasn't occurred yet, and, consequently, providing LTE roaming can be a critical differentiator for operators. Specifically, enabling LTE roaming is essential for operators to be able to capture revenue from 4G, and, later, 5G. As mobile users demand more rich experiences, operators need to prioritize LTE roaming, directly linking the value that the operator plays in that experience.

The study revealed that as far as global LTE roaming, the tipping point hasn't occurred yet, and, consequently, providing LTE roaming can be a critical differentiator for operators.

Importantly, our analysis found that while domestic LTE deployments have provided ample LTE capability to home subscribers and boosted intra-regional LTE roaming, the barrier to a truly global, consistent LTE experience lies in inter-regional connectivity that requires the versatile, secure network backbone that IPX provides. To this end, our data suggests

MEA will soon see a dynamic phase of mobile development with unprecedented demands for high-speed, high-capacity networks. As our study revealed, LTE roaming is still far from full maturity, and the barrier to this lies in inter-regional connectivity that requires the versatility and security of IPX.

that for routes across MEA and around the globe, operators need to develop a full-scale strategy for integrating IPX and accelerating the maturity of LTE networks.

In particular, IPX is critical for addressing two challenges with LTE network buildout. First, in addition to needing new equipment, new pricing structures and new roaming partnerships, operators that are expanding their 3G networks or launching 4G networks must focus on establishing reach to a maximum number of networks, so they can offer the widest coverage for their users. IPX has emerged as the most practical backbone for 3G, 4G and other next-generation services to allow operators to achieve this reach. Second, enabling ubiquitous roaming for these networks requires comprehensive testing of critical roaming processes, like clearing and settlement. IPX likewise provides a versatile platform for the enablement of this wide range of testing.

MEA will soon see a dynamic phase of mobile development with unprecedented demands for high-speed, high-capacity networks. As our study revealed, LTE roaming is still far from full maturity, and the barrier to this lies in inter-regional connectivity that requires the versatility and security of IPX. For this reason, it's imperative that operators have a full-scale IPX strategy in place to meet the demands of the exciting future now shaping up in MEA.

To learn more about the study, visit http://visit.syniverse.com/global-lte-roaming-trade-winds/

Shape The Cloud
Win The Future

SAMENA 2017, 30 Apr Dubai

ARTICLE

Digital Transformation Accelerates Business Success

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

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

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

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

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

Charles Yang
President,
Huawei Middle East

HUAWEI

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

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

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

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

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

By 2025 there will be 100 billion connections globally, 85% of all enterprise applications will move to the cloud, 100% enterprises will use cloud services, and the penetration rate of industrial intelligence will exceed 20%. The strategy of global telecom operators is changing from being "investment-driven" to being "value-driven". Huawei will team up with operators to embark on the value-driven ROADS to new growth. Huawei is dedicated to working with partners to build a sustainable digital business ecosystem.

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Opportunities for Growth in Emerging Markets

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

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

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

The Content Gold Rush

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

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

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

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

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

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

Road to 5G

On the Road to 5G, telecom operators to focus their preparations on three areas: infrastructure, operations, and ecosystem development. The formula for success in the telecom industry: Success = infrastructure x operations x ecosystem. 5G will require two major changes: Going from network-centric to application-centric, and from person-centric to thing-centric—a significant paradigm shift. To prepare their infrastructure for 5G, operators need to begin the end-to-end cloudification of their architecture.

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

Adhering to the principles of "openness, collaboration and shared success", Huawei held joint exhibitions with 100+ operators and partners at MWC 2017, compared to 70+ last year. At its main exhibition booths, Huawei showcased its growth plans, business models and latest developments in themed areas: 'Maximizing Network Value', 'All Cloud to Support 5G', 'Agile Digital Operations' and 'Cloud-based Digital Services', including a complete range of All Cloud solutions (All Cloud core/wireless/bearer network solutions etc.). Furthermore, customers and partners had the chance to visit the Huawei Consulting & Services VIP Showcase, Digital Transformation Dialog Center, Innovation City Exhibition and the Huawei Consumer Area to exchange views with Huawei or to experience Huawei's products and services.

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

REGULATORY NEWS

FCC Updates 800MHz Rules in Bid to Boost LTE Coverage

The US Federal Communications Commission (FCC) revised the country's rules on the use of the 800MHz band in an attempt to facilitate improved data connectivity across the country. Under the new measures, the FCC will relax restrictions currently in place to allow wireless operators to run LTE services on the band, alongside existing narrowband and public safety deployments. Reforms include changing technical rules around power usage, enabling the coexistence of commercial wireless and public safety networks, and eliminating regulations the FCC deems "unnecessary". Rules set to be axed relate to application filings, domestic and international coordination, and comparative renewal. FCC Chairman Ajit Pai said: "The Commission's cellular rules were adopted when commercial mobile service relied on narrowband technologies. Over three and a half decades later, these rules (and the technical assumptions that underlay them) are hopelessly obsolete. "This state of affairs changes today. The reforms we are adopting will help wireless companies better meet consumer demand for mobile connectivity and continue to innovate by facilitating the use of cellular spectrum to provide advanced services such as LTE." FCC commissioner Michael O'Rielly added: "By simply modifying the cellular power rules to also include workable power metrics for wideband technologies, we provide companies the flexibility to deploy the technology of their choosing. In permitting LTE on this band, we are, in effect, improving spectrum efficiency and facilitating mobile broadband deployment." Its spectrum reforms were announced at the FCC's latest open meeting. It also discussed a range of measures set to be investigated and introduced by the Commission, including channel sharing for broadcasters and rules around automated nuisance phone calls.

Indonesia Hosts Regional Preparatory Meeting for ITU's World Telecommunication Development Conference 2017

The Regional Preparatory Meeting (RPM) for the Asia-Pacific region was held from 21 to 23 March in Bali, Indonesia. 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 proposed priority areas for information and communication technology (ICT) development strategies in the Asia and the Pacific region. The Regional Preparatory Meeting (RPM) was the fifth of a series of RPMs that are taking place across the world to help identify priorities in each region in preparation for the next World Telecommunication Development Conference (WTDC-17). Previous RPMs were held in the Commonwealth of Independent States (9-11 November 2016); Africa (6-8 December 2016); Arab States (30 January-1 February 2017) and the Americas (22-24 February 2017).

WTDC-17, which will be held in Buenos Aires, Argentina, from 9 to 20 October 2017, will forge a global plan for telecommunication and ICT development over the next four years. "I believe that our ultimate aim is crystal clear," said Hasan

Kleib, Deputy Minister for Multilateral Affairs of the Ministry of Foreign Affairs of the Republic of Indonesia and Ambassador and Permanent Representative-Designate of the Republic of Indonesia to the United Nations, WTO, and other international organizations in Geneva, Switzerland. "We have to enhance the capacity of the developing world in bridging the digital divide and use ICT as a solution as well as a tool to increase human development and achievements," he said, speaking on behalf of the Minister of Communication and Information Technology. "The Regional Preparatory Meeting helps to achieve regional coordination in preparation for WTDC-17 and identify issues at the regional level that need to be addressed, taking into account the needs of the Member States and Sector Members of the region," said ITU Secretary-General Houlin Zhao. Five draft regional initiatives for Asia and the Pacific Region for the years 2018-2021 were proposed. They include:

- Addressing special needs of least developed countries, small island developing states, including Pacific island countries, and landlocked developing countries
- Harnessing ICTs to support the digital economy and an inclusive digital society
- Fostering development of infrastructure to enhance digital connectivity
- Enabling policy and regulatory environments
- Contributing to a secure and resilient ICT ecosystem

TRAI Issues New Consultation Paper on VNO

The Telecom Regulatory Authority of India, which had in May 2015 recommended that Virtual Network Operators (VNO) in the telecom sector should be permitted for all segments of voice, data and video as well as for all services notified in the unified license (UL) for a period of ten years, is now working on providing recommendations for Access Service authorization for

category B license with districts of a State as a service area. The Department of Telecom had issued guidelines on 5 July 2016 for authorization for Access service in a Secondary Switching Areas (SSAs) as service area is in addition to the TRAI recommendations of May 2015. These guidelines are meant to introduce UL (VNO) Cat-B with Access Service authorization in a District of a State/UT. DoT further clarified vide their letter dated 12 September 2016 that there shall be no category of Direct Inward Dialing (DID) franchisee License in future. At present, there are 259 franchisees operating in the country. TRAI says that it appears that the objective of the guidelines/ licenses issued by DoT is to streamline DID franchisee regime and provide them a better and broader business umbrella through proper licensing. It is evident that the guidelines/license conditions were not a part of TRAI's recommendations on the subject and DoT has first issued these guidelines/ licenses and then sent the reference for the recommendations of the Authority on the matter resultantly, the regulator has issued a new consultation paper with ten questions for stakeholders. Stakeholders are to respond on 17 April with counter comments if any on 24 April 2017. The regulator had in its recommendations said VNO should be introduced through proper "licensing framework" in the Indian telecom sector. For introduction of VNO in the sector, there should be a separate category of license namely UL (VNO). Like UL authorization, only pan-India or service area-wise authorizations may be granted under a UL (VNO) license. TRAI said that VNOs are service delivery operators, who do not own the underlying core network but rely on the network and support of the infrastructure providers for providing telecom services to end users and customers. VNOs can provide any or all telecom services, which are being provided by the existing telecom service providers. VNO should be introduced in the network based on the basis of mutually accepted terms and conditions between NSO and the VNO. The terms and conditions of sharing the infrastructure between the NSO and VNO are left to the market to determine. VNOs should be permitted to set up their own network equipment where there is no requirement of interconnection with other NSO. However, they should not be allowed to own/install equipment where interconnection is required with another NSO. Local Cable Operators (LCOs) and Multi Service Operators (MSOs) can become VNO and are permitted to share infrastructure with VNOs. TRAI had said that there should not be a restriction on the number of VNO licensees per service area and there should be no restriction on the number of VNOs parented by an NSO.

Spark Applies for Regulatory Clearance of TeamTalk Takeover

New Zealand's Commerce Commission has received a clearance application from Spark New Zealand to acquire (either directly or indirectly) up to 100% of the shares of local firm TeamTalk, which offers fiber-optic services in the main urban areas of Wellington and Auckland (via subsidiary CityLink) and a number of underserved locations (via Farmside). Spark said that the acquisition is part of its strategy to achieve greater control of the end-to-end experience for its customers. In its application, Spark points out that the TeamTalk business is 'highly complementary' to its operations, with 'only very limited competitive overlap', as Spark does not currently have infrastructure that competes directly with TeamTalk's CityLink local access fiber network assets in Wellington and Auckland. TeleGeography notes that Spark (known as Telecom New Zealand until a rebranding in August 2014) is the main provider of voice telephony and data transmission services in the country via xDSL and fiber-optic platforms.

RCOM/Aircel Merger Passes CCI Hurdle, Airtel in Talks for TDN's 2300MHz Spectrum

The planned merger of Reliance Communications (RCOM) and Aircel has been approved by the Competition Commission of India (CCI), the Economic Times reports. The tie-up has already been green lit by the Securities and Exchange Board of India (SEBI), as well as the Bombay Stock Exchange (BSE) and National Stock Exchange of India (NSE), but is still subject to approvals from other authorities, including the Department of Telecommunications (DoT) and the Reserve Bank of India (RBI). Under the terms of the deal, RCOM and Aircel will each take a 50% stake in the combined entity. The development follows on the heels of last week's announcement that RCOM has also received approval for its merger with Russian-owned Sistema Shyam Teleservices (SSTL, also known as MTS India) from SEBI. The RCOM/SSTL merger will see SSTL's mobile business demerged into RCOM, with SSTL taking a 10% equity stake in RCOM. In another Indian development, meanwhile, Bharti Airtel – the country's largest mobile provider by subscribers – is reportedly in the final stages of discussions to acquire Tikona Digital Networks' (TDN's) 4G spectrum for between INR8 billion (USD122.09 million) and INR10 billion. The spectrum in question covers the operator's 2300MHz frequencies in the Gujarat, Himachal Pradesh, Uttar Pradesh East, Uttar Pradesh West and Rajasthan circles. TDN currently uses the airwaves for a fixed time division duplex LTE (TD-LTE) service. Following the frequency sale, however, TDN would continue offering wireless broadband services over its 2600MHz WiBro network, the Economic Times writes.

Committee Recommends BSNL/MTNL Merger

A parliamentary committee has proposed a merger of state-owned operators Mahanagar Telephone Nigam Limited (MTNL) and Bharat Sanchar Nigam Limited (BSNL), the first of which provides services in Delhi and Mumbai, whilst the latter covers the rest of the country. The Economic Times writes that the committee was formed to consider potential ways to improve the services provided by BSNL and MTNL, and found that a merger of the two companies would be good for their 'long-term survival and success', giving the operators a chance to compete with their privately-owned rivals. The committee was told by the Department of Telecommunications (DoT) that BSNL and MTNL were facing financial losses and declining revenues, affecting their ability to invest adequately in network expansion and modernization, leading to coverage and service quality problems. Whilst BSNL has set out to overhaul its mobile network this year, the DoT noted that MTNL has been unable to upgrade its GSM or fixed line network for the last three to four years, due to funding constraints. Consequently the panel found that the potential synergies and advantages from having a single, integrated national telecom infrastructure would help lower investment costs and improve the pair's competitiveness, noting: 'The committee, therefore, urges the government to embark upon the prospects of merger of MTNL and BSNL for which, initially, an Expert Committee could be constituted.' The possibility of combining the two firms has been put forward numerous times in recent years as a means to save the ailing providers as they struggle to compete with private operators and rising expenses. According to TeleGeography's GlobalComms Database, a merger of the two entities has been considered 'too complicated', leading to the proposals being continually shelved. Nevertheless, in recent years the proposal has begun to gather momentum and has grown in popularity, particularly as the nation's mobile market faces a wave of consolidation on the horizon.

Safaricom Split not in Regulator's Plans

The Communications Authority of Kenya (CA) confirmed it does not plan to force a split of Safaricom, despite recent speculation and recommendations from a report it commissioned. Business Daily reported comments from CA chairman Ben Gituku, made at a press conference, clarifying the regulator's stance on calls to separate Safaricom's m-Pesa business from its communications arm. "I wish to allay fears that the authority is planning to split the business of some market players or take such drastic actions that may destabilize dominant market players," Gituku said. The CA commissioned analyst company Analysys Mason to compile a report into competition in the country's telecoms market. Although its findings are still being assessed by the regulator, a draft version leaked to the press last month revealed a recommendation the authority should consider splitting Safaricom. Safaricom dominates the mobile payment industry and wireless market in the country. It has been the subject of speculation on its future in recent months following both the leak of the CA report and proposed changes to the law made by Kenyan national assembly member Jakoyo Midiwo which would force the company to split. In addition to support from Gituku, the country's Information, Communication and Technology Minister Joe Mucheru said any move to split Safaricom would "punish operators for innovation" and would discourage companies from investing in the country.

