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Exclusive Interview

Marwan Hayek
CEO and Chairman
Alfa Telecom

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Improving Spectrum Management Planning

There is consensus that legal and policy frameworks for spectrum management have not kept pace with the changes in digital technologies, the spectrum needs of those technologies, and the evolving behaviors of the digital users. Under the existing frameworks, governments generally review every change in spectrum use. This process is slow, inflexible, and can discourage the introduction of new technologies, or hinder prompt availability of new technologies. It is this process that demands our attention, and which needs to be improved in view of new needs of the digital communications industry as well as of the evolving digital society.

Each country in the SAMENA region wishes to transform into a modern, prosperous, and self-reliant country, and thus has defined (or is defining) national ICT visions, which seek to progress efforts in addressing issues and challenges that have historically constrained socio-economics and national development.

One common thing in national contexts that has strong bearing on spectrum management and allocation is national digital transformation. Each country in the SAMENA region wishes to transform into a modern, prosperous, and self-reliant country, and thus has defined (or is defining) national ICT visions, which seek to progress efforts in addressing issues and challenges that have historically constrained socio-economics and national development.

It has already been proven that availability of digital infrastructure, of which spectrum availability is an essential and non-negotiable part, is among the fundamentals for development. Therefore, each country aims to continuously build robust ultra-

high speed, pervasive, intelligent and trusted high speed ICT infrastructure that complies with changing technologies and the evolving smart environment. Fair and efficient management of scarce resources and guaranteeing their availability, such as of spectrum, is critical to fulfilling national ICT policy objectives and for creating an environment conducive to business, investment, innovation, and sustainability in a liberalized, technology neutral, and competitive digital communications industry.

The demand for more spectrum is essentially driven by the rise and usage of associated digital services, new technological developments that are simply founded on more spectrum, and evolving national as well as regional (and international) goals and decisions. Developments in adjacent sectors, cross-sector collaboration, and expansion of spectrum requirements beyond digital communications are other factors in the rising demand for more spectrum resources. As efforts are exerted to meeting this demand for more spectrum, the key challenge boils down to balancing rising spectrum requirements of technologies and legitimate interests of the digital users, preventing interference, achieving efficiency in use, and ensuring that spectrum is priced fairly. The latter factor is especially important as cost reductions, among other factors, are important to the growth of the digital economy and any one factor, if not kept in mind, will pose hindrance to the timely availability of digital infrastructure and thus to the timely realization of a prospering digital economy.

As enablers of the digital economy, operators often feel that most spectrum auctions currently are designed to maximize short-term revenues for governments and do not necessarily evaluate long-term benefits for the digital economy. Furthermore, restrictions on spectrum use prevent and hinder the optimal use of spectrum resources (e.g., spectrum sharing, spectrum trading). To demonstrate that, in fact, governments are evaluating long-term benefits directly driven from the availability and use of spectrum



Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications
Council

with a futuristic mindset, spectrum fees must come down. This can be achieved either through improved spectrum auction mechanisms or through prompt spectrum re-farming, for example. Going forward, a long-term and flexible spectrum management approach is essential.

As applies to other areas of regulation, spectrum policies and regulation needs to be drafted in collaboration with the private sector. Such collaboration can also prove to be beneficial in improving the aforementioned slow review processes that governments take on.

The collective goal for the public and the private sectors is to create and enable a sustainable digital society. Therefore, it is important that all regulatory frameworks, including those guaranteeing fair availability of spectrum resources, ensure an even and level-playing field for all digital communication service providers. The 5G environment is upon us and we need to be promptly prepared for it with all essential tools and means. 📶

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Silvio Chiha



Marwan Hayek
CEO and Chairman
Alfa Telecom



Q. What is the state of broadband and digitization in Lebanon, and how is Alfa driving digital growth in the country? Furthermore, what trends in digital adoption do you continue to lead in the Lebanese market?

A. Lebanon's ICT sector is growing at a fast pace and is the main contributor to the growth of the digital economy in Lebanon. At Alfa, we are in a pioneering position to enable digitization and the Internet of Things in Lebanon. Our network upgrade projects have taken a massive leapfrog in the last few years, and we are enabling broadband access and high speeds to all Lebanese population, individuals and corporations. Smartphone adoption reached 90% by end of July 2017 and is one of the highest rates worldwide. LTE enabled phones is at 42% among Alfa subscribers, a 54% increase since the same period last year. Data consumption nearly doubled since July 2016. On average, our subscribers are using more than 1500 MB per month per subscriber, and this rate is higher for postpaid subscribers, which puts us at the heart of the digitization journey offering reliable and accessible data services nationwide.

The digital transformation will reshape all industries, from the healthcare and medical fields, to the governmental institutions and public utilities. Alfa already offered a smart home automation solution and is currently working to launch some other digital initiatives.

Q. In which segments, in particular, is Lebanon's digital transformation market likely to grow fast, and what direct role are you playing in this regard?

A. The digital transformation will reshape all industries, from the healthcare and medical fields, to the governmental institutions and public utilities. Alfa already offered a smart home automation solution and is currently working to launch some other digital initiatives.

In our labs, we have tested many solutions for public and private sectors, and we are also designing strategies for these solutions since introducing such technologies is challenging in the Lebanese market. In 2017, the Lebanese government discussed, in many occasions, the digitalization of its processes and expressed explicitly its interest in an e-government model. Mobile operators, in particular Alfa, are very well positioned to support the Lebanese government in its journey towards a digital government. Alfa has an extensive experience in cloud computing, virtualization, customer experience, real-time charging and billing and other skills and capabilities that are critical for the success of the e-government in Lebanon. Private Public Partnership law has been recently endorsed by the Lebanese Parliament and we hope it will be the gateway to rewarding partnerships for enabling the e-government which shall ultimately benefit the Lebanese citizen in his daily life needs.

Q. To what extent has Lebanon been able to capitalize on the availability of 4G services over the past 3 years, and what role has Alfa played in 4G adoption, nationwide? What 5G developmental activities and initiatives is Alfa a part of?

A. 4G has driven innovation in the market and put us on the right track to drive digitization in the local market, and pioneer this transformational journey towards a connected society.

We were the first in bringing 3G, then 4G and 4G+ to Lebanon, and we have accomplished today a nationwide LTE and LTE/A coverage which is enabling us to offer high speeds and capacities and an extraordinary data throughput throughout Lebanon. This means that every Alfa subscriber on the Lebanese territory is able to benefit from 4G data services and speeds wherever they are and rely on a solid and capable data network for all kinds of their needs. In coordination with the Ministry of Telecommunications, we have also reduced data prices by 20% last year driving impressive data traffic growth reaching more than 2,500TB for August 2017.

With 4G/4G+, we are offering speeds of up to 250mbits/sec., and we have seen

a big increase in the number of data subscribers which have grown from almost 0% in 2010 to more than 75% of our total 2 million subscribers today. This is a proof of our success especially when it comes to digitization.

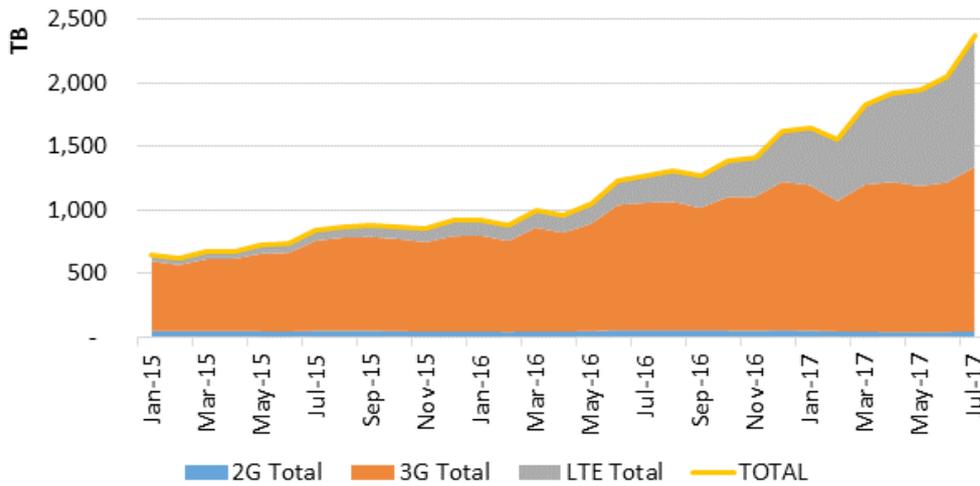
4G has driven innovation in the market and put us on the right track to drive digitization in the local market, and pioneer this transformational journey towards a connected society.

4G LTE has paved the way for new partnerships and the launch of new services that match subscribers' need in the digital era. We were also able to diversify our offerings, catering for the needs of individual and corporate subscribers' for higher capacities, offering bundles as much as 200GB. We are also allowing subscribers to purchase latest LTE enabled handsets at affordable prices directly at our flagship Stores with payment facilities and easy installments. With regards to 5G, we have signed in 2016 MoUs with our global partners, Ericsson and Nokia to start exploring 5G possibilities on our network and what is needed in terms of infrastructure upgrade to reach our goal of launching the first 5G Site in 2018. 5G is the driver for IOT and it will nourish the applications business and enable us to ink partnerships with vertical industries to launch smart cities Apps solutions in eHealth, Industrial Control, Smart Metering, Retail, Security and Emergencies industries and many other.

Q. How did the adoption of latest technologies impact mobile data consumption on your network and how did you keep pace? Any interesting stats to share?

A. With the introduction of LTE Advanced nationwide, the total data consumption in Lebanon nearly doubled year-on-year and is reaching currently 2,500TB per month. Alfa is continuously working on increasing the mobile broadband capacity and bandwidth. We are also in the process of expanding our business

Data Trend in TB



reach and model and strengthening our presence in the field of M2M, in order to allow other sectors of the economy to benefit from our infrastructure and spur growth of app-based businesses.

Q. How is Alfa supporting Lebanese entrepreneurs?

A. We are committed to the thriving entrepreneurial ecosystem in Lebanon as this is a main pillar not only in the digitization journey but also in creating

a direct social impact by driving new employment opportunities.

We are offering young entrepreneurs all network components that enable their ideas to thrive. Our communication network, and the high speed data coverage and availability across Lebanon are pillars at their disposal to ensure a high success rate for their ideas. They are also able to share their creations with 2 million subscribers through dedicated platforms we put at their service. We are always

ready to support any innovative idea that can contribute to enhancing the quality of life of consumers in Lebanon and we believe that our future partnerships with entrepreneurs is a pillar in our digitization journey that will revolutionize the way people interact, connect, work and live.

Q. How do you see the future of the telco sector in Lebanon?

A. We believe that the telecom sector in Lebanon has much more to give. Lebanon is not only back to the regional telecom map but at the heart of the digitization and technology innovation journey through all the startups and initiatives flourishing around Beirut. We are adopting latest trends, and what was once considered as a hurdle in the telecom sector, no longer exists today thus enabling Lebanese talents to realize their dreams and to export them worldwide. The Ministry of Telecommunications announced ambitious plans to avail a nationwide fiber optics network which will increase internet speeds massively. PPP is the ways forward for the Telco sector prosperity and as we always emphasized, we are eyeing a long term strategy for the telecom sector in Lebanon and we remain committed to its growth and prosperity.





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REPORT

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ATKearney

The Future of Telecom Operators in the SAMENA Region

As the telecommunications industry faces a mixed financial outlook and rapid change, telecom operators in South Asia, the Middle East, and North Africa are undergoing a transformative journey.



The boom years are over. Telecom operators in South Asia, the Middle East, and North Africa (SAMENA) now face a significant slowdown in revenue and profitability growth. In fact, in our recent study of C-level executives from the region's leading telecom companies, 80 percent say their success, and even survival, depends on making fundamental changes to their business and operating models.

Executives are responding to an industry that is changing at a rapid pace. On the consumer side, people now predominantly use smartphones to send and receive data, with voice calls being secondary. Will telecoms need to accept the new normal that they are mere connectivity providers, while over-the-top (OTT) companies such as Facebook, Apple, and Google hold sway over digital communication services? Or will telecoms be able to compete head on? At the same time, we have yet to see if operators can build competitive connectivity-related businesses and open up new growth areas.

Telecom operators in South Asia, the Middle East, and North Africa (SAMENA) now face a significant slowdown in revenue and profitability growth.

On the enterprise side, opportunities are emerging as companies across sectors and governments require more than simple connectivity and hosting services. Will telecoms be able to compete with specialized IT providers, despite their lack of a number of required capabilities in this arena? Will the Ciscos and IBMs of the world continue to dominate the business-to-business (B2B) information and communications technology (ICT) domain?

What is clear in our analysis of the industry's future in the SAMENA region is that telecoms cannot afford to focus only on short-term steps in their transformation journey. A focus on the long term is essential, including the following:

- Redefining strategic direction and priorities that enhance the customer experience and revamp telecoms' commercial approach to manage new offerings in areas such as digital and ICT
- Significantly shifting the operating model that drives improved efficiency by simplifying the operation's core while establishing sound partnerships and pursuing select acquisitions to quickly achieve the additional capabilities that new offerings will require
- Embracing digital to realize benefits across the business, including new services, enhanced customer experience, greater process agility, and improved cost efficiency
- Upscaling the skills and competency levels of the employee base, and revisiting company culture and governance