India Plans 5G Spectrum Auction this Year

India's government plans to hold auctions this year for 5G spectrum in frequencies above 3GHz as well as additional spectrum across seven bands that were left unsold in last October's auction, The Economic Times (ET) reported. The country's largest ever spectrum auction in October generated $9.8 billion for the government, but 60 per cent of the available spectrum was not sold. A government source told ET a 5G auction would sell spectrum in the 3.3GHz and 3.4GHz bands, and the Telecom Ministry was reviewing the case and would contact the Telecommunications Regulatory Authority of India (TRAI) soon. The amount of spectrum to be sold in each band was not disclosed. The government also is planning to auction the leftover spectrum from the October sale, which included airwaves in the 700MHz, 800MHz, 900MHz, 1,800MHz, 2,100MHz, 2,300MHz and 2,500MHz bands. For example, there was no interest in the highly efficient 700MHz and 900MHz bands due to the high reserve prices. The government had hoped the 700MHz band alone would bring in an estimated INR4 trillion ($59 billion), but the band went unsold. While the government is pushing for new auctions, the industry is suffering from rising debt levels and intense price pressure after the entry of 4G upstart Reliance Jio last September. Moody's said in October after the auction the country's mobile operators, whose balance sheets were already stretched, will face additional obstacles. "These spectrum wins will weigh on balance sheets and cash flows, as debt levels will rise materially for most operators," warned Annalisa Di Chiara, a Moody's VP and senior credit officer. "The operators will experience a reduction in their ability to fund further expansion or to absorb the effects of weaker profitability as competition intensifies." In January Airtel reported a sharp drop in profit for its fiscal Q3 as lower data and voice tariffs in its domestic market pulled down its turnover for the first time since 2002. Idea reported its first ever quarterly net loss for its fiscal Q3. To hold onto its existing mobile subscribers, Idea said it was forced to reduce voice rates by 10.6 per cent and cut its mobile data rates by 15.2 per cent.

Taiwan to Release more 4G Spectrum

Taiwan's telecoms regulator announced plans to release 150MHz of 4G spectrum in four frequency bands, with open-bids expected to be completed by the end of the year. The National Communications Commission (NCC) said it will release spectrum in the 1.9GHz and 2.1GHz bands, which are currently used for 3G service and whose licenses expire in December 2018, and additional airwaves in the 1.7GHz, 1.8GHz, 1.9GHz and 2.1GHz bands, DigiTimes reported. The NCC said the tender will have two stages, with operators first bidding for the total bandwidth they require and then the successful bidders selecting the frequency bands they want. To close the gap in mobile internet access between urban and rural areas, the Ministry of Transportation and Communications will require the winners to meet specific obligations to improve mobile infrastructure in remote areas. The country held a 4G tender in December, with four operators paying TWD27.9 billion ($855 million) for six blocks of 2.6GHz spectrum. Market leader Chunghwa Telecom and Far EasTone Telecommunication each secured two blocks. An initial 4G auction in 2013 raised TWD118.6 billion. Six operators already have 17.1 million 4G connections in the country, according to GSMA Intelligence. 4G connections surpassed 3G connections in Q3 last year, with 3G subscribers falling to 13.5 million in Q4. Chunghwa Telecom had 6.7 million LTE users at the end of 2016, while Far EasTone had 4.3 million and Taiwan Mobile 3.8 million.

FCC Authorizes First LTE-U Devices for 5 GHz Band

The FCC has authorized the first devices for LTE in the unlicensed 5 GHz band. The US regulator's Office of Engineering and Technology authorized use of such devices after agreeing with industry terms for limiting interference on Wi-Fi services using the same band. LTE-U and Wi-Fi stakeholders worked under the auspices of the Wi-Fi Alliance to develop co-existence guidelines and an evaluation test plan that was released last autumn. In addition to meeting the FCC's radio rules, the LTE-U devices also were evaluated successfully under the co-existence test plan.

TRAI Hopes Regulations Will Evolve The Broadcast Sector

The Telecom Regulatory Authority of India (TRAI) believes the recent notifications of regulations governing the broadcast sector will be beneficial for the entire value chain, which includes broadcasters, consumers, cable operators and DTH service providers. TRAI had notified the tariff regulations for the broadcast sector, quality of services norms and interconnection regulations. Through these notifications, the regulator has mandated several key consumer-friendly moves. Among these are the requirement that broadcasters will need to declare the maximum retail price per month of their a la carte pay channels and separate bouquet formation of pay channels and free-to-air channels. Subscribers will have to pay a maximum subscription fee of INR130 a month, excluding taxes, to distributors for access to the initial 100 SD channels. Beyond that, additional channels will be available in slabs of 25 SD channels for an amount not exceeding 20 excluding taxes. The regulator said with such a framework broadcasters have been given freedom to price their channels on an a la carte basis without any caps, and maximize their revenues through subscriptions. The genre-wise price caps that were suggested in the draft version have also been done away with. The only condition being, if a channel has been priced above INR 19, it cannot be part of a bouquet and will have to be sold on a la carte basis. The implementation timelines for various regulations vary between 30-180 days. The other issues of concern that have been addressed include quality of norms for protection of consumer interest, caps on carriage fees, besides a standardized framework for content deals between multiple systems operators and broadcasters. Rs. Sharma, Chairman, TRAI, said the regulations has been finalized after consultation and discussions with all the stakeholders, spanning over an year. "The overarching principles that guided us while finalizing these regulations included offering more choice to the consumers, bringing in transparency in the sector, ensuring protection of consumer interests, removing ambiguity between stakeholders and giving stimulus to the growth of the broadcasting sector." He said as digitization of TV services is in its final stage, the regulator has been working to ensure that consumers, broadcasters and platforms can reap benefits from digitization. TRAI is next expected to work on regulations on inter-operability of set-top boxes of various DTH operators as well as infrastructure sharing regulations in the sector.

Victory for Ofcom as BT Agrees to Openreach Split

BT bowed to Ofcom's demand for it to implement a legal separation of Openreach, a move designed to strengthen its independence. BT's CEO said the restructuring will serve the best interests of U.K. consumers and businesses. Under the agreement, 32,000 staff will transfer to the newly-distinct company, which shall have its own branding. BT will still own Openreach and allocate its budget, but Openreach will decide how to spend its money, and will have sole control over its strategy and assets. Openreach will also get its own board, and that board will have the authority to appoint Openreach's CEO. BT has the option to veto that appointment, but it must justify itself to Ofcom. The CEO will report first and foremost to the Openreach board, and will have secondary accountability to the BT CEO. "The new Openreach will be built to serve all its customers equally, working truly independently and taking investment decisions on behalf of the whole industry – not just BT," said Ofcom CEO Sharon White. Indeed, as per Ofcom proposals made in July, the new Openreach will be obliged to consult with wholesale customers like Sky and TalkTalk about large-scale infrastructure investments. The process will include a confidential phase where discussions will take place without information being passed to BT. Friday's announcement comes after months of negotiation between Ofcom and the U.K. incumbent. On the same day that Ofcom made its proposals, BT offered up some counter proposals. The telco agreed to establish a separate Openreach board with a majority of independent directors, including an independent chairman. That process has already largely been completed, and the newly-formed board held its first meeting last month. BT also agreed to implement a confidential element when consulting with Openreach customers, and agreed to let Openreach have control over its own budget. However, Ofcom said in November that BT's voluntary proposals did not address its fundamental concerns about Openreach's independence, and the watchdog threatened to enforce a legal separation of the two. Ofcom's "determination in negotiations with BT under the increasingly impressive stewardship of Sharon White, should be applauded," said Kester Mann, principle analyst, operators, at CCS Insight. BT's rivals were lobbying Ofcom to enforce

a full structural separation of BT and Openreach, and they will likely express disappointment that the regulator did not go ahead with it. However, Mann said that in private, the likes of Sky and TalkTalk "should be more than satisfied with the changes that Ofcom has pushed through." Ofcom said that a structural separation or a sale of Openreach would have caused delays and disruption to industry, consumers and investment plans. BT CEO Gavin Patterson said Friday's agreement serves the long-terms interests of the U.K. "This has been a long and challenging review where we have been balancing a number of competing interests," he said. "We have listened to criticism of our business and as a result are willing to make fundamental changes to the way Openreach will work in the future."

Half of BTRC Fund of to be Used in ICT Project

"The money is now going to be used in 'Connected Bangladesh' project which aims at taking high-speed internet to remote areas of the country," State Minister for ICT Zunaid Ahmed Palak told. He said that the decision to use the money in the project was taken at a recent meeting of the Digital Network Coordination Committee. Bangladesh Telecommunications Regulatory Commission (BTRC) started raising the Social Obligatory Fund (SOF) in December 2012 by tapping 1 percent of mobile-phone operators' income to expand telecommunications. Minister Palak said the work to give internet connection through fiber-optic cables to 813 union councils in two projects was under way. According to him, more than Tk 6 billion lying idle in the SOF will be used to give fiber-optic connections to remaining 772 union councils. Asked whether a division's money can be utilized for another division, Palak said, "The government's money can be used in any development (project)." "The government has targeted to the fiber-optic connections to all the union councils within 2018," he added. He also said the 'Connected Bangladesh' project was in the initial assessment level and the work will begin after getting the final approval. A top official of the ICT Division said the estimated cost of the project is Tk 6.52 billion. After the issue of the available fund had been raised in a bdnews24.com dialogue last year, State Minister for Post and Telecommunications Tarana Halim said she would arrange to spend the funds. Tarana later told the media that it would be used to expand and develop telecoms and ICT. She said the fund is about to reach at Tk 10 billion marks. "It has been kept as FDR. It's a resource of our country. It will get idle if we keep it this way. It has to be used," she said. Asked about approving the ICT Division proposal to use the money, she said, "We've said: 'The Internet for all'. We want to give connections to remote areas. It will not be used commercially, but for people's welfare." "There is a committee headed by the prime minister on the use of SOF. There are guidelines to use such funds. The fund is being raised, and we will use it in the future," she added.

FCC Suspends Part of ISP Privacy Rules

Chairman Ajit Pai followed through on a promise to stop a new rule from taking effect, one which would have required internet service providers to take steps to protect consumer personal data. As expected the Federal Communications Commission on Wednesday voted 2-1 along party lines to stop a new data security rule from taking effect. The rule would have required internet service providers to take "reasonable" measures to protect consumers' personal data. It was part of a bigger set of privacy regulation, approved by the FCC in October, that's supposed to protect consumers' sensitive personal information online. The rules have been controversial because they establish stricter requirements for broadband and wireless companies than they do for other internet companies, such as Google or Facebook, which also collect user information and are regulated by the Federal Trade Commission. FCC Chairman Ajit Pai signaled last week his intention for the full FCC to vote on pausing the rollout of the rule. He and acting Federal Trade Commission Chairwoman Maureen Ohlhausen issued a joint statement arguing that the FTC, and not the FCC, should regulate all privacy and data security and privacy practices online. "All actors in the online space should be subject to the same rules, enforced by the same agency," they said in the statement. In January, several telecom and cable industry groups filed petitions challenging the rules. The data security rule was supposed to go into effect on March 2. Today's vote puts the new rules on hold until the FCC votes on a reconsideration of them. FCC Commissioner Mignon Clyburn, the only Democrat on the commission, criticized the move in a statement. She called the move a "proxy" for gutting the FCC's full set of privacy regulation, and stated that consumers would be left vulnerable. "If a provider simply decides not to adequately protect a customer's information and does not notify them when a breach inevitably occurs, there will be no recompense as a matter of course," Clyburn wrote. This is the latest move by the Republican-led FCC to kill controversial regulations pushed by former Democratic Chairman Tom Wheeler. Pai has already closed consideration of rules to reform the cable set-top box market. He also reversed several other consumer-protection orders, reports and proceedings that were adopted in the final weeks of Wheeler's FCC. This included telling nine companies they won't be allowed to participate in the federal Lifeline program. Lifeline's purpose is to provide low-cost broadband access to low-income consumers. Pai wants to reverse these orders and reports because they were decreed at the last minute by a departing administration. Meanwhile, Pai has already begun to take steps to dismantle net neutrality. At the FCC's open meeting last week, he led the vote to expand the number of companies that receive exemptions to parts of the net neutrality rules. In opposition, Democrats in the Senate, including Ed Markey of Massachusetts and Al Franken of Minnesota, have vowed to fight to protect the privacy and net neutrality rules. In a statement, Markey said this was just the beginning of Pai's efforts to dismantle many consumer protections. "Chairman Pai has fired his opening salvo in the war on the Open Internet Order, and broadband privacy protections are the first victim," he said. "This carve out for the broadband industry will make consumers' information more vulnerable to breaches and unauthorized use."

Digital Pakistan is on a Priority Agenda of Government of Pakistan

Ms. Anusha Rahman, Minister of State for Information Technology and Telecommunication is attending the GSMA Mobile World Congress 2017. The Minister for Information Technology & Telecommunication has been invited by the GSMA to participate in the Annual GSMA Ministerial Program 2017 and to express views on the emerging technologies shaping the global community. The Ministerial Programme is an integral part of the Annual MWC, which provides a unique forum for CEOs, ministers, regulators and policymakers from around the world to discuss the challenges and opportunities of the ever evolving mobile sector. Digital Pakistan is on the Priority Agenda of GoP: Anusha at MWC 2017. As a keynote speaker on the "Championing the Digital Agenda" theme, the Minister said that the transformation to "Digital Pakistan" is on the priority agenda of Pakistan with special emphasis on 'Bridging Broadband Divide' to enable socio-economic development through innovation and entrepreneurship. The Minister further stated that large-scale societal adoption and use of digital technologies is a key driver of measurable economic, social and cultural value, including increased productivity, a rise in employment rates, improved security, gender mainstreaming and greater capacity to tackle social and environmental issues. The Minister for IT & Telecom also participated in GSMA and the World Bank Roundtable discussion on "Building Sustainable Digital Identity Ecosystems for the Future" as well as the special session hosted by the World economic Forum in continuation of the Digital Economy dialogue from Davos meeting. While expressing her viewpoint on the responsibility of public and private sector in unlocking the value of digital transformation to society, the Minister expressed that we are in the midst of a change presumably as big as the industrial revolution when it brought us steam power and electricity. Digital communications affects all industries, the public sector and society as a whole. While responding to a question during an interview session with the GSMA, the minister pointed out that the large-scale societal adoption and use of digital technologies is a key driver of measurable economic, social and cultural value, including increased productivity, a rise in employment rates, improved security and greater capacity to tackle social and environmental issues. She highlighted that Ministry of Information Technology and Telecommunication is going all out for expanding for both IT & Telecom sectors in tandem. Consequently, the Information Technology sector is progressing in multiplicative mode and has exports of over USD 2.5 billion. Through the enabling policies and auction spectrum for next generation mobile services, the Broadband penetration has jumped from a mere 3% in 2014 to some 27%. The IT and Telecom sectors are expanding and generating new jobs as businesses utilize modern ICT technologies such as e-commerce, e-banking, e-health, e-education, and business related to IT applications. The Minister held meetings with global teams of the industry leaders from global Groups like Telenor of Norway, Etisalat of U.A.E, and Vimplecom. The Minister also met with the GSMA Head of Asia Region, Mr. Alasdair Grant. The Minister reiterated the need to bring the mobile sector's technical expertise and practical market experience to the table, in the spirit of constructive dialogue and the desire to spread best practices in policy and regulation around the world.

FCC Authorizes 5GHz LTE-U Usage; T-Mobile US Unveils LTE-U Launch Details

New Federal Communications Commission (FCC) Chairman Ajit Pai has confirmed that the watchdog has taken steps to authorize LTE-Unlicensed (LTE-U) devices in the 5GHz band. Mr. Pai commented: 'LTE-U allows wireless providers to deliver mobile data traffic using unlicensed spectrum while sharing the road, so to speak, with Wi-Fi. The excellent staff of the FCC's Office of Engineering and Technology has certified that the LTE-U devices being approved today are in compliance with FCC rules. And voluntary industry testing has demonstrated that both these devices and Wi-Fi operations can co-exist in the 5GHz band. This heralds a technical breakthrough in the many shared uses of this spectrum.' Following the ruling, T-Mobile US immediately unveiled its own LTE-U launch plans, confirming that it expects to offer the technology on a commercial basis from this spring, tapping into an 'underutilized' 20MHz block of 5GHz spectrum. Since December 2016 T-Mobile has been testing LTE-U equipment as part of its early field trials, noting that gear from its strategic partners Ericsson and Nokia has now been certified for use by the FCC. T-Mobile expects to use LTE-U spectrum to help deliver its forthcoming Gigabit LTE service.