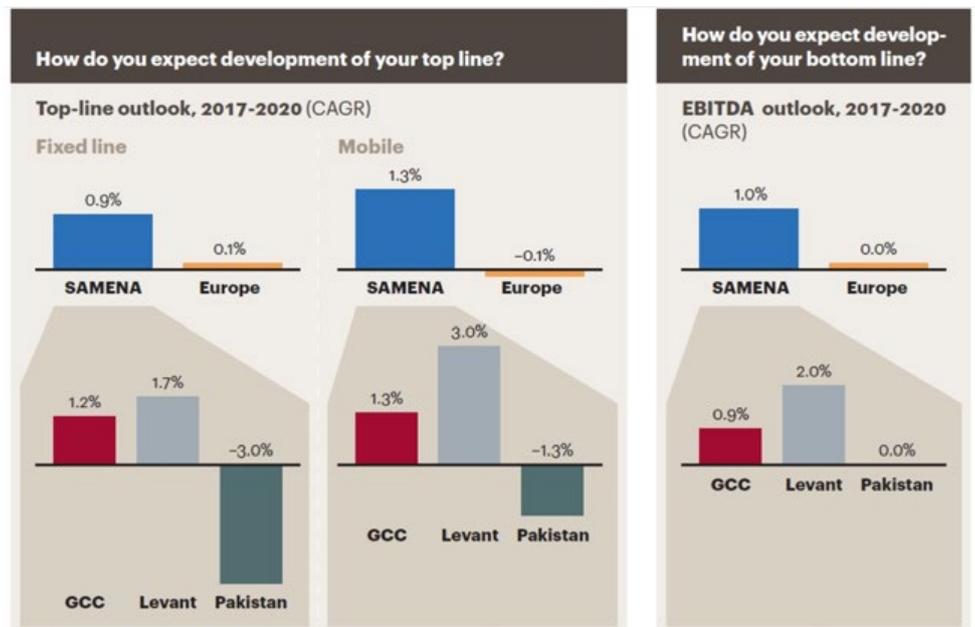
What follows is a deeper exploration of the perspectives that regional telecom leaders shared with us, which—in combination with our own research—led us to the above conclusions. We also put the regional outlook into perspective by comparing it with the results of another A.T. Kearney study conducted with European telecom executives.

A Mixed Market Outlook Harbors Three Big Challenges

Globally, mobile data consumption is expected to grow 30 percent, and fixed-line data is forecast to grow 8 percent annually between 2016 and 2020.¹ Yet, telecom operators face challenges to turn this increase in data consumption into additional revenue and profit and expect only minor growth of 1 percent during the same period (see figure 1).

Figure 1: Revenue and earnings are predicted to grow at modest rates

Top- and bottom-line outlook, 2017–2020



Note: SAMENA is South Asia, Middle East, and North Africa.
Source: A.T. Kearney analysis

¹ Cisco Global IP Traffic Forecast, 2016–2020

While only marginally positive, that outlook is quite optimistic compared with Europe. The SAMENA region is at a different stage of development, with less mature digital products and services, less regulation, and milder competitive dynamics. (It has fewer established operators per country and few mobile virtual network operators.)

But the region's telecom executives are cautious as they eye three of their market's biggest looming challenges:

Maximizing current market share. Most SAMENA countries have seen the entrance of their second or third telecom operator into their market during the past 10 years (for example, Zain in Saudi Arabia, Vodafone in Qatar, and VIVA in Kuwait and Bahrain). A focus on growing market share was a natural objective for the new challengers as they sought to gain the minimum scale required while incumbents fought to preserve their share.

The focus on market share is shifting, with only 8 percent of our study's respondents considering increases in market share to be a key way to capture growth (see figure 2). Operators have learned that trying to boost market share by slashing prices or offering special deals can be expensive in terms of customer lifetime value and may result in overall erosion of market value. Instead, mastering customer retention and better managing the existing customer base will become essential.

Careful development of new businesses. Trying to diversify and develop new businesses is not new to operators in the region, but it will take center stage by 2020, as our study finds. Developing new business is seen by 85 percent of executives as crucial to their success. Interestingly, in Europe, only 40 percent of executives share this belief. The reason for the difference in outlook is, in our view, that European operators have already diversified their portfolios with new business models as much as is sensible, but with mixed success. Moreover, the industry is still uncertain about whether current efforts—such as the entry of Orange and O2 Germany into banking in late 2016—will result

in commercial success. SAMENA region operators can learn from the experiences of their European counterparts (among others) and pick their battles accordingly.

Mastering customer retention and better managing the existing customer base will become essential.

Continued cost cutting. During the next five years, SAMENA region executives plan to further cut operational costs significantly, including network, IT, support, and overhead expenses. They also plan to continue making capex optimization a priority. Among their targeted cost-cutting initiatives are automation, outsourcing, and process simplification. Interestingly, and much unlike Europe, SAMENA region operators have not been scrutinizing commercial cost and will pay even less attention to it going forward. In fact, we believe it is important for them to invest heavily in bringing their commercial operations into the digital age with upgrades to the customer experience such as enhancements to support online sales and enabling self-service via apps.

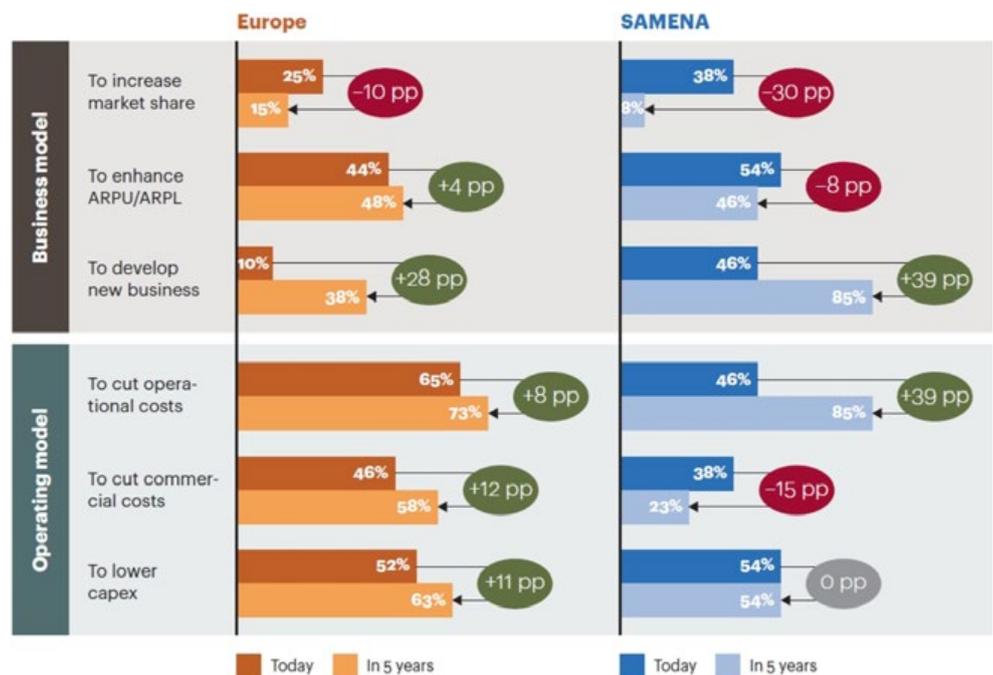
Retooling the Telecom Business Model

Study participants say they are considering a wide range of changes to the consumer and enterprise segments of their business model.

Prepaid expected to remain dominant with hybrid models to grow significantly. Most executives expect their company's prepaid model to continue as it is but anticipate launching a hybrid model that incorporates credit cards and upfront billing (see figure 3). Some companies believe consumers' growing demand for data will change how they pay for telecom services, with pre- and postpaid concepts starting to blur over the next five years.

Figure 2:
More operators will seek to develop new businesses rather than chase market share

Lever for change (% respondents)



Notes:
SAMENA is South Asia, Middle East, and North Africa; pp is percentage points; ARPU is average revenue per unit; ARPL is average revenue per line. Operational costs include network, IT, and support and overhead. Commercial costs include marketing, sales, customer services, and commissions.
Source: A.T. Kearney analysis

Core product offerings to change. While executives expect the demand for stand-alone handsets to remain dominant, they foresee handset credit and leasing offerings growing significantly in the SAMENA region. Done well, this play has the potential to expand their handset business and strengthen customer relationships, especially with higher-value segments. This finding is reinforced by another recent A.T. Kearney study, The GCC Telecom Consumer of the Future, where 41 percent of consumers prefer obtaining both their SIM card and handset from the telecom operator, compared with 28 percent who prefer obtaining it from a third party.

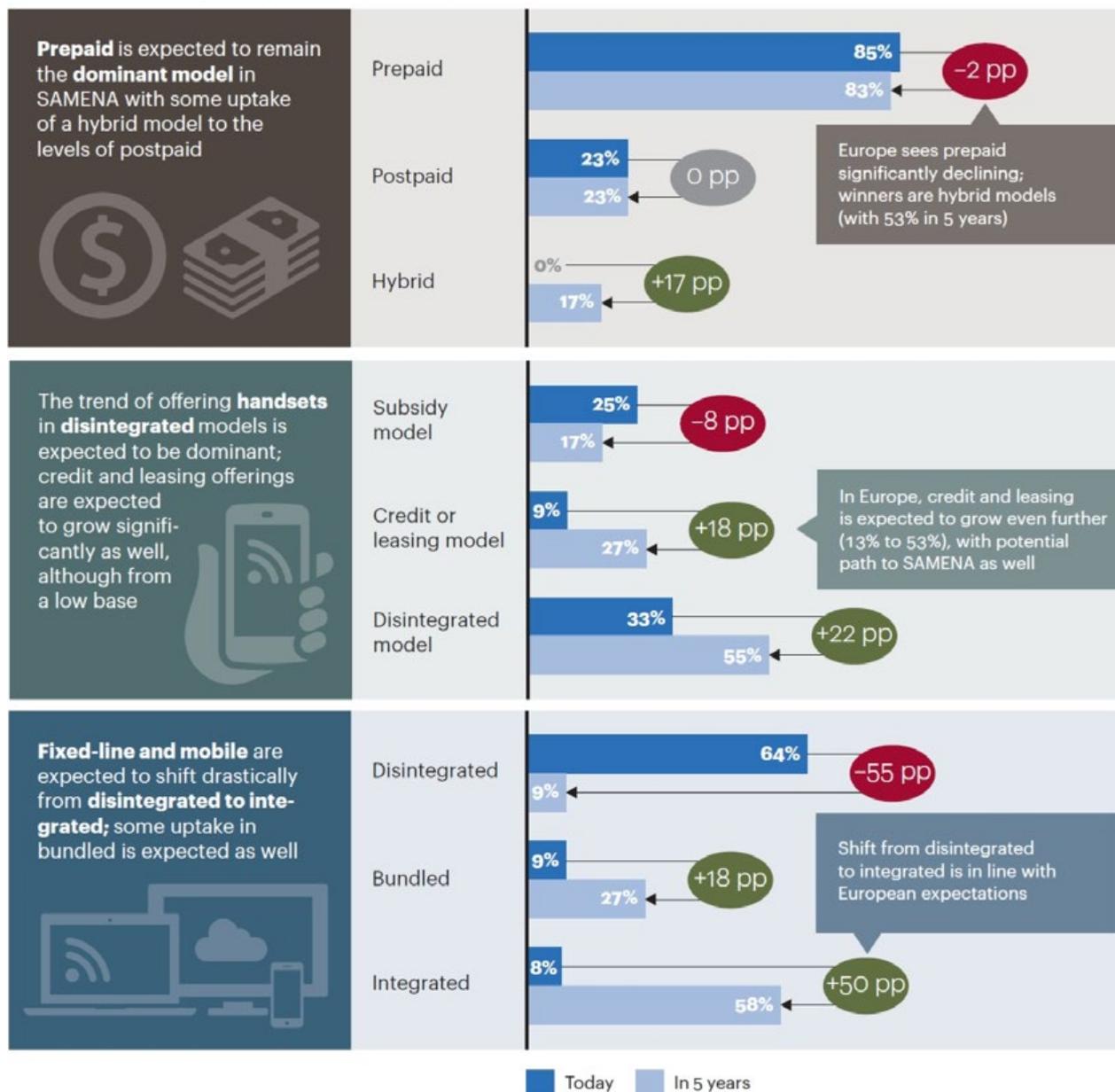
Dual play to lead the way. The most significant change that SAMENA region executives expect is in how the core product will shift gradually from a stand-alone fixed and mobile offering to an integrated (or dual-play) offering. This change depends on different operators' fixed-line assets and the evolution of

the regulatory landscape (see sidebar: The Need for Revamped Regulations on page 7). We already see movement in this area, with Saudi Arabia's Communications and Information Technology Commission announcement of a regulatory framework for unified licensing.

More revenues to come from new sources. Data is now the biggest business for telecom operators. About half of GCC consumers use phones for Internet access and apps, as A.T. Kearney's study of GCC telecom consumers found. Yet, in the SAMENA region, just as in Europe, only half of executives believe data revenues can fully compensate for a decline in voice revenues (see figure 4 on page 6). Added to this challenging outlook, revenues from roaming and interconnection are expected to decline or, at best, remain stable. Many regional executives expect revenues to shift from consumer to enterprise and increasingly come from new sources outside their traditional connectivity business.