Malta's New Draft Law Raises Concerns Over Internet Freedom

Several thousand people took to the streets of Malta on Sunday (19 February) to protest against a new bill that is expected to force online news sites to register with the government. The protest, organized by Malta's opposition Nationalist Party (NP), is campaigning against a new proposal, seen as a clampdown on freedom of speech. The draft bill, proposed last week, seeks to update Malta's defamation and libel laws, which some say is a way to oblige citizens to register before being able to express views on the Internet. "This is a restriction on internet freedom and a future nationalist government will repeal it if it gets approved by parliament," NP leader Simon Busuttil told the rally in Valletta. The move comes after the Organization for Security and Cooperation in Europe (OSCE) slammed Malta last week for intimidating journalist Daphne Caruana Galizia. Earlier this month (8 February), a court upheld a request by the Economy Minister Christian Cardona to freeze the bank account of Caruana Galizia for more than €47,000 for an article published on 30 January, which compromised the minister and his EU presidency policy officer Joseph Gerada for a recent business trip to Germany. Caruana Galizia reported that both men had been in a brothel in Velbert, Germany, while on official business as guests of the German government, where they were seen at close range by another Maltese person. Cardona has denied the allegation. "It is the job of journalists to report on issues of public importance and it is the job of the authorities to ensure that journalists can do so without being intimidated or threatened," OSCE Representative on Freedom of the Media Dunja Mijatović said last week, adding that she was following with concern the pressure on Caruana Galizia. "Initiating libel lawsuits for the work of journalists can very quickly chill free public discourse in any society," Mijatović said, recalling that public figures must endure a higher threshold of criticism and scrutiny due to their public work. "In addition, the very unusual move to freeze significant financial assets of Caruana Galizia already depicts her as guilty," Mijatović said. "Freedom of expression cannot stop at views deemed appropriate by those in power." The Institute of Maltese Journalists has called on the minister to reconsider his action in order to give journalists a message that they are really free in their work: "Freezing a journalist's assets is exaggerated and goes against freedom of expression and press freedom," a press release issued by the institute stated. On Monday (20 February), Caruana Galizia won a libel case lodged by Mark Gaffarena, whose shady deals had been exposed by the journalist. The new bill was announced by the government last week and has yet to go before parliament. The proposed law would require all websites carrying news and controlled from Malta to register with the government, with the threat of fines for those that fail to comply. The government says it is following the same procedure as already exists for newspapers and broadcasters, which have been required to register with the government since 1975. Busuttil said the bill would be "the beginning of the end of freedom of expression on the internet". In her statement, Mijatović also noted with concern that on 4 February the economy minister sued another journalist, Mario Frendo from the media outlet In-Nazzjon, in connection with the same issue. "I call on the authorities to protect critical journalism and free speech," she said. "I trust that they will remedy this situation by ensuring that Caruana Galizia and all journalists can freely carry out their important work." The draft law defines editors as "any person responsible for the publication of information, ideas or images on a website", and websites as "any web-based news service or other web-based service relating to news or current affairs that operates from Malta or in respect of which editorial decisions are taken in Malta".

Turkey Competition Watchdog to Investigate Google

Turkey became the latest country to open an investigation into whether Google violated its competition law, following similar moves by Russia, South Korea and the EU. Turkey's Competition Authority will look into Google's contracts with equipment makers, as well as its mobile communications systems, applications, and provision of services. The authority previously said a probe was not needed, but changed its mind after a second evaluation. In August 2016 Russia's Federal Antimonopoly Service fined Google RUB438 million ($6.8 million), following a decision the company violated the country's laws by requiring device makers to preinstall Google apps to gain access to the Play content catalogue, as well as setting Google as the default search. This was around the same time the Korea Fair Trade Commission issued a brief statement confirming a probe dealing with similar concerns. Last November, Google's top lawyer said a European Commission case against the search giant risks sending an "unintended signal" that it favors closed over open platforms. In April, Google was accused of "stifling competition and innovation" by EU Competition Commissioner Margrethe Vestager regarding an alleged use of Android to impose unfair restrictions on device manufacturers and operators.

High Spectrum Prices Threaten High Quality & Affordable Mobile Broadband Services

The GSMA today published 'Effective Spectrum Pricing', a research report on spectrum pricing, including the impact on consumers. The study, developed in collaboration with NERA Economic Consulting, links high spectrum prices to more expensive, lower quality mobile broadband services and also estimates that, due to the increased data prices, consumers lost out on economic benefits worth US$250 billion across selected markets. Average final prices paid in auctions were found to have risen 250 per cent1 from 2008 to 2016 with the most exorbitant price tags often influenced by policy decisions. "The era of judging the success of auctions based on headline-generating revenue figures is over," said Brett Tarnutzer, Head of Spectrum, GSMA. "The damage done to consumers –and the wider digital economy – by policies that artificially inflate spectrum prices has been too great. While auctions remain an effective means of awarding spectrum, regulators should adopt spectrum policies that focus on maximizing the benefits for society, rather than simply driving up the cost of spectrum." The study found that although price outcomes for some spectrum awards remain moderate, the upward trend in average prices was driven by a growth in the number of exceptionally high price auction outcomes. Statistical evidence shows the impact on consumers and links high price outcomes with:

- Lower quality and reduced take-up of mobile broadband services;
- Higher consumer prices for mobile broadband data; and
- Consumers losing out on economic benefits with a purchasing power of an estimated US$250 billion a cross 15 countries where spectrum was priced above the global median – equivalent to US$118 per person.

"There was a time when it was believed that the cost of spectrum, no matter how high, would not impact consumers through higher mobile bills or reduced investment in networks. The academic and empirical research no longer backs this up," said Richard Marsden, Managing Director at NERA Economic Consulting. "Furthermore, if you look at best practice regulation in the mobile industry, and other comparable industries, the focus of pricing policy is on reducing risks and adopting a long-term perspective to social value creation – not maximizing revenues."

The report highlights four key pricing policy recommendations:

1. Set modest reserve prices and annual fees and rely on the market to set prices;
2. License spectrum as soon as it is needed, so as to avoid artificial spectrum scarcity;
3. Avoid measures that increase risks for operators (e.g. that put the value of their company in jeopardy); and
4. Publish long-term spectrum award plans that priorities public welfare benefits over state revenues

"With advanced 4G networks being deployed now and 5G technology on the horizon, both requiring ever-increasing amounts of spectrum, those countries that inflate prices aren't just damaging their broadband future, they are holding back their entire digital economies. The mobile industry, directly and as an enabler of adjacent sectors and services, contributed US$3.1 trillion to global GDP, or 4.2 per cent of GDP, in 2015. Governments and regulators must fully appreciate their ability to maximize – or thwart – their digital futures through spectrum pricing," added Tarnutzer.

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

Afghanistan

Afghanistan's Ministry of Communications and Information Technology (MCIT) has confirmed that it is working towards the introduction of 4G services. The acting head of the Ministry, Syed Ahmadshah Sadat, announced that the agency will publish the government's 4G policy shortly, and requested that interested parties contact sector watchdog the Afghanistan Telecoms Regulatory Authority (ATRA) regarding the potential introduction of 4G services. No further details were made available, though the regulator has previously suggested that it would use the APT700 frequency band (703MHz-748MHz/758MHz-803MHz) for 4G services. It was also not clear whether the regulator would offer the new licenses via auction, having previously allocated 3G concessions at a flat rate to the nation's incumbent cellcos. (February 23, 2017) Khaama Press

Bangladesh

Secretary and spokesperson of the commission, told the Dhaka Tribune the drafting of a policy guideline to launch 4G services is underway and they are determined to award 4G licenses shortly. Bangladesh Telecommunication Regulatory Commission (BTRC) said it will decide on either of the two issues – technology neutrality or 4G auction – by the end of this month. According to a top BTRC official, there will be an important meeting by the end of this month chaired by its Chairman Dr. Shahjahan Mahmood. The meeting will finalize the issue. The regulatory authority thinks if the licensing process is completed first, spectrum neutrality will be solved in due course. Secretary and spokesperson of the commission, told the drafting of a policy guideline to launch 4G services is underway and they are determined to award 4G licenses shortly. In last February, BTRC called an urgent meeting that decided to draft a policy. It asked all the departments to place their proposals, which will later be sent to the ministry concerned for approval. Sajeeb Wazed Joy, ICT affairs adviser to the prime minister, also ordered that a quick step be taken to launch 4G at a recent meeting with Posts and Telecommunications Division at the Secretariat. Initially, the telecom regulator would offer license to four mobile operators while an option would remain open for a new entity in 4G license. In that case, those who will get 4G licenses will be eligible for spectrum auction. The price of license fee will remain the same as 3G. Now BTRC has 40MHz spectrum available. Earlier, it took several initiatives to sell unused spectrum at auction, but the initiatives failed as the operators were reluctant to participate in it. If the regulatory authority fails to settle the tech neutrality or 4G auction issue with the mobile operators, 4G auction will hang in the balance this time also. In 2013, the regulator conducted the 3G spectrum auction in which four private mobile phone companies took part. In the auction, Grameenphone took 10MHz spectrum while Banglalink, Robi and Airtel 5MHz spectrum each at the price of $21 million per MHz. Welcoming the government initiative on 4G/LTE Ekram Kabir, vice-president, Communications and Corporate Responsibility at Robi Axiata Limited, said they hope that the government will conduct effective consultation with the industry players in formulating 4G/LTE Licensing Guideline, keeping in mind the National Telecom Policy objectives. Spectrum is one of the basic and key requirements for launching 4G/LTE, he said, adding that hence the government should consider spectrum auction and technology neutrality in all existing bands prior to or at the same time of issuing the 4G/LTE License. Without compatible mobile devices, consumers will not be able to experience the services, he cautioned. According to Asif Ahmed, head of Corporate Communications, Banglalink, 4G is an integral part of Banglalink's digital transformation promise. The telecom operators want that technology neutrality be implemented beforehand, rather than announcing 4G auction to ensure quality services. "We prefer to see technology neutrality introduced to ensure quality service and enhance customer experience," said Mahmud Hossain, chief corporate affairs officer, Grameenphone. (March 22, 2017) dhakatribune.com

The country will connect another 11 million unique mobile customers by 2020, to join the league of top ten growing countries, a study by GSMA, the association of mobile operators, projected. The global organization of all the mobile operators said within the next few years, 900 million unique mobile subscribers will join worldwide, and 72 percent of that will be from the top ten countries, according to a study report titled 'The Mobile Economy'. A unique customer is a single user who may have a single or multiple SIMs. Currently, around 85 million unique customers are using mobile connections in the country, according to Association of Mobile Telecom Operators in Bangladesh (AMTOB), though the number of active SIMs stands at more than 120 million. Industry experts said there is a tendency to use multiple SIMs in a market like Bangladesh. India, already the world's second largest mobile market, will be the primary driver of this growth, with 310 million new unique subscribers expected in the period to 2020, helped by

improving affordability, falling device prices and better network coverage, reads the report. China is projected to account for 158 million new unique customers. Other fast-growth Asian markets include Indonesia (23 million), Pakistan (17 million) and Myanmar (11 million). Other countries on the top-ten list are Nigeria (27 million), Mexico (21 million), USA (21 million), and Brazil (18 million). Currently, there are 4.8 billion active mobile users across the globe and it will be 5.7 billion by 2020, reads the report. (March 6, 2017) thedailystar.net

Bangladesh's telecoms regulator plans to issue 4G licenses within a month and to hold an auction in four months, which will be open to the country's four existing mobile players as well a new participant. Bangladesh Telecommunication Regulatory Commission (BTRC) is expected to approve technology neutrality for all existing spectrum, which operators have been calling for and some are already prepared to upgrade their networks to 4G, local newspaper The Daily Star reported. The Prime Minister's ICT Affairs adviser Sajeeb Wazed Joy in a meeting with BTRC last week urged operators to introduce 4G services in the country as soon as possible. The spectrum price likely will be set 20 per cent higher than the BDT100 million ($1.23 million) per megahertz price for the 3G auction in 2013, a BTRC representative said. BTRC has 15MHz of unsold spectrum in the 2100MHz band, 10.6MHz in the 1800MHz band and some spectrum in the 900MHz band which came from Airtel after its merger with Robi. Mobile operators use the 2100MHz band for 3G services and the 900MHz and 1800MHz bands for 2G services. Market leader Grameenphone welcomed the announcement to move to technology neutrality and hold an auction. Mahmud Hossain, chief corporate affairs officer at Grameenphone, told The Daily Star the operator is looking forward to its quick implementation as it will help improve network quality, particularly indoors. (February 22, 2017) mobileworldlive.com

Egypt

tYasser Al-Qadi, Minister of Communications and Information Technology, said that the ministry plans to establish a software center inside Knowledge City within the New Administrative Capital, in cooperation with Eitesal and the Chamber of Information Technology and Telecommunication (CIT). This came on the sidelines of a meeting held between Eitesal, its members, and the minister. Al-Qadi added that the area of the city is about 300 feddans (311.4 acres). The new center aims to spread awareness of the role of the communications and information technology sector in developing other sectors. The minister further revealed that all ministers are cooperating to create a unified database, where 24 databases were put together over the past few months, which will eventually create a smart government. He said that his ministry is currently working with the ministries of interior and supply to make digital IDs that help citizens obtain services through one card. During the conference—held by Eitesal on Tuesday under the name “Meeting with the Government"—Al-Qadi stressed the importance of focusing on utilizing the existing 18 marine cables to improve the services provided to citizens. In terms of mobile phone manufacturing on a local level, the minister said that local manufacturing of mobile phones will reach 20% with the start of operations at Egypt's first mobile phone factory in the technological zone in Assiut. Egyptian company “Sico” contracted last year with Chinese “Megan” to manufacture mobile phones locally. He added that the ministry seeks to focus on producing all electronics locally in order to start exporting to foreign markets. He explained that the ministry plans to start working in the technological zone in Beni Suef and Menoufiya this year. The ministry has received requests from governorates to establish similar zones in these governorates. The ministry is looking into the subject very carefully right now to choose the most suitable places for the establishment of these zones. The technological areas also provide new jobs for young people, according to the minister. The Ministry of Communications and Information Technology is currently negotiating with Arab investors in order to facilitate investments in these areas. For his part, the minister revealed a deal between his ministry and the Ministry of Health and Population to develop the health insurance system in all governorates, where applying the system will start in Port Said, Ismailia, and Suez as a first phase. He stressed that the parliament is currently discussing a law that stipulates developing the health insurance system, noting that the development process will contribute to offering services justly to citizens. (March 8, 2017) dailynewsegypt.com

The number of mobile subscribers slightly increased in November 2016 from October. According to a report issued by the Ministry of Communication and Information Technology, the number of subscribers to mobile services increased from 97.23m in October to 97.4 million in November, marking a growth of 0.17%. The three mobile phone operators, Vodafone, Orange, and Etisalat, attracted about 170,000 new subscribers to their services. The number of subscribers to land-line services rose from 6.1m subscribers in October to 6.45m in November, an increase of 4.4%. Telecom Egypt (TE) attracted about 270,000 new customers during November. It is noteworthy that TE is currently the only land-line provider in Egypt. The mobile market is expected to witness a struggle in the coming period, as TE is poised to launch mobile services as a fourth mobile operator company and will provide fourth-generation services (4G) that are more than 10 times faster than the current 3G services. In August, TE received licenses worth EGP 7.08bn, allowing it to provide 4G services and other frequencies. The National Telecom Regulatory Authority (NTRA) recently signed the 4G licenses with Vodafone Egypt for $335m, with Etisalat Egypt for $535.5m, and with Orange Egypt for $484m. The mobile sector gained nearly 970,100 new subscribers in October, as the number of subscribers increased from 96.2m subscribers in September to reach around 97.2m subscribers in October. Etisalat Egypt was able to attract the largest number of new subscribers, recording an increase from 23m subscribers in September to 23.69m in October, an increase of 671,400 subscribers in only one month. (February 22, 2017) dailynewsegypt.com

Iran

Iran's Ministry of Communication released a new report on the number 3G and 4G internet subscribers from all of the three Iranian mobile network operators. Iran's three mobile network operators MCI, Irancell and Rightel entered the mobile internet battle field aggressively after Rightel's 3G monopoly contract expired in 2013. After the mentioned monopoly contract, other 2 Iranian operators which still hold more than 90% of the market share together (check Iran Mobile Network Operator market share). MTN's Irancell started mass marketing campaigns on their 3G and 4G internet quickly and started to pick up a quick momentum. Hamrahe Aval (MCI) which is the largest mobile operating network showed weaker results in jumping on the 3G internet wave comparing to Irancell. As of now MCI has the most 3G internet users following Irancell and lastly Rightel. In the 4G (LTE) user side the story is completely different, and Irancell holds about 6 times more users using its 4G internet than MCI. One of the reasons of this is that the majority of MCI users are requested to apply for a new "4G" SIM card at representative stores. It must be mentioned that Irancell also provides Wi-Max and LTE-TDD internet for households and businesses which are obviously counted as part of its 4G internet users. Statistics on Rightel's internet users do not specify that the internet users are using 3G or 4G.