Figure 3: Integrated and fixed mobile offerings are increasingly taking hold

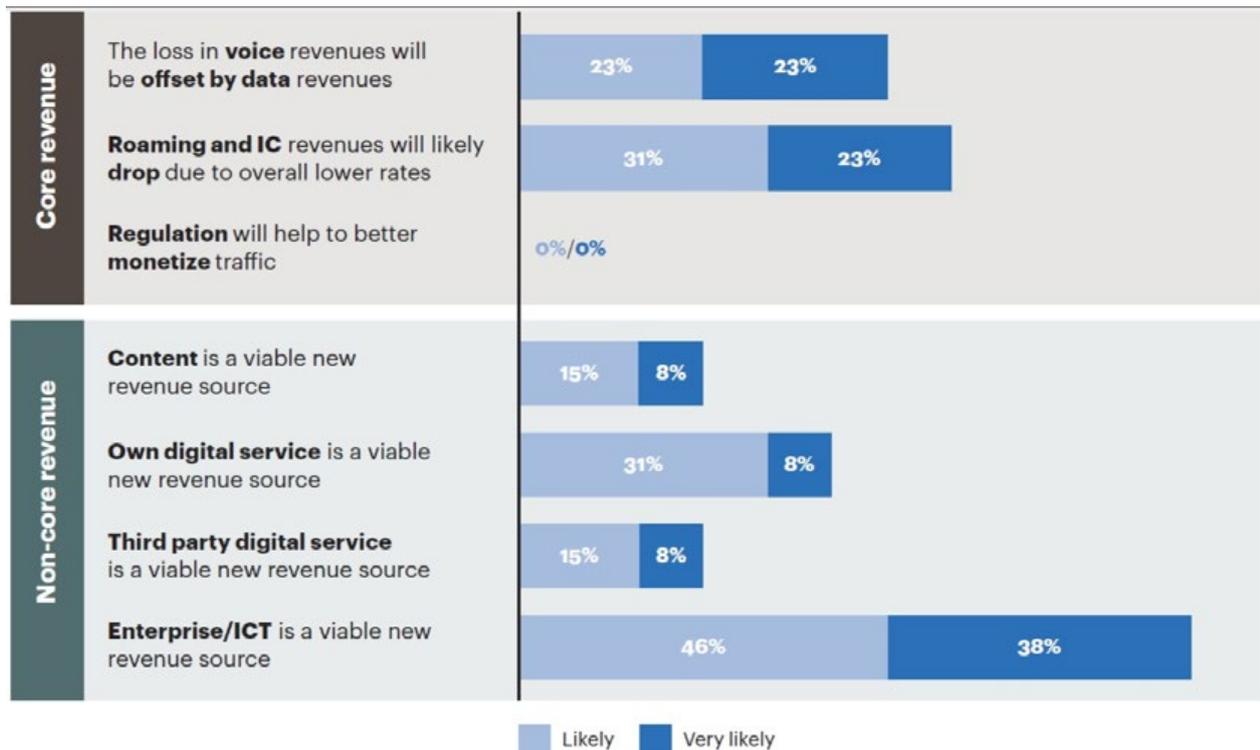
Core product offering changes (% respondents)



Notes: SAMENA is South Asia, Middle East, and North Africa; pp is percentage points. Source: A.T. Kearney analysis

Figure 4: Data revenues are only a limited substitute for voice revenues

Revenue trends (% respondents)



Source: A.T. Kearney analysis

In terms of new consumer revenue sources, less than one-quarter of executives believe content or digital services will become meaningful revenue sources.² Smart home, media, and banking and payments platforms are the top three potential new revenue streams noted by executives.

In the banking and payment space, for example, Etisalat’s mobile wallet in the United Arab Emirates, Ooredoo Mobile Money in Qatar, and Ufone’s Upaisa in Pakistan are interesting and increasingly successful concepts to watch. Whether they will make a meaningful contribution to overall revenue or are able to reduce churn of the traditional customer base (as M-Pesa achieved in Kenya) remains to be seen.

While only a few believe that opportunities await in the consumer segment, there is a silver lining for business: four out of five regional CXOs believe telecom-related IT services will drive their revenue growth. The largest potential of ICT revenue is expected in mobility, cloud, and data center services, such as telecom-related IT fields.³ We already see regional operators positioning themselves in the ICT space—often with strong core IT partners to bridge the skill gap (especially in delivery) and leverage their government relations. STC Solutions positioning itself with Saudi Arabia’s Vision 2030 and ICT efforts from Etisalat Digital, Ooredoo, and Omantel are prime examples.

The Need for Revamped Regulations

With the new market dynamics, telecom executives believe industry regulations require a significant overhaul to support the sector’s growth (see figure). More than two-thirds expect regulators to drive affordability of services, with the majority foreseeing profound changes in roaming regulations for voice and data, as seen in other parts of the world. However, after years marked by increasing market liberalization across the SAMENA region, including thro-

ugh mobile virtual network operators and new licenses, executives are now polarized, with 50 percent anticipating the end of the liberalization era.

In the new domains such as OTT and digital services, the way forward is less clear, either because regulators are still assessing the best courses of action or because telecom operators face challenges in conveying the extent of change required. Executives agree it is

important to manage regulations at the operator and industry levels. Telecoms can help jump-start progress toward a more supportive regulatory landscape through a more proactive action to influence regulators’ agendas for areas including OTTs and VoIP calls (leveling the playing field between telecoms and OTT companies), spectrum, data roaming, interconnection, and data privacy, as well as taxation and industry fees.

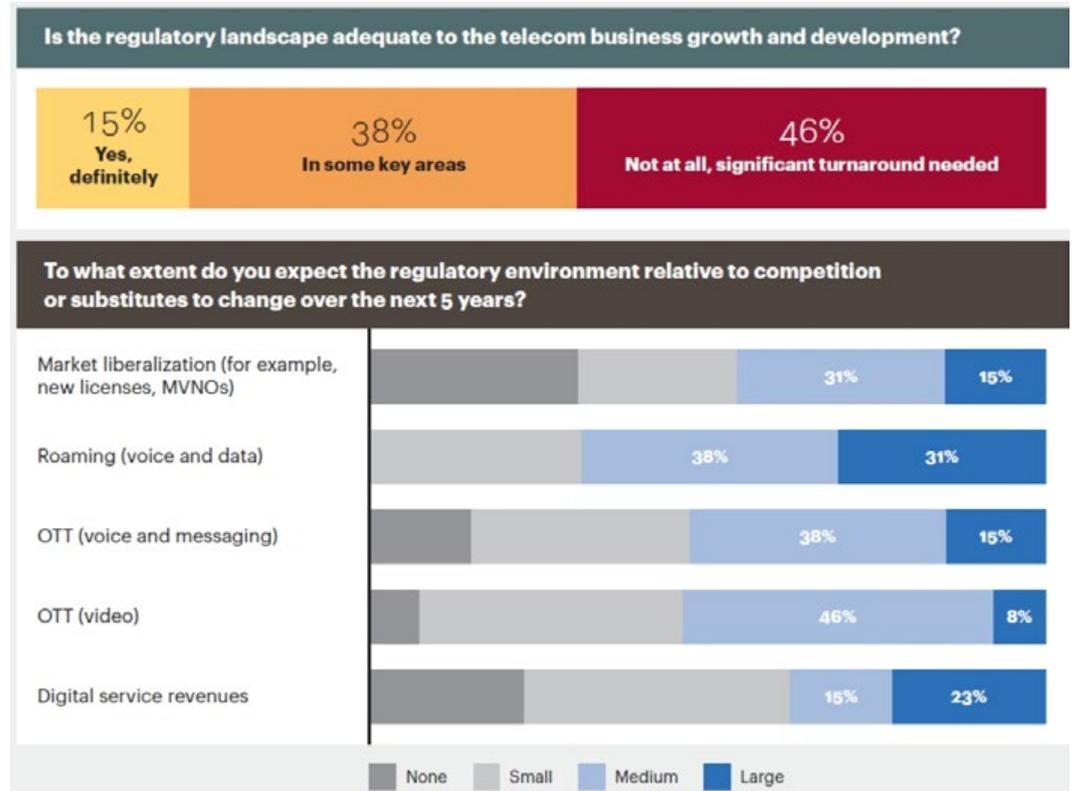
² Digital offerings are consumer-targeted and are made by telecom operators or third parties in typical digital verticals such as smart home, media (music and movies), e-learning and e-government, banking, and payments.

³ ICT offerings are enterprise-targeted and are made by telecom operators or third parties along the ICT value chain (core IT and telecom-related IT). They include mobility services for enterprise, cloud services, data center services, managed networks, and security services.

Figure:

Most CxOs feel that the regulatory environment is not adequate and expect changes in roaming and OTT

Regulatory outlook



Notes:
 Numbers may not resolve due to rounding. MVNO is mobile virtual network operator. OTT is over the top.
 Source: A.T. Kearney analysis

A Customer-Focused Operating Model

Changes to the operating model will go hand in hand with changes to the business model. We see changes across all areas:

Connectivity core. A focus on superior customer experience is driving operators to address every element of their operating model (see figure 5):

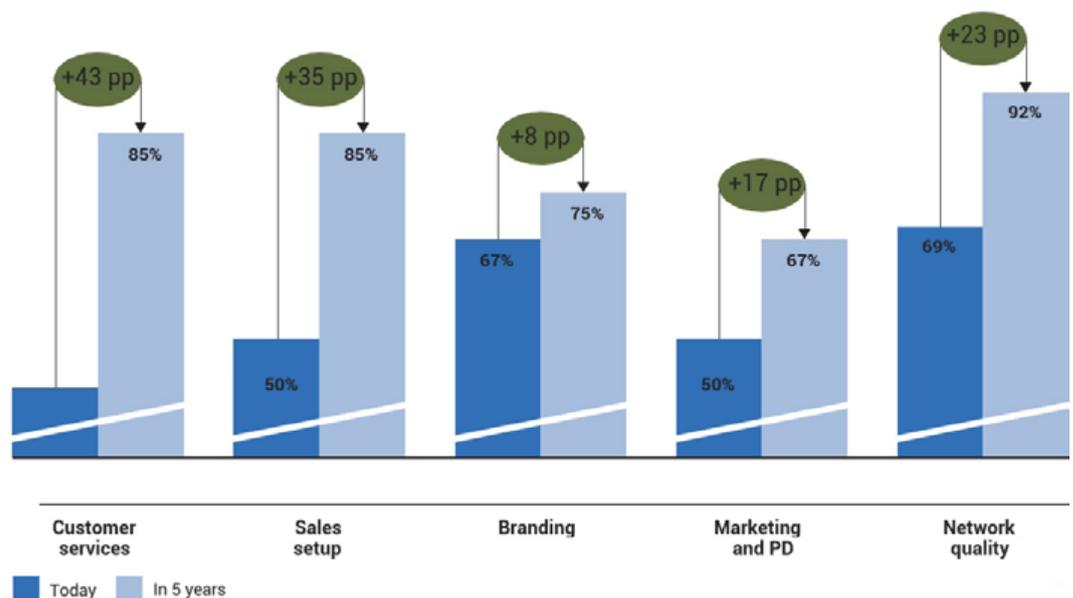
Superior customer service is the phrase of the moment. A differentiated and superior customer experience is a top priority across operators, and most executives expect it to change significantly from today, namely toward more digital channels such as smartphone apps, chat, online self-help, and email.

Providing a seamless customer experience across interfaces has become essential. Executives in the region do not have a clear view, however, on whether “no service” (that is, removing the root causes to call in the first place) is the best service, unlike 70 percent of executives in Western Europe who believe this radical shift is likely to take place. In our view, such an OTT-like setup is cost-effective and may be the future model for SAMENA region telecoms as well.

In terms of sales infrastructure, almost all executives believe the number of physical stores will shrink by 30 percent, while operators will have the remaining branded stores play a stronger role as service points. One key factor is the expectation that 30 to 40 percent of sales will be made online. Executives also say

Figure 5:

As network quality remains top of mind, customer service and sales have become focus areas



Notes:
 pp is percentage points; PD is product development.
 Source: A.T. Kearney analysis

the service and sales setup will be essential for defining brand elements, which are vital for attracting customers.

Meeting customers' expectations is no longer enough. New customer journeys now must include "positive surprises" at all touch points.

To facilitate digitalization and superior customer experience, companies see a radical simplification of their product portfolio, such as the pruning of legacy products and services to a smaller and more standardized number of offerings. Simplification will be complemented with a focus on data analytics to better understand customers' needs and steer marketing toward new digital-services development. "Make it simple, make it digital" seems to be the slogan for several telecom operators.

While SAMENA region executives see operational cost cutting as a top priority, they also believe network quality will become even more important, which might explain why operators are risk averse when addressing the backbone of their business. On one hand, they are keen to achieve best-in-class quality and want to protect it at all costs. (Network quality is the number one reason GCC consumers select a telecom provider.) On the other hand, executives expect significant changes from how networks are set up and run. An increase in managed-services outsourcing and network sharing is seen as key.

New growth sources from digital services and ICT. More than 80 percent of executives believe ICT-related revenue will increase, and 25 percent anticipate digital-services revenue will increase, both of which will contribute to sector growth. Consequently,

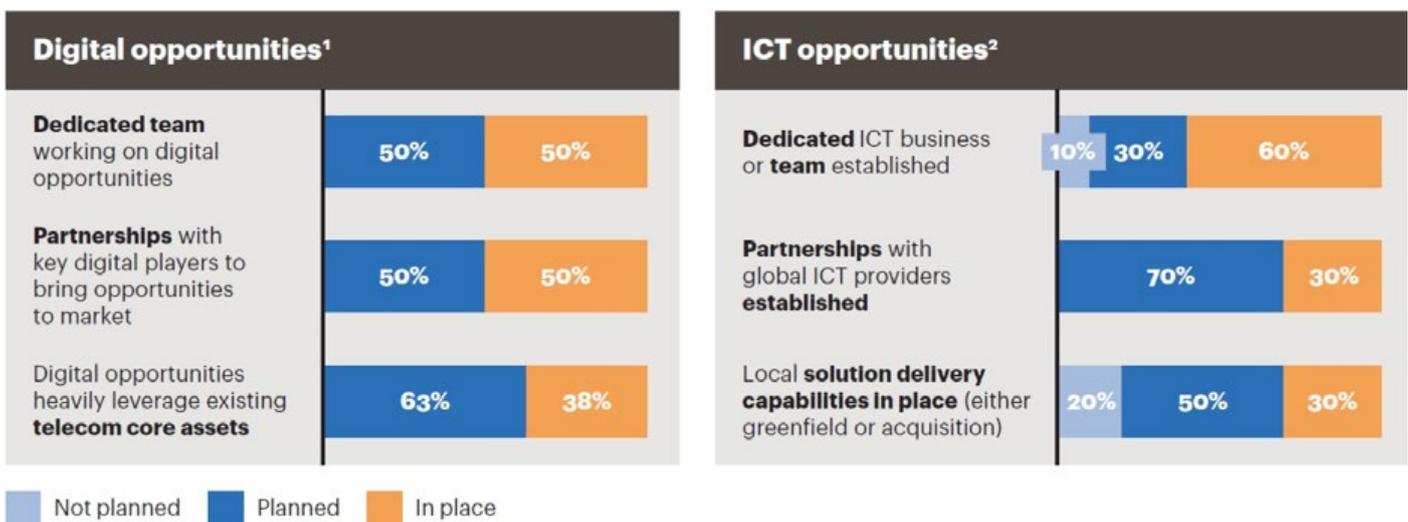
these operators are adapting their operating models to tackle the requirements of the new businesses (figure 6).