3G mobile internet subscribers per mobile operator:

- MCI: 12,814,000 subscribers
- Irancell: 10,468,500 subscribers
- Rightel: 979,000 subscribers (total number of internet users)

4G mobile internet subscribers per mobile operator:

- Irancell: 1,612,000 subscribers
- MCI: 297,000 subscribers
- Rightel: 979,000 subscribers (total number of internet users)

Total number of Internet subscribers of all mobile operators:

- MCI: 13,111,000 subscribers
- Irancell: 12,080,000 subscribers
- Rightel: 979,000 subscribers

Statistics show Irancell had the highest growth in number of 4G internet subscribers.

(March 2, 2017) ISNA News

Lebanon

Telecommunications Minister Jamal Jarrah Friday announced a plan to revamp the landline communications network in Lebanon. "As soon as the improvements [to the landline network] are finished, 500,000 additional landline numbers will become available," Jarrah said, speaking during the project's launch ceremony at the Grand Serail. Jarrah also promised upgraded fiber optic networks, improved internet services and new data bundles would soon be available, particularly to students. The minister stressed that the new telephone land lines will enable the Telecommunications Ministry and state-owned landline operator Ogero to speed up the DSL connection all over Lebanon. "This is the first phase of the project to revamp the telecom services in Lebanon and the second phase is to install fiber optics. We have decided to start the installment of the fiber optics from the rural areas all the way to the major cities like Beirut," Jarrah explained. He added that Ogero promised to complete the installation of the new landlines in a matter of weeks and not months. Jarrah said that Ogero would have different types of internet services from student packages to those for heavy users. He also spoke about upgrades to the country's mobile infrastructure. "At the end of February we will upgrade the internet service to 4G and at the end of March of this year this service will cover at least 85 percent of Lebanese territories," Jarrah said. He stressed that users will experience real 4G speed and not only see the 4G sing in their mobiles. Jarrah said that these services were introduced at the request of the government and Prime Minister Saad Hariri. Also in attendance, Hariri hailed the move and assured that the minister and Ogero are keen to complete the fiber optics across all of Lebanon in a short period of time. The prime minister said President Michel Aoun wants the installation of the fast internet to start in rural areas and then come to the cities. He added that the IT sector is one of the main economic drivers for many countries and that Lebanon should follow the same path. Activists and businesses have long lobbied for improved and less costly telecoms services.

t(February 22, 2017) zawya.com

Telecommunications Minister Jamal Jarrah announced that 85 percent of Lebanon will hopefully enjoy the 4G services by the end of March. The minister made this announcement during the opening of the ArabNet conference. "By the end of March, the ministry aspires to spread 4G connection to 85 percent of the Lebanese territory," he said. Most parts of Lebanon still don't enjoy 4G services, which were launched by the former telecom ministers. Jarrah also stressed the importance of collaboration between the government and private sector in order to make the best of the innovative capabilities of the Lebanese youth. The opening ceremony was attended by Economy Minister Raed Khoury and Raed Charafeddine, first vice governor of the Central Bank, who represented Gov. Riad Salameh. "All the ministry's capabilities are focused today on planning and coordinating among ministries and administrations and involved parties to develop an environment that embraces entrepreneurs' initiatives and fulfills the ambitions of the youth, limiting therefore their migration and pushing them towards creating new innovative

projects," the minister said. Charafeddine said there are currently around 800 startups in Lebanon providing 6,000 employment opportunities, and this adds $1 billion to the Lebanese treasury. "The knowledge economy in Lebanon is witnessing annual growth between 7 and 9 percent," Charafeddine said. He said ArabNet has positively contributed to reaching such results since its launch 8 years ago. Saad Andary, second vice governor of the Central Bank, said banks will embrace technology because they want to be where their customers want them to be. "Customers will be able to visit banks without even leaving their homes. Branches will see less foot traffic; some branches will have to be closed; cash will be history," Andary predicted. ArabNet Founder and CEO Omar Christidis said the "Lebanese digital entrepreneurship ecosystem is maturing; driven by Circular 331, Lebanon has jumped to second place in the region in the number and value of investments." The organizers said that the first day of the event saw the launch of the new Banking Innovation Day, which brought together over 150 bankers from over 18 banks in Lebanon and abroad, as well as technology providers and agencies, to discuss the latest innovations in banking technology, and help boost growth of the financial sector. (February 21, 2017) zawya.com

Nepal

Lack of supplementary policy is likely to hinder the plan to digitize television broadcasting in the country as cable operators have been told to phase out analog transmission, but the government hasn't taken appropriate measures to enforce the directive. The Ministry of Information and Communications (MoIC) has instructed cable operators to make necessary arrangements to ensure that the analog signal being used to provide cable television service is replaced by a digital signal by May. Accordingly, a number of big cable service providers have readied a digital platform. However, the MoIC has no concrete plan about what to do if cable operators do not comply with the government's directive. Consumers switching to digital service will have to connect a set-top box to their television set. They will experience clear connection and high definition channels through a digital cable connection. The government will also be able to find out the actual number of cable service users once the system is digitized. As people tend to split their analog connection so that the programmes can be seen on several TV sets, it is difficult for the government and service providers to find out the actual number of users. The use of digital cable is also expected to boost government revenue as it won't be easy for service providers to give false information about their subscriber base. In 2012, the government had begun the process to switch to digital cable service by amending the National Broadcasting Act 1993 and National Telecommunications Act 1995. Based on the amendments, the government directed cable operators to digitize their service within three years. A number of issues like lack of preparation, the 2015 earthquake and subsequent blockade obstructed the government's plan. The government's initiative is in line with the 2017 deadline set by the International Telecommunication Union of the United Nations (UN) for countries to go digital. After a hiatus of more than four years, the government finally took a position and directed cable TV operators to switch to digital from May 2017. Initially, the provision will be applied to cable operators in Kathmandu Metropolitan City, Lalitpur, Pokhara, Biratnagar and Birgunj. The government aims to extend the cable digitization process to 58 other towns by mid-November 2017 and across the country by mid-April 2018. "In line with the government's plan, a number of cable service providers have already switched to a digital network," Ramchandra Dhakal, joint secretary at the MoIC, told the Post. "We do not have any harsh measure to take against those who do not comply with the decision. We aim to make it a gradual process." The only way the MoIC has in mind to enforce compliance is license renewal. It has made it mandatory for analog cable operators to obtain a license for digital service. Since all cable operators aren't capable of switching to a digital network, the digitization drive will encourage small operators to merge with bigger ones or create a consortium which will also help increase the number of big service providers with a large customer base. Likewise, small operators can buy signals from digital cable operators and use their own brand name and import set-top boxes with their brand to stay in business. "As per the government's plan, we are supposed to stop analog transmission from May 1. The government, however, has asked us not to shut down our analog service right away, which is a bit confusing," said Sudheer Parajuli, president of the Federation of Cable TV Associations of Nepal. He added that a majority of big cable service operators were technically prepared to upgrade their service. There are around eight cable service providers in Kathmandu, Parajuli said. They estimate that around 1 million set-top boxes will be required to digitize services in five major cities in the first phase. It has become difficult to convince people to upgrade their connection to digital due to the government's apathy towards promoting new technology, cable TV operators said.
(March 20, 2017) kathmandupost.ekantipur.com

Oman

Within the context of its ongoing efforts to create a regulatory environment that is conducive to effective competition in the telecommunications sector, the Telecommunications Regulatory Authority (TRA) held a 3 days meeting with the telecom licensees during the period March 6-8, 2017 to discuss certain aspects of the draft Reference Access and Interconnection Offers (RAIO) that were prepared by Omantel and Ooredoo on the basis of the Access and Interconnection Regulation requirements so as to be issued and published in their final format by the licensees dominant in wholesale markets. The meeting was attended by representatives of all the telecom operators providing public services in Oman, namely Omantel, Ooredoo, Friendi Mobile, Connect Arabia International, TeO, Renna, Awasr, Zajel Communications, Madakhil Investment (Maritime) and Oman Broadband Company. (March 9, 2017) tra.gov.om

The number of fixed lines in Oman increased 3.3 percent as at 31 January to 481,029, from 465,721 in January 2016, according to figures issued by the National Centre for Statistics and Information (NCSI). Pre-paid and post-paid fixed telephone lines rose by 0.6 percent to 298,755 lines at the end of January from the year earlier. The number of fixed telephone lines connected to the Internet Protocol (IP) stood at 136,005.
(March 1, 2017) world.einnews.com

Pakistan

The Advisory Committee for the Auction of unsold Next Generation Mobile Services (NGMS) spectrum (4G) gave go-ahead for the auction of 4G spectrum. While it's not confirmed yet, official sources told that projected base price for one 10 MHz block is around $300 million. Official sources revealed that Prime Minister, who is the Minister in-charge of the Ministry of Information Technology and Telecommunication, may issue policy directive for auction latest by Wednesday. The auction process would be completed by end May 2017, the sources confirmed. Furthermore, the government has decided to go for auction of the last available spectrum of single block of 10MHz in 1800MHz, without dividing it into two blocks. Prime Minister Nawaz Sharif had constituted an Advisory Committee for auction of this spectrum which is headed by Minster of State for Information Technology and Telecommunication Anusha Rahman while Special Assistants to PM for Law, Secretary IT, Secretary Finance, Secretary Law, Chairman Pakistan Telecommunication Authority (PTA), Executive Director Frequency Allocation Board (FAB) and Member telecom are the members of this committee. Member Telecom was also appointed as "Committee Secretary". The Advisory committee for the auction of unsold Next Generation Mobile Services (NGMS) spectrum (4G) met last Thursday to take final decision on the spectrum auction. The Minister chaired the Advisory committee for the auction and reviewed the comparative study of benchmarking from local and regional telecom markets. Fearing poor response from the upcoming spectrum auction (4G), the Advisory committee had decided to undertake a comparative study of benchmarking from local and regional telecom markets. The Chairman PTA led sub-committee analyzed the regional and global markets, which have gone through spectrum auction in recent past. The sub-committee submitted its report to the main spectrum Advisory committee for consideration and further necessary action. During the last two auctions, the government conducted markets survey through consultants but did not go for comparative study of benchmark from local and regional telecom markets. The government had a consultant study in hand as per the PTA officials but uncertainty led the government to go for further market analysis. The government had budgeted Rs 65 billion from the auction of two licenses of 3G and 4G for 2015-16. However, later government revised it to Rs 45 billion, while deciding to go for single frequency spectrum auction in the 850 MHz band with base price of $395 million. One license (4G) remained unsold and the government has budgeted Rs 75 billion for the current financial year from its auction. (March 20, 2017) propakistani.com

3G/4G Users in Pakistan Reached 38 Million. After the launch of 3G/4G services in 2014, we have witnessed a rise in 3G/4G subscribers in Pakistan. According to the recent report issued by Pakistan Telecommunication Authority (PTA), the number of 3G/4G users in Pakistan reached 38.2691 million at the end of January 2017 against 37.574 million by December 2016. The stats simply narrates the success story of efforts of Pakistani mobile operator's regarding digital Pakistan initiatives and providing best ecosystem in the country.On the other hand mobile phone users have also witnessed an increase in the number. They have reached 137,095 million by the end of January 2017, up from 136,489 million at the end of December 2016. Almost 0.606 million new users are added during the period under review. The recent stats issued by PTA also revealed the total subscribers of Jazz (previously known as Mobilink Warid) have also reached 51.534 million by January 2017. Mobilink had a subscriber base of 41.253 million by December 2016. Whereas Warid had 10.27 million users a month before. Zong and Telenor users reached 27.496 million and 39.586 million by January 2017 as compared to 26.929 million and 39.453 million by December, respectively. Whereas 3G users of Ufone again witnessed a decline. The users decreased from 5,305,094 in December 2016 to 5,095,611 by end of January 2017; which shows the deteriorating market position of Ufone. The recent stats also revealed the 4G users of Jazz for the first time. The subscribers reached 700,486 by January 2017. While Warid LTE had a subscriber's base of 637,363 by December 2016. Zong 4G

Users Increased from 2,274,157 users during December 2016 to 2,855,336 subscribers by end of January 2017 The number of 4G users for Zong increased from 2,274,157 users during December 2016 to 2,855,336 subscribers by end of January 2017. The increase in the number of Zong 4G users is a good sign for the telecom operator. We all know really well that the Pakistani market is struggling with 4G smartphones, as there not many 4G compatible phones. Zong overtook other operators by selling 4G SIMs via its Mobile Broadband (MBB) devices. The major advantage for this Telecom operator is its ARPU is at least US $ 15, up from usual US$ 2 ARPU for common Pakistani mobile phone users. With Zong planning to establish over 10,500 4G cell sites by end of 2017, it can be believed that Zong is all set to capture the 4G market. Other operators such as Jazz and Telenor will also try to enhance their MBB 3G/4G segment.
(March 2, 2017) phoneworld.com.pk

Pakistan has been declared the winner of the 'GSMA Government Leadership Award 2017' at the biggest annual telecom industry gathering at the Mobile World Congress in Barcelona Spain. The award was received by Minister of State for IT &T and Telecom Anusha Rahman during the Global Mobile awards and goes on to confirm the worldwide acclaim and global recognition of the Government's Telecommunication Policy 2015, a message received here said Wednesday. Accepting the award Anusha thanked the global telecom community and the GSM Association for reiterating its confidence and trust in the telecom sector policies of the government of Pakistan, Attributing the success to the hard work of professionals at MoIT&T, PTA and FAB she said, "This award is recognition of the Pakistan's policy soundness and the vision of the government under the leadership of Prime Minister Nawaz Sharif for the telecommunication sector in Pakistan by the international community." She congratulated the prime minister and Pakistani people on winning the second global GSMA award in a short span of two years. Pakistan was awarded the Leadership Award for Transparent and Market Building Spectrum Auction in 2015. The minister highlighted that 'Telecommunication Policy 2015' had been recognized by the international community for its sound provisions catering for the availability of universal, affordable and quality telecommunication services provided through open, competitive and well managed markets which could be used by people to the benefit of the economy and society. She added that the award had also recognized the measures laid down in the policy that were expected to make telecom market more efficient in terms of quality of service and choice of services available to the consumers; and the policy was expected to boost the Telecommunications as well as ancillary ICT sector markets, spur socio economic development and would act as a catalyst towards achieving knowledge based society with digital inclusion of all segments of our society. On the sidelines of the Barcelona event, the Minister of State for Information Technology & Telecommunication also held a meeting with the Chairman of the Internet Corporation for Assigned Names and Numbers (ICANN) Goran Morby as well as host of other global telecom industry leaders including top leadership of the Etisalat, Telenor and Vimplecom groups and invited them to partner with the government to take the benefits of the digital revolution to all segments of Pakistani society. The global technology leaders congratulated the minister on receiving the Leadership Award and expressed full industry commitment to her initiatives for achieving an inclusive digital economy in Pakistan for the benefit of both the masses and the industry. (March 2, 2017) samaa.tv
Since the recent boom in the mobile tech, 3G and 4G consumers in Pakistan have touched 38.269 million figure by 2017. According to Pakistan Telecommunication Authority (PTA) nearly 37.574 million mobile internet users were found to have been using the recently launched 3G/4G data connections in December 2016. But after a month (from December 2016 to January 30, 2017) around 0.606 million new users have been added into the world of mobile internet subscribers. In these statistics, Jazz subscribers stood at 51.534 million by the end of January 2017; Mobilink subscribers were 41.253 million by end December 2016; Warid users were 10.27 million users a month ago. The subscribers of Zong and Telenor have now extended to 27.496 million and 39.586 million by end January 2017 as compared to 26.929 million and 39.453 million by end of December respectively. However, a decline has been observed in the Ufone subscribers, showing a sign of reduction from 18.581 to 18.478 million till December 2016. Jazz 4G subscribers were 700,486 in January 2017 followed by Warid LTE having 637,363 subscribers by 2016, the report said. Zong 4G users increased from 2,274,157 users during December 2016 to 2,855,336 users by end of January 2017. (February 24, 2017) pakistantribe.com

Minister of State for Information Technology Anusha Rehman on Friday chaired a meeting for detailed deliberation on the unsold Next Generation Mobile Services (NGMS) Spectrum. This was the third meeting of the Advisory Committee for the auction. The meeting was attended by Secretary IT Rizwan Bashir Khan, Chairman PTA Syed Ismail Shah, members of Advisory Committee, senior officials of Ministry of IT and Telecom, Ministry of Finance, Ministry of Law and Justice, Pakistan Telecommunication Authority (PTA) and Frequency Allocation Board (FAB). Chairman PTA apprised the Advisory committee regarding different recommendations and suggestions mentioned in consultant report as well as internal PTA analysis on global price benchmark. The committee unanimously decided to have further comparative study of benchmarking from local and regional telecom markets. Therefore, a sub-committee headed by Chairman PTA was constituted. This sub-committee will analyze the regional and global markets, which have gone through spectrum auction in recent past and on the basis of their comparative study, the sub-committee will submit its report to the main spectrum advisory committee for consideration and further necessary action. Anusha Rehman stressed the need for early completion of comparative analysis so that process of spectrum auction could be completed. She further said it was the utmost priority of the government to ensure that the upcoming spectrum auction was done in a transparent, competitive and an efficient manner as usual, to achieve optimum benefits for Pakistanis, comprising of some 60% thriving youth population. While considering the rapidly growing broadband penetration in Pakistan, the upcoming spectrum auction has become more attractive for mobile broadband market and telecom operators, the minister added. The minister reiterated the resolve of the government to keep focus on accelerated digitization through proliferation of broadband, adding auction of frequency spectrum will infuse more energy and will provide a new boost to the telecom activities. (February 21, 2017) brecorder.com

Qatar

Qatar's Ministry of Transport and Communications (MoTC) has partnered with Accenture to develop an innovation management capability for sourcing and applying digital technologies and social innovations. The agreement is part of the ambitious Smart Qatar program TASMU, which was announced by Minister and Minister of Interior Sheikh Abdullah bin Nasser bin Khalifa Al-Thani at Qatar's biggest digital event, QITCOM 2017, held recently. TASMU was designed to improve citizen outcomes and help drive economic diversification. It is aligned with the ambitious Qatar National Vision 2030, which seeks to transform Qatar into an advanced society capable of achieving sustainable development. It also aims to increase access to quality healthcare, reduce the risk of chronic diseases, promote an active nation in sports with increased female participation, facilitate mobility through safe and environmentally friendly transport network, drive sustainable consumption of natural resources, and improve water and food security. "Qatar's leadership has long recognized the importance of investing in technology and focusing on innovation," said Al Mansoori. "Digital technologies are integral and valuable to all aspects of society. Bringing efficiency to sectors like transportation, healthcare, environment, among others, can transform our socio-economic status, positively affecting our lives." Boulos said Accenture will leverage its experience in helping government agencies across the globe to help Qatar realize a leading position in the smart economy. According to the World Economic Forum's Global Information Technology Report 2016, Qatar was ranked 27th in the Networked Readiness Index. The country excelled in several areas including government use of Information and Communications Technologies (ICT) and national ICT skills, ranking fifth on both, globally. The country leads Arab nations in areas like political and regulatory environment, venture capital availability, individual ICT usage, education, and capacity for innovation. (March 20, 2017) enterpriseinnovation.net

The Communications Regulatory Authority (CRA) is celebrating World Consumer Rights Day (WCRD) by organizing an outreach event on March 17 and 18. CRA is using the occasion to engage with telecom consumers in Qatar and spread awareness about their rights and responsibilities to help consumers make informed decisions. To mark WCRD, CRA has also launched its newly revamped, award-winning mobile app – Arsel – as an additional tool to manage consumer complaints. The event will be at Villaggio Mall opposite entrance no 4. CRA's team will be on hand to provide useful consumer tips to help visitors better understand their rights and responsibilities as telecom consumers and to know more about CRA's complaints resolution process. "CRA continues to pursue its goal of ensuring that all telecom consumers in Qatar have access to a broad range of innovative and reasonably priced communications services, and is constantly looking for ways to improve their experience. The Arsel app is a key element of this and a key part of CRA's strategy of ensuring that people have the right tools and technology at their fingertips to contribute to achieve the vision of a smarter Qatar." said Amel Salam Al-Hanawi, Consumer Affairs Department Manager. "I would like to invite you all to come and join us to celebrate this day. CRA, is here to help and enable telecom consumers in Qatar to have innovative, and reliable communications services." she added. Arsel mobile app contains an extensive range of useful features. The app gives users the ability to check if there are any network coverage issues that have been reported in their area or all over Qatar and can filter this by service provider. Additionally the speed test functionality allows users to check internet speed (Mobile/Wi-Fi) and report this directly to the CRA. The app also allows users to lodge complaints against the service providers using accurate location based information, follow up on their complaints, send relevant documents and receive updates. CRA follow a certain resolution process for telecom complaints; consumers with a complaint are free to approach the CRA if a complaint lodged directly to their service provider remains unresolved for 30 calendar days, or if they are dissatisfied with the resolution offered. CRA receives and investigates complaints by working with both the consumers and service providers to find a fair and mutually acceptable resolution. A recently conducted survey revealed that CRA hotline 103 and Arsel app, which has won best Mobile App for ICT Sector are from the preferred channels of communicating with CRA.
(March 20, 2017) cra.gov.qa

The Communications Regulatory Authority (CRA) has made considerable progress in management and allocation of scarce resources like numbering, and domain names in 2016. Throughout the year, CRA allocated 100,000 mobile numbers to service providers, registered 2,981 new Qatari domains, and approved 74 requests for mobile sites. CRA also supported the development of telecom infrastructure and network readiness by handling 9,700 requests for infrastructure projects. "As the data reflects, CRA played a central and active role in ensuring the efficient management of national resources as well as continuously monitoring and enabling growth of diverse areas in the communications sector in the state of Qatar," said His Excellency Mohammed Ali Al-Mannai, President of CRA. "CRA's role is an enabler of technological innovations and the provision of advanced services, and we encourage individuals and businesses to adopt distinctly Qatari domains and other digital platforms," His Excellency added. Of the total of 22,210 Qatari Domains registered so far. The Qatar Domains Registry (QDR) registered 2,981 new domains in 2016, and registrations of all ".qa". related domain names grew by 5.20% which indicates steady growth. Qatar has the provision of several extensions for .qa to choose from depending on the identity, intent and purpose of the domain name. The data indicates that these domain extensions are serving the Qatari market and community well, CRA will continue to make efforts to increase uptake of Qatari Domains. As of December 31, 2016, a total of 8 million mobile and 1.45 million fixed line numbers have been allocated. In 2016, 100,000 new mobile numbers were allocated to service providers. 30,272 mobile numbers were ported under mobile number portability, and 5,943 were returned. In

2017, CRA intends to introduce a Fixed Numbering Portability (FNP) which will increase competition in the market and give consumers more choice. CRA also monitors and regulates the communications sector and ensures the efficient management and usage of new and existing mobile sites' coverage. In 2016, CRA saw a 114% increase in requests for approvals for the construction of new mobile sites (92 in 2016 compared to 43 in 2015). Of these 92 sites, 74 applications were approved and sent to the relevant government entities for final approval and 18 applications were rejected – for a range of reasons, the most common being the availability of nearby 'on-air' sites within 500m of the requested new location. Q-PRO system is an online 'road opening' permit system, operated and designed by Ashghal to reduce the paper-based system for permissions. Through the system, CRA handled 8,900 no objection requests in 2016, the majority of which were processed within two working days. CRA also handled 800 applications on Qatar Online Design Review System (Q-DRS) which has been operational from March 2016. Most of the applications were proceed within a period of 10 or less working days. Q-DRS system provides single environment for planning and utility service entities to collaborate, review and approve the design of any infrastructure projects.

(February 22, 2017) cra.gov.qa

Saudi Arabia

Cybercrime is not a new phenomenon, but it is hitting the headlines as never before. The growing frequency and sophistication of online threats have exposed businesses to new risks. The fourth edition of the Kingdom Cybersecurity Meeting aims to address these issues that continue to challenge business leaders to rethink their defense strategies to counter persistent threats in cyberspace. The event will take place on April 18 and 19 in Riyadh, and will feature more than 20 speakers. Dr. Taghreed Justinia, assistant professor and program director for health informatics at King Saud bin Abdulaziz University for Health Sciences, said: "We are a country with a uniquely vast geography, (as our) cities (are) still distinctly separated and still under development… We also have an advanced and reliable telecommunications infrastructure that could support a vision favoring smart cities. It is necessary to focus on securing the infrastructure and data. Getting citizens and various agencies involved in unifying the vision is an important step. Investing in cybersecurity is a necessity and should be considered in the planning and budgeting stages of any project. It should not be left for later stages or only when there is a security threat." Abubakar Arshad, cybersecurity adviser at the Telecommunications Regulatory Authority Bahrain, said: "Artificial intelligence (AI) is one of the most crucial technological developments of our times. It is changing every aspect of technologies around us… Criminals are using AI to hack into the most sophisticated systems. This trend is set to continue exponentially. Therefore, as cybersecurity professionals, we need to be aware of the threat and also adopt AI technologies to protect against threats from organized cybercriminals..." Set against the backdrop of the growing cyber menace and with the emerging need of aligning security closely to business imperatives, the Kingdom Cybersecurity Meeting will contribute to efforts in building an effective cybersecurity strategy in the region. "This market is booming with rapid infrastructure development and we must keep up the pace of security alongside the speed of these development projects... Cybersecurity is of key interest to anyone involved with information technology," Justinia said.

(March 13, 2017) zawya.com

Saudi Arabia's Capital Market Authority (CMA) has approved Etihad Atheeb's (GO Telecom's) request to reduce its capital by 60% percent to offset losses. Last month, the company's board of directors proposed cutting the company's capital to SAR630 million (USD167 million) from roughly SAR1.6 billion by cancelling 94.5 million shares. The company blamed its accumulating losses, which have exceeded its capital, on the use of outdated technologies – such as WiMAX – in the past few years. The capital reduction will not have an impact on GO Telecom's liabilities, the telco added.

(March 8, 2017) telegeography.com

Sri Lanka

Sri Lanka is setting up the infrastructure for domestic payment card, and also a switch to transfer cash between mobile wallets to promote cashless transactions, Deputy Central Bank Governor Nandalal Weerasinghe said. "We are improving the national payments system to promote electronic payments will lead to lower cash use in the society," Weerasinghe told BankTech Asia 2017 in Colombo, a forum organized by Malaysia based Knowledge Group. Sri Lanka now has Visa and Mastercard debit card facilities in bank debt and automated teller cards which can be used to make payments. Cost of international payments cards were high and for small merchants. Sri Lanka has already set up a domestic switch to clear automated teller machine transaction at a lower card. Weeresinghe said domestic switch will be set up to make payments through a domestic payment card, which lower costs and bring more merchants to use electronic payments. At the moment 'mobile wallets' are being offered by telecom operators but cash cannot be transferred between them. The central bank is also setting up a mobile switch. "The mobile switch will allow interoperability," Weerasinghe said. BankTech Asia is being held in Colombo from March 21 to 22 dealing with the banking technology trends in Asia. (March 22, 2017). economynext.com

Turkey

In recent years, the rapid development and growth of the telecommunications sector boosted innovation and led to an inevitable convergence in the information and communications technologies. This convergence of technologies produced an increasing variety of value added services ("VASs"). VASs can be described simply as those services beyond the core services of an operator, which are made available to consumers, usually at a low cost, and which help to promote the primary business. The regulatory authorities, legislators and even the operators may lag in adapting themselves to the new requisites of the ever-evolving nature of telecommunication technologies, which eventually produce an ever-increasing number of VASs. Consumer complaints play an important role in triggering the required adaptation processes. On December 12, 2016, the Information and Communication Technologies Authority ("ICTA") issued a press release introducing a new regulation based on the increasing number of complaints received from consumers. Consumers come across certain websites while surfing on the internet, which direct or subscribe them to other services (VASs), and they may involuntarily subscribe to such services or make purchases without actually understanding the conditions, prices and termination procedures that they are agreeing to. Consumers usually do not even know or are not provided with the information regarding the identity of the relevant service's provider. These unintended subscriptions and purchases sometimes happen when a consumer just intends to close an ad that appears on his/her screen. When the costs of these subscriptions and purchases are reflected on their invoices, consumers object to them or file complaints against those who, in their view, cheated them out of their money. In most of these cases, such VASs are not provided by the operators themselves, but by third parties who are not under the supervision of the ICTA. This has relieved the operators from liabilities arising from such services so far. Accordingly, the ICTA issued the "Principles and Procedures on Protection of Consumer Rights in the Provision of Value Added Electronic Communication Services" ("VAS Principles"), which aim to establish transparency at all stages of subscriptions and purchases pertaining to VASs, ensuring that the consumers are informed of the terms and conditions of services and the prices of subscriptions. The VAS Principles also create a legal framework to ensure that the consumers' intention in whether or not to subscribe to or purchase VASs may be clearly determined. VAS Principles do not directly impose obligations on the providers of VASs, but instead require the disputes to be resolved by the operators and further obliges the operators to provide consumers with certain information and verification or approval procedures, which will allow them to decide whether or not to subscribe to a VAS with free will, regardless of whether that service is provided by the operator or by a third party. If a consumer does purchase an unintended subscription, there are rules for preventing the subscribed operator from directing the consumer to a third party for recourse, and obliging the operator to find a solution to the complaint. VAS Principles clarify that the obligation of informing the consumer of the price and service conditions of the VASs, as well as the burden of proof with regard to the consumer's consent, is on the operator. Consumers will have the right to be reimbursed for the payments they make for the unintended subscriptions, if the operator fails to comply with its obligation to provide information and to prove consent procedures. Consumers will be able to ask the operators to disable their accounts for mobile payments or VASs, per the VAS Principles. Most importantly, the procedures for purchasing or cancelling VASs are regulated separately and in detail for purchases conducted through the internet, SMS, mobile internet/WAP, and incoming/outgoing calls. Below are brief summaries of each procedure:

VASs Purchased through the Internet:

The service provider will be obliged to give information about the name and conditions of the service, the price, and a space for the consumer to provide a mobile number if they wish to purchase a subscription or a one-time service. The service provider will send an SMS including the price of the service along with a password, and the consumer will insert that password into the relevant website. Once the password is confirmed, the consumer will be charged for the purchase.