Those SAMENA region telecoms that believe in the potential of new digital services already have a dedicated digital team in place or are planning to pursue digital opportunities. Most, but not all, are organizing those teams as independent entities apart from the core. To make their teams successful, executives point out that partnerships are essential, especially to gain access to the different skills required and to ensure fast time-to-market while maintaining a lean organization. All executives believe in leveraging telecom core assets, from network infrastructure and connectivity to the customer base, but only 40 percent do so already. We believe this is mainly because companies have yet to establish the right organizational framework and governance before moving forward.

Likewise, establishing local capabilities for ICT solutions is still a work in progress. Only 30 percent acknowledge they have them in place, while most are in the planning phase. Given that acquisitions are a faster way to achieve capabilities, we foresee M&A activities in the ICT space increasing in the coming months. Similar to digital, partnerships are a key success factor for ICT. However, only 30 percent of telecoms say they have established partnerships. It may be the case that companies have just completed their strategies, or that it is difficult to find partners with local market understanding, as one executive commented.

Given that acquisitions are a faster way to achieve capabilities, we foresee M&A activities in the ICT space increasing.

Figure 6:
Digital and ICT opportunities are being captured
Operating models



¹ Answered if digital revenues are expected to increase significantly

² Answered if ICT revenues are expected to increase significantly

Note: Numbers may not resolve due to rounding.

Source: A.T. Kearney analysis

The Implications for SAMENA Region Telecoms

In the context of rapid industry change and the ongoing transformation of telecom operators, those in the SAMENA region are challenged with overhauling their core business, leaving no stone unturned. We see four priorities:

1. Embrace a customer-centric strategy

Get the strategy right. Redefining strategic direction and priorities will be key. That can be accomplished in part by telecoms considering to what extent they want to focus on traditional connectivity or expand into new digital and ICT services. Operators also need to examine the balance between the consumer and enterprise segments (regarding areas such as m-payments, m-health, e-education, and cloud) and therefore define a position in the evolving ICT value chain. What follows then is to identify gaps in competencies, implement new strategies to close them, and execute based on an all-encompassing roadmap.

Wow the customer. Consumers have come to expect superior customer service from companies in other industries that please them with personalized, real-time, engaging, seamless, and consistent experiences. Meeting customers' expectations is no longer enough. New customer journeys now must include "positive surprises" at all touch points, delivering a superior and seamless experience across traditional channels, such as retail stores and through call centers, and nontraditional channels. Digital is, without a doubt, a main enabler in the enhancement of that experience.

Revamp the commercial approach. Marketing capabilities also have to keep pace by bringing a broader yet simpler portfolio of propositions to customers. Successful marketing departments focus both on effectively introducing new services to broaden the revenue mix and bundling to protect the base. As companies transform their service offerings, they also will transform today's sales and distribution channels to serve customers effectively across both existing and new digital channels.

2. Significantly shift the operating model

Drive efficiency. Do so particularly in network, IT, and support functions. Continually reduce the costs of operating, as European operators have done for a decade. It is not enough to implement a few quick wins. Structural initiatives that fundamentally change the way a telecom operates, cost-performance targets embedded into management key performance indicators, and a cost-performance culture are a few of the requirements to become leaner and, as important, to sustain improved productivity.

Simplify and simplify again. By reducing the complexity of the product portfolio, business processes, and networks and IT systems, operators can impact profitability, speed of execution (such as time to market), and customer experience. While reducing complexity might be a difficult task, the key challenge to sustained performance is to keep operations simple—technology is massively updated every five years, and new business models are introduced alongside the traditional core. A strong governance jointly with a clear focus on long-term solutions is part of the answer.

Partner for expertise. In the consumer space, work with partners to fill capability gaps (such as in m-payment services) fast. In the business space, partner to fill core IT services skills. Understand that the evolution from "vendorships" to partnerships will not come naturally for many telecom operators that hope to forge solid partnerships with regional and global IT firms to bridge this expertise gap.

Acquire local companies to rapidly scale up. Some will want to pursue select acquisitions of local or regional players to quickly strengthen delivery power and scale up capabilities. We may see acquisitions in the B2B and ICT areas in the coming months.

3. Embrace digital

The companies most prepared to address digitalization have combined their digital and corporate strategies into one business strategy. Telecom operators need to embrace digital opportunities across their business to realize their full potential. Digital impact is spread across a variety of dimensions:

Create new services. First, digital becomes the source for new services beyond traditional connectivity, including m-payments, m-health, and e-education.

Enhance customer experience. Second, digital is one of the most powerful enablers to enhance customer experience, allowing more personalized and real-time customer interaction.

Improve agility. Third, accelerating the digitalization of internal processes will improve internal agility, allowing greater flexibility and a faster time to market.

Protect margins. Finally, digitalizing operations will also bring cost efficiencies, allowing operators to protect their margins. Frontrunners are exploring and executing on the opportunities that digital represents, both on the business and operating model dimensions.

4. Improve skills and revisit culture and governance

Build a strong culture. All these upcoming changes will require operators to expand the skills and competencies of their employee base, both by bringing on board professionals with strong know-how in these new areas as well as by implementing training programs to upscale the skills of the existing employees. These changes will only be possible if a strong culture is in place—change usually faces resistance, and operators cannot afford to be slowed down in this transformation journey.

Revamp processes and governance. Internal processes and governance will also need to be revisited to enable a more diverse business that at the same time requires simplicity and agility. Finding the right balance between the necessary control and the required agility is essential.

In sum, focusing on these priorities protects the value of the core business of telecom operators in the SAMENA region while preparing them to capture added value from the evolving value chain.

MEMBERS NEWS



STC Group Grew With a Net Profit of 7.9% in 2Q17

STC Group grew with a net profit of 7.9% in 2Q17 comparing to the same quarter of last year (first half) of this year, net profit reached SR 4.9bn, growing 6.6%. This is an achievement we all proud of, thanks to every colleague in all sectors, we trust your ability to continue the brilliant work with the same spirit. This year, the hard work will continue to realize the company's strategies toward digital transformation. The company with all its capabilities is seeking realization and compliance with the Kingdoms vision 2030 and National Transformation Program 2020. This means a big leap in our services, especially broadband, E-government, smart cities, and employing the latest technologies in all aspects of life. At last, I retreat my thanks to everyone, I wish we all achieve the desired goals that serve our country and contribute to the good of our society.