VASs Purchased through Mobile Internet/WAP:

Consumers will click on the "confirm" box to purchase a service through the internet/WAP website, wherein detailed information will be given based on the service provided. Then, the consumer will insert the password, which is generated through the operator that the consumer is subscribed to, into the relevant space. Alternatively, the consumer may provide his/her mobile phone number to the relevant website and receive an SMS including the password, which will later be inserted to the relevant part in the page accessed through mobile internet/WAP for the purchase of the VAS.

VASs Purchased through SMS:

For one-time purchases, the consumer will insert a keyword required for the purchase of the service in an SMS message, send it to the number provided by the operator and will purchase the VAS. For subscriptions, a two-step verification system is required, which will consist of two SMS messages requiring consent in two stages.

VASs Purchased through Phone Calls:

Information regarding the services provided and the pricing mechanism will be provided to the consumer and the consumer may request listening to the information once again, all free of charge. The purchase will be completed if the consumer provides his/her confirmation or waits for the signal. The consumer will then purchase the service and fees will be reflected on the subscriber's bill. VAS Principles also set forth cancellation procedures to be followed regarding the foregoing purchase and subscription processes. It appears that the VAS Principles will impose significant obligations on the operators and will require them to amend their current procedures, which might require time and investment. Therefore, the effective date of the VAS Principles was established as June 30, 2017, giving the operators an adequate transition period to put the required structures into place. (March 6, 2017) mondaq.com

United Arab Emirates

The Telecommunications Regulatory Authority of the UAE is evaluating the customer service centers of etisalat and du and grading them in a bid to provide better services to customers. The 'Erteqa' initiative was launched last year, but TRA had completed the pilot evaluation process and implemented it today, which includes a range of efforts and initiatives that focuses on customer's happiness. The 'Erteqa' initiative falls under the umbrella of 'Esaad' initiative which includes network centers, ICT rating and coverage. Hamad Obaid Al Mansouri, Director General of TRA, said that the evaluation is based on seven stars criteria, and plates bearing the number of stars as a certificate of quality of excellence for the center's efforts in serving the customers and achieving their happiness. "Our ultimate goal is to evaluate the 202 centers. So far, we have assessed 40 centers and we will install the stars plate today. The objective is not to install the plates but to improve the excellence and quality of service providers and launch innovative services that meet customers need, overcome obstacles and difficulties faced by the customers," he said. Mohammad Jadah, Director for wireless networks and services at TRA, said that the evaluation guidelines include six criteria — easy access to service center, facilities provided by the center, employees' behavior towards customers, presentation mechanisms of products and services, efficiency and effectiveness of provided services and meeting the customers' needs, and embedding the innovation element in all stages of service provision. He said that the grading will be only up to five stars this year, while six and seven stars will be implemented from next year. TRA has appointed a separate third-party team to evaluate the process by going to the business centers and getting feedback from serviced customers. Saif Bin Ghelaita, executive director for technology development affairs at TRA, said that the remaining 162 service centers will be completed before June this year. "To get the six and seven stars, the service centers have to sustain the five-star ranking for couple of years. The voice of customers is going to heard from now on and taken into consideration," he said. (March 22, 2017) zawya.com

Etisalat will start testing the fifth generation of mobile networks (5G) in 2018 and launch commercially in 2019, a company official told Gulf News. "We are trying to push the entire industry to be ready for 2019 and have signed a deal with Qualcomm. We are in talks with device manufacturers, vendors, applications providers and regulators," Hatem Bamatraf, chief technology officer at Etisalat Group, said on the sidelines of the Qualcomm Partner Event held in Dubai. He said that the choice of devices may be limited at the time of the launch, but it will be a good start. "We expect mass adoption to start from 2020. What 5G is going to bring in is new revenue streams for telecom operators. 5G is going to connect things rather than people, so there are huge growth opportunities," he said. Current estimates are that there will be 30 billion connected devices by 2020 — which means around 200,000 devices connecting to the internet every day. The 5G is the evolution of 4G with faster speeds of 10Gbps and a latency of one millisecond compared to 100 Mbps speed and a latency of 40 milliseconds with 4G. The 2G technology was originally designed for voice, and 3G was designed for data. Bamatraf said that investment, spectrum availability and readiness of the ecosystem will be the key challenges for telecom operators when adopting 5G. He said Etisalat is always keen to be at the 'forefront' and ready to invest in any new technology innovation. Approval of 5G standards are not expected to be completed until 2020, but the Third Generation Partnership Project (3GPP) is the driving force behind the standardization of 5G technology. Bamatraf said that the 3GPP has released a set of spectrum for operators to test and utilize 5G. There are also options of spectrum refarming, which means re-allocating the existing spectrum [frequency] used for 2G and 3G and utilize it for 5G. "We will not face spectrum issues in the UAE but in other countries we operate, we need to address that issue. Spectrum will be one of the main things 5G will rely on," he said. Qualcomm Technologies had signed a deal with etisalat to accelerate "5G" deployments in 2019 at Barcelona Mobile World Congress. "Our involvement with 5G is quite active and we are working with the industry to drive the best technology forward," said Jay Srage, president for MEA and Eastern Europe at Qualcomm. He said that etisalat and Qatar-based Ooredoo are members of the 3GPP and will be the first telecom operators to launch 5G in the region. Moreover, he said that the UAE is one of the seven countries that is driving the 5G technology. Others are the US, UK, China, Korea, Germany and Japan. As wireless connectivity expands beyond smartphone and tablets, he said that the connected car industry is an area of expected growth. In the Middle East, we have been working with stakeholders to lay the foundation for autonomous vehicles future, starting with the basic element of connectivity," he said. Qualcomm is expected to launch the first chip set for testing 5G in next year and commercially in 2019. Srage expects mass adoption of 5G chips in 2020.

(March 22, 2017) zawya.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

Argentina

The National Entity for Communications (Ente Nacional de Comunicaciones, ENACOM) has reduced the timeframe within which the country's operators must complete the process of porting a mobile number from one provider to another, from five business days to just one. The new mobile number portability (MNP) rule was set out in Resolution 170-E/2017, which was formulated on 30 January, but only included in the 'Boletin Oficial' on March 10. The watchdog claims that a total of 4.7 million mobile numbers have been ported since the process was formally introduced in March 2012.

(March 15, 2017) telegeography.com

The National Entity for Communications (ENACOM) has authorized Grupo Clarin-backed Nextel Argentina to become the country's fourth LTE provider. The decision was rubber-stamped following the signing of Decree 1340/2016 and Resolution 171/2017, the watchdog notes, while Nextel will be permitted to utilize its newly acquired spectrum holdings in the 900MHz and 2.5GHz bands to deploy 4G networks. Nextel's 2016 acquisitions of Trixco, Callbi, Infotel, Skyonline de Argentina, Netizen and Eritown Corporation Argentina were approved by ENACOM in January this year. 900MHz frequency holder Trixco was bought from Gridley Investments, while the other four 2.5GHz license holders were acquired from co-owners WX Telecommunications and Greenmax Telecommunications.Media conglomerate Grupo Clarin acquired 49% of Nextel Argentina in September 2015, before going on to acquire the remaining 51% stake in January 2016.

(February 23, 2017) telegeography.com

Australia

The Australian government has launched its first Joint Cyber Security Centre. The facility is designed to enable industry, government, and law enforcement to work together to boost cyber security resilience. This center in Brisbane is the first stage of an AUD 47 million program piloting collaborative work spaces where industry, government and law enforcement work together and share relevant threat information, the government said.

(February 24, 2017) telecompaper.com

Cote d'Ivoire

The government of Cote d'Ivoire has issued a decree to tighten SIM card registration procedures in the country. All registration processes must now take place at an authorized premises, which means SIM cards can no longer be offered by street sellers. Meanwhile, children under the age of 16 can longer buy SIM cards, with registration only to be carried out via a legal guardian. In addition to the legislation aimed at increasing the security of mobile services, Agence Ecofin also reports that the government has introduced measures to ensure that all cybercafe users are identified.

(March 24, 2017) Agence Ecofin

Denmark

The Danish Energy Agency (DEA, Energistyrelsen) has revealed plans to hold an auction for frequencies in the 700MHz, 900MHz and 2300MHz bands before the end of 2018. To that end, the agency is planning to hold a meeting with interested parties on 5 April, in order to discuss the terms and conditions for the forthcoming tender. The government has pledged to free up additional spectrum for wireless broadband services in order to ensure that all Danes have access to high speed internet access by 2020. In 2014 telecoms regulator Erhvervsstyrelsen completed a study of the future spectrum requirements for TV broadcasting and the possibility of reserving the 700MHz frequency band for mobile broadband services by 2020. The report claimed that there would be an economic gain of between DKK2.5 and DKK4 billion (USD361.5 million and USD578.5 million) in the period 2020-2030 if the 700MHz band was used for mobile broadband.

(March 21, 2017) telegeography.com

El Salvador

Tigo El Salvador, the country's largest mobile operator by subscribers, is in talks with the government over the renewal of its wireless spectrum licenses, which are set to expire next year. La Prensa Grafica cites the firm's CEO Marcelo Aleman as saying that the government has organized a series of talks with telecoms operators to discuss the extension of their concessions for an additional 20 years and the terms and conditions for investment in the country. 'We are working closely with the government to renew the license; we have many points of understanding and many points that are still being negotiated, but we see it on the right track and we are sure that we will continue to operate in El Salvador', Aleman said. Tigo launched 4G LTE services in San Salvador, Santa Ana and San Miguel in December 2016 and unveiled plans to invest USD1 billion over the next four years to roll out its high speed data network across the country. The company also operates a HFC fixed network passing almost 700,000 households, 300,000 of which are connected to its fixed broadband, telephony and TV services.

(March 15, 2017) La Prensa Grafica

European Union

The European Parliament approved plans for coordination of the 700MHz band for wireless broadband services across the EU by 2020. Today's vote covers the use of the UHF (470MHz to 790MHz) band across the economic bloc and ratifies an agreement made in December by representatives from the European Parliament, European Council and European Commission (EC). In a statement, EC VP for the Digital Single Market, Andrus Ansip, welcomed the outcome and said the measures would boost coverage, connectivity and digitization on the path to 5G. "Today's vote is a major milestone in EU's spectrum coordination – both on harmonized allocation and on assignment of a frequency band," Ansip said. "It enables low-cost network rollout and top-quality internet access services to all Europeans, also in rural areas." "Now Europe has a solid basis for a common vision and coordinated effort in the UHF band, and Member States should publish and follow national roadmaps for transition, in support of the digital economy and consumers. We should go further to improve connectivity in the EU and this is one of the main objectives of our new Electronic Communications Code and 5G action plan presented in September last year." The policy of using the 700MHz band exclusively for mobile broadband was raised by the EC in February 2015, with its first proposal presented in May 2016. Following discussions within the European Council and European Commission an agreement was struck between all parties during December, subject to final sign-off from the Council and Parliament.

(March 17, 2017) mobileworldlive.com

Finland

With a view to being 'one of the world leaders in the development and deployment of the next generation wireless broadband', the Finnish Communications Regulatory Authority (FICORA) has said it will support related experimentation and testing by flexibly issuing radio licenses for 5G trials. In a press release the regulator confirmed that it may issue short term radio licenses for tests, research and trials of systems based on 5G radio technologies, with license periods ranging from just a few days to years. Noting that the European Commission (EC) has identified the 3.4GHz-3.8GHz and the 24GHz-27GHz bands, among others, as 5G pioneer bands in Europe, the FICORA has confirmed that for regional 5G testing it will make available blocks of up to 100MHz in the former band (until the end of 2018), and up to 1,000MHz in the latter band, allowing high connection speeds and short latencies. Alongside these specific allocations, the regulator has also confirmed that is possible to receive licenses for 5G testing in other frequency bands, with frequency needs 'considered separately for each case and test environment'.

(March 20, 2017) telegeography.com

Germany

The German Federal Network Agency has launched a public consultation on strategies to accelerate the expansion of fiber-optic networks. For the launch of the consultation, the FNA has released a discussion paper presenting various proposals for how regulation of the FTTH/B network can be managed. The discussion paper pointed to the importance of a flexible price setting to encourage market-driven grid expansion. One proposal is to use retail prices as a starting point to determine the price of use by a third party.

(March 15, 2017) telecompaper.com

Ghana

The National Communications Authority (NCA) has ordered the nation's mobile network operators (MNOs) to improve their quality of service (QoS), the regulator disclosed in a press release. NCA Director General Joe Anokye issued the directive at a meeting with the Chief Technical Officers of MNOs Tigo, MTN, Vodafone, Airtel, Glo and Expresso on March 17, 2017. According to Mr. Anokye, current QoS shortfalls include call drops, poor voice quality and slow internet connections among others, whilst he informed MNOs that their first line of action must be to resolve these issues within the Accra-Tema Metropolitan area, followed by other regions across Ghana. All MNOs are required to present a roadmap detailing Accra/Tema QoS improvement plans to the NCA in a month's time. For their part, the MNOs gave evidence at the meeting of challenges they face in delivering the required QoS levels due to problems with network site acquisition, especially in high-demand residential areas.

(March 21, 2017) telegeography.com

GSMA

According to the new study observed by GSMA, number of mobile subscribers will cross 5 billion this year. According to the 2017 GSMA's Mobile Economy report, milestone of 5 million subscribers will be achieved by the mid of 2017. This number will increase to 5.7 billion by the end of this year. GSMA Report: Number of Mobile Subscriber crossed 5 Billion. Around three quarter of the world's population will be subscribed to mobile services by that time. Subscriber growth over this period will be driven primarily by large Asia markets such as India, which alone is forecast to add 310 million new unique subscribers by 2020. GSMA report also enlightened the 5G era and highlighted the ongoing shift to mobile broadband network and smartphones. This mobile industry growing contributes to global economy, jobs and social development. The GSMA report revealed that by the end of 2016 there were 4.8 billion unique mobile subscribers and 7.9 billion SIM connections worldwide. More than 55 % connections were running on mobile broadband (3G/4G) networks, which are forecast to account for almost three-quarters of connections by 2020. The proportion of 4G connections alone is forecast to almost double from 23 per cent to 41 per cent by the end of the decade, a result of ongoing investments in 4G networks by operators. By the end of 2016, 580 4G (LTE) networks had been launched across 188 countries, providing 4G coverage to approximately 60 per cent of the global population. Looking further ahead, the study predicts that the first commercial 5G networks (based on LTE Release 15) will launch in 2019 and will provide coverage to a third of the world's population by 2025. The number of 5G connections is forecast to reach 1.1 billion by that time.

(March 2, 2017) 3gca.org

Guyana

Minister of Public Telecommunications Catherine Hughes has pledged that the nation's telecom sector will finally be liberalized by the end of May this year, with the relevant regulations to be in place by that date, along with the establishment of the new regulatory authority, the Telecommunications Agency. Demerara Waves cites the official as saying that the legislation has been green-lit by the president, the regulations are being finalized and the administration is in the final stages of setting up the new agency.

The comments reportedly followed complaints from the CEO of incumbent Guyana Telephone and Telegraph Company (GTT), which holds a monopoly on international voice and data services that the operator is subject to unfair restrictions. 'We believe we will be finally free from uneven competition and will get fair and even regulation to all businesses in sector,' the official commented. Guyana passed long-overdue legislation in mid-2016 to end GTT's monopolies and reform the regulatory structure for the sector. The implementation of the bill relies on negotiating an agreement with GTT, however, and the operator has previously defended fiercely its exclusivity, including derailing past efforts to pass legislation on the matter. The Telecommunications Agency, meanwhile, is set to incotrporate one of the existing watchdogs – the National Frequency Management Unit (NFMU) – and will oversee the sector alongside another existing regulator, the Public Utilities Commission (PUC).

(February 28, 2017) telegeography.com

Hong Kong

Hong Kong's telecoms regulator plans to open up new spectrum for 5G services in the 26GHz and 28GHz bands in 2019 and in the 3.4GHz to 3.7GHz band in 2020. The Communications Authority (CA) announced it will make 4.1GHz of mmWave spectrum available in the 26GHz and 28GHz bands in 2019 as the territory's first batch of spectrum for the provision of 5G services. It also will open a public consultation in the second half of 2017 about vacating spectrum in the 3.4GHz to 3.7GHz band, which is currently assigned for fixed satellite services, and reallocating it for mobile services in 2020. In addition, the CA intends to assign spectrum in the 700MHz band for mobile services after the analogue terrestrial TV switch-off. Hong Kong's largest telecoms operator HKT said in a statement: "We think that it is positive

the government has listened to our concerns and is now moving in the right direction." HKT added: "The government must publish as soon as possible a clear roadmap for the release of the bands for the mobile service operators and other industry parties. The Office of the Communications Authority [OFCA] needs to move much faster so that Hong Kong can catch up and claim a leadership position again." The CA is the independent telecoms and broadcast regulator, while OFCA supports the authority in implementing policy. OFCA said it will hire a technical consultant to advise on the feasible mitigation measures to enable the coexistence of satellite services and mobile service within the 3.4GHz to 4.2GHz frequency band. While the 28GHz band is currently vacant, part of the 26GHz band is assigned for fixed links in Hong Kong, so the CA will coordinate with the spectrum assignees about relocating their current operations to other frequency bands by mid-2019. The CA noted the government will also review in 2017-2018 its working target of switching off analogue terrestrial TV service by 2020, with a view to making available the spectrum in the 700MHz band, the so-called digital dividend, for mobile services. In mid-February, the CA modified its plan to reassign more than a third of the territory's total mobile spectrum, proposing a hybrid approach combining a so-called administrative assignment with an auction of 200MHz of airwaves.

(March 22, 2017) mobileworldlive.com

India

The Telecom Regulatory Authority of India (TRAI) has responded to criticism from the Department of Telecommunications (DoT), which placed the blame for declining government revenues from the sector and the deteriorating health of the industry on the TRAI's inaction regarding potential rule-breaking by newcomer Reliance Jio Infocomm (Jio) with its aggressive promotions. The TRAI has instead pointed the finger at the DoT for refusing to heed the regulator's warnings, and ignoring its proposed reforms. The back-and-forth finger pointing from the two agencies over the current crisis also comes at a time when the upper echelons of the DoT have been left critically understaffed, with many of the department's key positions all lying vacant. According to the newspaper, the Member (Technology), Member (Finance) and Member (Services) positions have been left unfilled since April-July last year, whilst the Telecom Enforcement, Resource and Monitoring Cell (TERM) lost its leadership last month. Officials from the private sector bemoaned the 'anomaly', the paper writes, saying that the lack of coherence affected their decision-making process. The DoT's Telecom Commission chastised the TRAI last month for 'jeopardizing' the health of the telecom sector by failing to enforce its own rules on promotional tariffs with regards to Jio's 'Welcome Offer' and 'Happy New Year Offer'. In its missive, the commission said that the government had lost INR6.85 billion (USD102.19 million) in potential revenue since Jio's launch in September 2016, adding that it expected returns from the sector to fall by a further 8% to 10%.

(March 8, 2017) telegeography.com

The Indian government has announced that it is fast-tracking a policy on the usage of high frequency spectrum bands to ensure that the regulations are in place in time for the nation's operators to use the airwaves for 5G technology. Further, the government is planning to increase the frequency of spectrum auctions, with the possibility of holding at least one tender each year. 'We were late in 3G and 4G, so we are keen that we should not be deprived of 5G. It has a wider application for the industry including smart cities and management of grids,' the Economic Times quotes Telecom Secretary JS Deepak as saying. The minister added that he expects a policy on high frequency spectrum and 5G to be ready within the next three months. On the frequency sale front, the Department of Telecommunications (DoT) will shortly send a request to the Telecom Regulatory Authority of India (TRAI) for recommendations on the next spectrum tender, which is expected to take place in H2 2017. Whilst the move has been praised as 'progressive' by industry stakeholders, the government appears to be reluctant to address the issue of excessive spectrum pricing, with Mr. Deepak commenting that the state was not concerned about the possibility of airwaves being left unsold. Mr. Deepak also dismissed claims that high spectrum costs had led to a decrease in CAPEX by saying that the industry had no difficulty raising additional funds.

(March 2, 2017) telegeography.com

India's Telecom Commission, the Department of Telecommunications' (DoT's) highest decision-making body is reportedly planning to chastise the Telecom Regulatory Authority of India (TRAI) for 'jeopardizing' the health of the telecom sector by failing to enforce its own rules on promotional tariffs. The Economic Times writes that it has seen a letter to the TRAI that criticized the watchdog's inaction regarding the impact of aggressive newcomer Reliance Jio Infocomm (Jio). The new entrant's back-to-back promotions providing customers with free unlimited voice and data services have sparked a price war in the market, driving down prices and revenues, thereby limiting the amount collected by the government through taxes and fees. According to the note, Jio's launch has already cost the government INR6.85 billion (USD102.19 million), with the commission adding that sector revenues

are expected to fall by a further 8% to 10%. Further, a senior official with knowledge of the matter was quoted as saying: 'The commission has expressed its deep concerns for the health of the sector and asked the TRAI to implement its decision[s] of June 2002 and September 2008 regarding promotional tariffs.' The decisions in question refer to rules that prevent a provider from offering a promotion for more than 90 days, which Jio ostensibly violated with its initial 'Welcome Offer', which was available from 5 September to December 31, 2016.

(February 23, 2017) telegeography.com

ITU

Membership of ITU including key industry players, industry forums, national and regional standards development organizations, regulators, network operators, equipment manufacturers as well as academia and research institutions together with Member States, gathered in Geneva today, as the working group responsible for IMT systems, and completed a cycle of studies on the key performance requirements of 5G technologies for IMT-2020. Draft New Report ITU-R M.[IMT-2020.TECH PERF REQ] is expected to be finally approved by ITU-R Study Group 5 at its next meeting in November 2017. "IMT-2020 will be the global cornerstone for all of activities related to broadband communications and the Internet of Things for the future – enriching lives in ways yet to be imagined," said ITU Secretary-General, Houlin Zhao. "The IMT-2020 standard is set to be the global communication network for the coming decades and is on track to be in place by 2020. The next step is to agree on what will be the detailed specifications for IMT-2020, a standard that will underpin the next generations of mobile broadband and IoT connectivity," said François Rancy, Director of ITU's Radiocommunication Bureau. We can anticipate that there will now be a number of early technical trials, market trials and deployments of 5G technologies based on the foreseen developments slated for IMT-2020. These systems may not provide the full set of capabilities envisaged for IMT-2020, but the results of these early activities will flow forward into, and assist the development of, the final complete detailed specifications for IMT-2020. IMT is the on-going enabler of new trends in communication devices – from the connected car and intelligent transport systems to augmented reality, holography, and wearable devices, and a key enabler to meet social needs in the areas of mobile education, connected health and emergency telecommunications. E-applications are transforming the way we do business and govern our countries, and smart cities are pointing the way to cleaner, safer, more comfortable lives in our increasingly urbanized world.

(February 23, 2017) itu.int

Italy

The Italian government is planning to offer spectrum covering five cities to enable telecoms operators and other bodies to conduct trials of 5G mobile technology. 3.4GHz-3.8GHz frequencies will be made available in three packets covering Milan, plus Prato and L'Aquila, and Bari and Matera, Corriere delle Comunicazioni reports. Operators and bodies such as universities and research groups will be able to conduct trials in a range of urban settings, including Milan's underground rail network and earthquake reconstruction zones in L'Aquila, the government says. The EU is calling for member states to have identified at least one city for 5G testing by 2018, with a network in place by 2020, and the Italian government says it is accepting this challenge and raising the bar by selecting five areas for 5G trials to take place. Authorities say they hope to raise EUR2.5 billion (USD2.7 billion) from the sale of 5G-capable spectrum. Telecom Italia (TIM) plans to launch Italy's first 5G network in the northern city of Turin. The telco confirmed in December that Turin would be its first 5G market, and it now says that it will be installing its first 100 5G-ready small cells in the city's main streets and squares as early as end-2017 under a newly-signed memorandum of understanding (MoU) with local authorities. TIM then expects to launch its first 5G technology trial in an urban environment in 2018, using a further 200 ultra-broadband mobile sites, with the aim of covering the entire city with a 5G network by 2020. TIM has selected Turin as its 5G test-bed as this is the location of its main research and development center. (March 17, 2017) telegeography.com

Myanmar

The Post and Telecommunications Department (PTD) of Myanmar's Ministry of Transport and Communications (MCIT) has published a consultation paper on the allocation of additional spectrum in the 1800MHz band. The regulator explained that it prefers a direct allocation method for the sake of speed, but acknowledged that other methods, such as an auction, would be more transparent. Supporting its position, the PTD claimed that a direct allocation would be the best method, given the ministry's priorities (in order) of: an efficient and transparent spectrum allocation process; promoting competition in the market, with a view to ensuring high quality of service and low prices for customers; providing resources to allow

the development of the sector and the introduction of new technologies; and providing revenue for the state. Under the PTD's proposed approach, all four cellcos – Myanmar Post and Telecommunications (MPT), Telenor Myanmar, Ooredoo Myanmar and Mytel – would be given the opportunity to acquire 2×10MHz of spectrum at a pre-determined price. The operators would then have the option to acquire up to an additional 2×10MHz on a 'first come, first served' basis until all of 150MHz (2×75MHz) of the available spectrum has been allocated. The option for additional spectrum will expire three years after the start of the license period. To ease the pressure on newcomer Mytel, the cellco will be granted an extra year to acquire the initial 2×10MHz license, with the operator able to apply for additional spectrum until April 1, 2020. No specific coverage requirements would be included, as such obligations have already been included in other operation and spectrum licenses. The concessions will have a twelve-year duration, so that they expire at the same time as the 900MHz and 2100MHz licenses allocation to Telenor and Ooredoo. Operators have until March 10, 2017 to submit their comments on the proposals.

(February 23, 2017) telegeography.com

New Zealand

New Zealand's High Court ordered a brief delay to Vodafone's merger with Sky Network Television in the event that the Commerce Commission approves the deal. The decision is a victory for incumbent Spark and altnet 2degrees, which petitioned the court for the delay. In its decision document, the court agreed with Spark's assertion that if the Commerce Commission approves the deal, Vodafone and Sky can complete the transaction before the court has time to grant effective relief in the event that the Commission's approval process is found to be flawed. "The transactions have the potential to directly affect consumers in the markets affected by the Commission's decision. There is therefore a significant degree of public interest in the outcome of the clearance decision," the court said. Under the court's ruling, Vodafone and Sky are prohibited from completing their merger until midnight on the third day after the Commission issues its decision, which is due on Thursday. The delay will be extended if Spark or any other party applies for judicial review of the Commission's decision during that period. If no application is made, then Vodafone and Sky will be free to merge once the court-ordered delay period expires. "The stay is important for natural justice and fairness: as it will ensure all interested parties have a chance to properly consider the Commission's reasoning and make informed decisions on whether to seek a judicial review if there is a clearance decision," said John Wesley-Smith, general manager of regulatory affairs at Spark. "Without this stay, there was a risk that Sky and Vodafone would immediately take steps to implement the merger and make it a fait accompli – which would render any future legal review a meaningless exercise," he said. The Commerce Commission is due to issue its decision on whether to approve the NZ$3.44 billion deal tomorrow. Sky and Vodafone New Zealand agreed to merge in June 2016. Each company applied for merger clearance later that same month; both parties insisted that the residential broadband and pay TV markets would remain unharmed because Vodafone and Sky do not already compete with one another. The Commerce Commission was initially due to issue a decision by November 11. However, it was pushed back, reflecting lingering concerns about the implications for competition, and the large volume of submissions relating to the deal from multiple third parties. "We and others believe the proposed merger will be bad for consumers – resulting in poorer choice and higher prices for consumers, especially when it comes to sports content. That was at the heart of our decision to take this Court action," said Wesley-Smith.

(February 22, 2013) totaltele.com

Nigeria

The Minister of Communications Technology, Barrister Adebayo Shittu, has said that his ministry and the Consumer Protection Council (CPC) need to collaborate to save Nigerians from consumer abuses in the telecom sector. The minister made the call weekend when the Director General of the CPC, Mrs. Dupe Atoki, led her management team to pay a courtesy call on him in his office in Abuja. A statement released yesterday by the Council's spokesperson, Abiodun Obimuyiwa, indicated that Mrs. Atoki paid the courtesy call to intimate the minister on the relevance of the ministry in activities lined up for the commemoration of the 2017 World Consumer Rights Day (WCRD). Enumerating the challenges consumers in the digital age in Nigeria face, the CPC boss contended that everything has been digitalized "except for our breathing, because at the touch of a button, something just happens, so we cannot avoid being engulfed in the digital system." Responding, the minister said, "telecoms and ICT are the biggest influence on human lives, on businesses and even on government, I think that ICT, particularly telecoms is one area where we can possibly affect Nigerians perhaps more than any other", noting that "as at today we have 150 million Nigerians who use telephones and that shows the only area with the largest users."

(February 27, 2013) allafrica.com

Norway

Norwegian telecoms regulator the National Communications Authority (Nkom) has published the final auction rules for its upcoming sale of 900MHz spectrum, while at the same time announcing it has formally opened registration for interested parties. In a press release the watchdog confirmed that it has set a deadline of April 20 for applications, with the auction itself set to get underway on May 23, 2017. With regards to the auction guidelines, the Nkom said that, having conducted a consultation on its draft rules, it has prepared a summary document in which it comments on the suggestions made. Changes to the auction rules and conclusions on the feedback are presented in this document, but the regulator made special mention of certain changes in its press release. Specifically, it confirmed that the rules on bank guarantee size have been altered; having initially proposed that guarantees should be NOK420 million (USD49.6 million), this has now been cut to NOK140 million per block of spectrum. According to the Nkom, this change should ensure that bank guarantees will not be unreasonably high for those companies bidding for just one or two blocks of spectrum. Meanwhile, the Nkom has also confirmed that if a company already holding 900MHz spectrum should lose their existing allocation it will benefit from a transitional period, with it having until July 1, 2019 to discontinue use of the spectrum in question. The Nkom confirmed that 2×20MHz (four blocks of 2×5MHz) will be up for grabs in the upcoming auction; the existing 900MHz band frequency licenses held by Telia Norway and Telenor are due to expire on December 31, 2017. The minimum price per 2×5MHz block has been set at NOK140 million, while a frequency cap of 2×15MHz will be imposed.(March 22, 2017) telegeography.com

Norway's telecom regulator plans to begin its upcoming auction of frequencies in the 900 MHz band on May 23, having once delayed the process to address an issue regarding spectrum caps and the competitive situation in the market. The Norwegian Communications Authority (Nkom) set the date late last week, although it noted that the schedule could still change. As it stands, the regulator plans to begin the sale on 17 March with the publication of the final auction rules and the opening of the registration period for would-be participants; entrants have until April 20 to make their submissions. Nkom has 2 x 20 MHz of spectrum to sell, split into four 2 x 5-MHz blocks. The airwaves are currently held by Telia and Telenor, whose licenses are due to expire at the end of this year. The regulator had intended to conduct the auction on June 1 last year, but called a halt to proceedings after Telia lobbied for the maximum amount of spectrum any one telco is permitted to hold to be reduced. The telco asked Nkom to reduce the 900-MHz cap to 2 x 15 MHz per operator, from the existing level of 2 x 20.1 MHz, apparently fearing that Telenor would buy up additional frequencies to reduce Telia's ability to compete effectively. Having assessed the situation, Nkom in October last year declined to alter the cap. However, last month the country's Ministry of Transport and Communications took the opposite view and lowered the limit to 2 x 15 MHz for the benefit of competition. "Digitization is in full swing and frequencies are an essential resource for developing the digital infrastructure," said Minister of Transport and Communications Ketil Solvik-Olsen, in a local language statement. "Now everything is ready for another important frequency auction and we are facilitating increased competition," he said. According to the ministry, competition in the Norwegian mobile market is "characterized by asymmetry" when it comes to the operators' revenue shares. Telenor's share of mobile revenues stood at 57.9% at mid-2016, according to government figures, while Telia claimed 32.3% and Ice – which is in the process of building out a network in Norway – had just 1.6%.

(March 6, 2017) totaltele.com

Philippines

The government of the Philippines has issued a stark warning that it could look to reclaim unused radiofrequency spectrum, which it says is enough to support a third or even fourth telecoms operator. The Department of Information and Communications Technology (DICT) has published an updated list of all allocated spectrum assets, saying that its publication is intended to identify idle frequencies that could be reassigned to attract other players into the market. 'We published it, it's a warning … frequencies – assigned, not used, not paid, if it's in the warehouse, we'll take it back, we'll give them a chance to air their side if they don't have a valid reason, we'll take them back, recall,' said DICT secretary Rodolfo A Salalima. 'If you've been holding it for an unreasonable time, or you are holding it without using it, or you are using it without paying for it, then we'll take it back, but we have recall procedures,' he added. National Telecommunications Commission (NTC) revealed that the aforementioned dormant spectrum is being held by: Sears Telecoms (410MHz); Teodoro N Romasanta Inc. (TNRI) and Twilight (700MHz); RBC, Cagayan Economic Zone Authority, Uniden Philippines, Inc., Liberty Broadcasting Network Inc. (LBNI), Worldwide Comms Inc., (800MHz); Bayantel (2500MHz); Easy Call Communications Philippines Inc., AZ Comm, Multimedia Telephony Inc., Broadband Everywhere Corp; and Radio Marine Network Inc. (3.4GHz); and TN Rosanna and the Metropolitan Manila Development Authority (MMDA) (10GHz). In addition, the DICT has pointed out that a number of these firms – specifically Sears, MMDA, TNRI, Trilight, RBC, Uniden, LBNI and Worldwide Comms – have unpaid spectrum user fees. (February 23, 2017) telegeography.com

Russia

Rules for mobile SIM card user identity registration in Russia are set to be tightened up via draft amendments to the Law on Telecommunications, Law on Information and the Code of Administrative Offences, which have been prepared by a committee led by the Federal Service for Supervision of Communications, Information Technology & Mass Communications (Roskomnadzor) in cooperation with network operators. The bill aims to prevent individuals from buying SIM cards without providing formal personal identification, whilst fines for 'anonymous' SIM card ownership are established both for network operators tand for retailers selling the SIMs. Corporate mobile subscribers – including legal entities and individual entrepreneurs – will also face fines for late submission of data to the network operator about a company's individual SIM card users, according to the draft. Roskomnadzor and the police have gathered evidence of the distribution of SIM cards in violation of existing legislation, which states that electronic communications services can only be provided 'under a contract' between the operator and the subscriber; SIM cards which are registered to corporate entities and already network-activated are currently being routinely sold on to individuals by street/subway vendors without requiring personal identification. (March 21, 2017) Telecom Daily

Taiwan

Taiwanese authorities are hoping that the nation's mobile network operators (MNOs) will have completely stopped offering 2G connectivity by the end of August 2017. Local telecoms regulator the National Communications Commission (NCC) has confirmed that no cellco has indicated an intention to offer services over a shared GSM network, which Asia Pacific Telecom (APT) had volunteered to operate after 2G licenses expire on June 30, 2017. According to NCC spokesperson Wong Po-tsung, there are around 1.46 million people still utilizing 2G-only handsets, of which around 940,000 are actually accessing GSM-based services using a 3G-compatible SIM card, while a further 390,000 have a 4G-enabled SIM. Only 133,000 users are said to be connecting to a GSM service with a 2G-only SIM card. As such, the regulator has suggested that migrating most users to 3G or 4G alternatives should be a relatively swift process once 2G connectivity is discontinued. While the nation's GSM concessions expire on June 30, 2017, it has been confirmed that operators can continue to offer 2G services over their respective 4G infrastructure until August 31.

(March 20, 2017) The Taipei Times

Tanzania

Tanzania has announced the official introduction of mobile number portability (MNP), enabling consumers to retain their phone number if they switch service provider. The Telecommunications Communications Regulatory Authority (TCRA) said the move is expected to increase competition between the country's mobile operators, thereby leading to lower prices and improved quality of service. 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. The state-owned national telecoms operator Tanzania Telecommunications Company Limited (TTCL) is set to receive a TZS600 billion (USD262.9 million) loan from the Chinese government to help fund the deployment of telecoms networks and services in rural areas. 'I believe that once the massive investment is completed, TTCL [will] deliver high quality communication services using modern technologies to the general public,' the country's Vice President Samia Suluhu Hassan was quoted as saying. Earlier this year, TTCL said it was seeking USD300 million to implement the first phase of its strategy to cover all regions with affordable and reliable telecoms services, including 4G LTE, by the end of this year. (March 3, 2017) Daily News

Thailand

Thailand's National Broadcasting and Telecommunications Commission (NBTC) is considering a regulatory revamp which would see the provision of telecoms and broadcasting services governed by a unified licensing regime. In an interview with the Bangkok Post, NBTC commissioner Prawit Leesatapornwongsa admitted: 'Without implementing this proposed revamp by 2018, ambiguity in defining innovation types of services will arise, making it more difficult for policymakers to govern … Having separate, inflexible laws doesn't match with the era of technological convergence … This licensing practice causes operators to pay double licensing fees, with these costs passed on to consumers.' The draft bill of the new National Broadcasting and Telecommunications Act passed its first reading by the National Legislative Assembly in 2016. A second and final reading is expected by March 27, after which it must be endorsed and published in the Royal Gazette before taking effect in May. With this timeline in mind, the commissioner is keen for the regulator to introduce a new sub-law to combine the Telecom Business and Broadcasting Business acts together, to eliminate any potential ambiguities.

(March 22, 2017) telegeography.com

Uganda

The Ugandan government has taken over Uganda Telecom Limited (UTL) after Libya's LAP Green Network, the firm's majority shareholder, failed to inject sufficient capital to turn around the fortunes of the ailing telco. Uganda's Finance Minister Matia Kasaija made the announcement on March 1 in Kampala, adding that the government was notified that UCOM, a subsidiary of LAP Green, is not in a position to supply the required funding. Mr. Kasaija also noted that Ucom has directed its five representatives on the UTL board to resign, commenting: 'The government has decided to take over the affairs and management of UTL with immediate effect, and will engage UCOM to ensure an orderly transition.' UTL was originally privatized in June 2000 when a 51% stake was sold to the UCOM consortium – comprising Switzerland-based Telecel International, Egypt's Orascom Telecom and German consultancy Deutsche Telepost Consulting (DeTeCon). In March 2007 the government agreed to increase UCOM's holding to 69%, and the following month it was announced that LAP Green had acquired UCOM's 69% stake in UTL. The Ugandan government retained the remaining 31% of the company's shareholding. (March 2, 2017) All Africa

United Kingdom

OFCOM on Friday proposed that fixed-line customers should automatically receive compensation if they suffer from poor service. Incidents that would entitle users to compensation – either in the form of cash or a credit on their bill – include when an engineer misses an appointment, when a voice or broadband service is not up and running on the day promised by the telco, or when a fault is not repaired quickly enough. "When a customer's landline or broadband goes wrong, that is frustrating enough without having to fight tooth and nail to get fair compensation from the provider," said Lindsey Fussell, OFCOM's consumer group director, in a statement. According to OFCOM, each year, 5.7 million fixed-line customers experience a loss of service, 250,000 scheduled engineer appointments are missed, and one in eight installations are delayed, affecting more than 1.3 million people. OFCOM said that BT, Sky and Virgin Media have jointly drafted a voluntary code of practice that includes automatic compensation, but the watchdog said it does not go far enough to address its concerns. Under OFCOM's proposals, it would set the compensation payments, which would vary based on the degree of harm suffered by the end user. For delayed repairs to loss-of-service faults, the customer would receive £10 per day that the fault is not fixed. If an engineer misses a scheduled appointment, or gives less than 24 hours' notice before cancelling it, the customer would be entitled to £30 compensation per missed appointment. If a telco promises to have a new service up and running by a certain date, but fails to deliver on that promise, the customer would be entitled to £6 for each day of delay, including the missed start date. "This would mean customers are properly compensated, while providers will want to work harder to improve their service," Fussell said. OFCOM said its proposals would mean that up to 2.6 million additional landline customers would receive up to £185 million in new compensation payments per year. In addition, OFCOM noted that around a third of SMEs sign up to residential fixed-line services, and proposed that telcos provide more information to SMEs up front about minimum service levels and any compensation they may be entitled to when problems occur. The watchdog has launched a consultation on its proposals; interested parties have until 5 June to respond.

(March 24, 2017) totaltele.com

Karen Bradley, the United Kingdom's Secretary of State for Culture, Media and Sport issued a European intervention notice requesting local telecoms regulator OFCOM to report on the effects of the proposed transaction under which Twenty-First Century Fox is seeking to acquire those shares in Sky plc that it does not already own. Having been given until May 16, 2017 to submit its report (including its recommendation and a summary of stakeholders' proposals) and any other relevant material to the Secretary of State, the regulator has called for comments by interested parties, setting a deadline of March 30 for written submissions. Under the notice, OFCOM will examine the proposed deal with a specific focus on two key areas, namely: 'the need, in relation to every different audience in the United Kingdom or in a particular area or locality of the United Kingdom, for there to be a sufficient plurality of persons with control of the media enterprises serving that audience' (the 'plurality public interest consideration'); and 'the need for persons carrying on media enterprises, and for those with control of such enterprises, to have a genuine commitment to the attainment in relation to broadcasting of the standards objectives set out in section 319 of the Communications Act 2003' (the 'broadcast standards public interest consideration'). Meanwhile, OFCOM noted that the public interest assessment that it has been asked to make by the Secretary of State and its ongoing duty under the Communications Act to assess whether a licensee is fit and proper are separate legal processes. Moreover, it notes that the issues it is tasked to consider in the public interest assessment may overlap with its own consideration of Sky's fitness to hold broadcasting licenses in the event of a change of control. As such, it has proposed considering these matters within the same timeframe for which it will report to the Secretary of State on the public interest assessment.

(March 17, 2017) telegeography.com

U.K. telco watchdog consults on draft regulations to allocate another 125 MHz of 5-GHz frequencies for license-exempt use. OFCOM on Thursday pushed ahead with plans to free up more 5-GHz spectrum for WiFi with the launch of a second consultation on its proposals. The U.K. telco regulator wants to allocate an additional 125 MHz of frequencies in the 5.8 GHz band, which is already used for WiFi in a number of countries in Europe as well as the U.S. In doing so, the number of 80 MHz channels will increase to six from four. "This additional spectrum will allow for more and wider channels to become available for WiFi, enabling better quality of experience and releasing congestion from neighboring users," OFCOM said, in its consultation document. The watchdog first consulted on the proposal in May 2016, setting out a range of options for increasing the amount of available WiFi spectrum at 5 GHz. Its short-term plan centers on airwaves in the 5725 MHz-5850 MHz band, while in the medium-to-long-term, OFCOM plans to look at freeing up other 5-GHz frequencies. The consultation launched today specifically invites public comments on OFCOM's plan to push ahead with its short-term plan. "In relation to the medium and longer-term options...we have not reached a decision on those options at this stage, but will continue to explore these possibilities," OFCOM said. The consultation also invites comments on technical conditions it proposes to apply to the spectrum, such as power limitations and a ban on fixed outdoor use to prevent interference with satellite signals. Interested parties have until April 11 to respond.

(March 9, 2017) totaltele.com

Telecoms regulator OFCOM has announced a review of the retail market for standalone landline telephone services. While the watchdog has said it believes that overall competition remains strong, it has raised concerns that those customers who buy a standalone landline 'are not being served well by the market'. According to OFCOM's analysis, the UK's major landline providers have increased line rental charges significantly in recent years – by between 28% and 41% in real terms – despite benefiting from a decline of around 25% in the underlying wholesale cost of providing a landline service. OFCOM's review will establish whether measures are needed to protect this group, and it has said it is now analyzing the market in detail and, depending on its findings, could publish a consultation soon. Under its proposals, OFCOM intends to give customers with standalone landline contracts additional protection by cutting the cost of incumbent BT's line rental by at least GBP5 (USD6.2) per month – or GBP60 per year. This planned price cut would not apply to landline services sold by BT Consumer as part of a bundle of services including broadband, though it would mean that BT customers with only a fixed line would see their monthly charge fall by at least 26%, from GBP18.99 to no more than GBP13.99. Such a cut, it claimed, would return the cost of line rental to 2009 levels in real terms, effectively reversing price hikes for landline-only customers. In addition, OFCOM has is also proposing safeguards to prevent BT from making future increases to line rental and landline call costs by more than inflation.

(March 1, 2017) telegeography.com

United States

The sale of U.S. government bandwidth is nearing a close soon, lifting the quiet period for wireless operators like T-Mobile US and Dish. Add growing confidence of lighter regulation to the rapid convergence of the media and the conditions point to frenzied deal making. The Federal Communications Commission broadcast incentive auction is coming to a close. The final rounds of bidding, known as the assignment phase, are scheduled to conclude on March 30. The auction for spectrum began on March, 29, 2016. In the two-part process, U.S. broadcasters relinquish some of their spectrum for wireless broadband use. Broadcasters' winning payments totaled more than $10 billion, while gross revenue from wireless bidders tallied almost $20 billion. After the collection of certain fees the remaining amount is given to taxpayers. Bidders are still in a quiet period, which prevents parties from talking to each other. This is expected to be lifted by early May, when applications and down payments are due for wireless licenses. (March 22, 2017) telecom.economictimes.indiatimes.com

The FCC chairman Ajit Pai has called for the commission to suspend the new privacy rules passed last year and scheduled to take effect March 2. Approved under Pai's predecessor, the rules require internet providers to take a stricter stance on protecting and using customer data. Industry groups have opposed the rules, saying the existing data protection rules under the FTC are enough and the FCC rules may create confusion and conflict. Pai has sided with the ISPs, saying he prefers a "technology-neutral" privacy framework coordinated with the FTC's standards. He has asked the FCC to vote by March 2.

(February 27, 2013) telecompaper.com

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