STC Signs Deal to Supply Fiber Services in Saudi Arabia

Saudi Telecom Company (STC) has struck a \$1.95 billion agreement with the Saudi government to offer high-speed fiber broadband services throughout the kingdom. The project will connect around 1.3 million households with fiber lines, with STC taking on responsibility

for connecting around 60% of the units, according to a report from Reuters. STC said it expects the project to be completed by the end of 2020, with the project costing around 7.3 billion riyals (\$1.95 billion). Demand for fiber in Saudi Arabia is growing, with STC and

Mobily already offering up to 200Mbps connections in some areas. Last year, Zain's Saudi arms was also rumored to be looking at launching fiber in the kingdom after securing a unified concession.



Batelco Partners With Leading Gaming Content Providers

Batelco, Bahrain's leading digital communications solutions provider has entered into partnership agreements with two leading gaming content providers to enhance the gaming experience for its customers. The new partnerships with Valve Corporation's Steam® and i3D.net provide direct peering with their highly reputed gaming platforms and Batelco's network. Thanks to the new partnerships, Batelco is providing the best gaming experience in Bahrain with extremely low latency. Steam is recognized as the world's largest online gaming platform giving access to more than 15,000 game titles and connecting over 35 million active users to each

other and to Batelco. i3D.net, which has won numerous awards for its services, specializes in low latency hosting for the online video gaming industry. The i3D.net team of highly-skilled technical engineers provides online infrastructure services and managed hosting solutions to a wide range of international organizations including Batelco. Batelco Bahrain CEO Eng. Muna Al Hashemi said that Batelco invests heavily to deliver the relevant communications tool for all sectors of its customers. "This latest move to provide direct peering with world-class gaming platforms ensures that Batelco is the number 1 gaming network in Bahrain," she added. Batelco Chief Marketing Officer

Mike Stanford continued by saying, "We are very pleased to be partnered with such leaders as Steam® and i3D.net in the growing field of gaming. Our aim is to bring the best content in the world closer to our customers and provide the lowest latency for them to benefit from a superior experience." i3D.net CEO Stijn Koster adds, "i3D.net provides services to a variety of online video gaming publishers, aggregating a large number of games that can be played on our infrastructure. We are always working to bring content as close to the end user as technically possible and welcome the opportunity to partner with Batelco."



Etisalat Wins Enterprise Service Innovation at Global Telecoms Innovation Summit

Etisalat won accolades for its managed unified communication services at the 'Global Telecoms Innovation Summit', an international event that recognizes leaders in different domains for innovation and successful project implementations. The Global Telecoms Innovation Summit recognized Etisalat's excellence in Unified Communication solutions. This prestigious award positions Etisalat as a leader in delivering enterprise solutions and end-to-end managed services in UAE. Etisalat has implemented projects under managed services for different sectors including government organizations, energy and utility, education, health, finance institutions and many others, delivering significant benefits to the

customers and their employees. One of the major projects is the Higher College of Technology (HCT) with 17 campuses located across the UAE serving 55,000 students and 2000 employees. Etisalat was able to deploy a unified solution providing both data and voice communication that is fully managed and monitored by Etisalat. Sergey Gerashchenko, Vice President Business Marketing-Managed Services said: "This award is a testimony to Etisalat's excellence in project innovation and implementation. Such achievement is due to the continuous investments made in our infrastructure and services portfolio to deliver best-in-class technologies and solutions to customers across all

verticals. I want to thank our dedicated team and partners who have contributed to this success." Global Telecoms Business Innovation Summit showcase and celebrate the most successful telco projects from across the globe. The event also discusses how telcos deliver successful ICT projects, overcome the various challenges and obstacles in a projects lifecycle and demonstrate true industry innovation. The award ceremony was held in London with over 300 telecom leaders coming together to celebrate the collaboration and partnership between operators and vendors while recognizing the industry's commitment to deliver exciting and innovative services to its customers worldwide.

Etisalat CEO Praises Flexibility in Face of Market Challenges

Saleh Al Abdooli highlighted Etisalat's flexibility in responding to telecom sector developments across its markets, as revenue and profit fell year-on-year during its second quarter. For the three months to the end of June, the Middle East-headquartered operator reported profit after federal royalty of AED2 billion (\$544 million), down 15 per cent from AED2.3 billion in the same period in 2016. Revenue across its operations in the Middle East, Africa and Asia reached AED12.8 billion, down 3.8 per cent year on year. The company saw a number of operational changes during the quarter, including its exit from Nigeria following its well-publicized issues in the country. Al Abdooli said its performance reaffirmed its "strong position and demonstrates our flexible strategy in adapting to

the developments and changes in the telecom sector". "Etisalat group's geographic footprint expands across the Middle East, Africa and Asia witnessing various opportunities and challenges in each market that are governed by specific economic conditions," he said. "Some of these markets witnessed macroeconomic challenges that imposed limitations on investments and future growth. Etisalat responded with confidence overcoming these challenges while maintaining a sustainable business portfolio." Chairman Eissa Mohamed Al Suwaidi added: "Etisalat Group showcased agility in the first half of this year adapting to the changes in the telecom industry, while the period revealed promising opportunities for growth in telecom and digital services and we also proved our strong position



by dynamically managing challenges in some international markets."

Etisalat Group Reports AED 25.3 Billion Consolidated Revenues for H1 2017

Etisalat Group today announced its consolidated financial statements for H1 ending 30th June 2017.

Financial highlights and key developments of H1:

- Etisalat UAE Revenues amounted to AED 15.4 billion representing 3% increase year over year.
- Etisalat UAE Net profit amounted to AED 4.2 billion representing 7% increase year over year.
- Etisalat UAE Subscriber base reached 12.4 million representing Year over Year increase of 2%
 - Distribution of interim dividend for the first half of the fiscal year 2017 of 40 fils per share.
- Group consolidated revenues amounted to AED 25.3 billion.
- Group Consolidated operating profit before Federal Royalty amounted to AED 8.8 billion.
- Group Aggregate subscriber base reached 139 million.

- Credit Ratings Agencies Standards & Poor's and Moody's affirmed Etisalat Group's high credit rating at AA-/Aa3
 - Etisalat enhances International Connectivity to UAE with AAE-1 Submarine Cable System
 - Etisalat's Smart Hub has Won the DCD Award in "Excellence in Regional & Global Datacenter Connectivity" (DCD – Data Centers Dynamic)
 - Etisalat UAE has launched its revamped loyalty program, focusing on digital channels and bringing larger value to customers
 - Etisalat introduces 'Create Your Number' service for all post-paid subscribers first time in the UAE
 - Etisalat 'first telco in UAE' to achieve ISO 20000 certification
 - Etisalat named most valuable Telecoms Brand Portfolio in the Middle East by 'Brand Finance'
 - Etisalat Receives Tier III Gold Certification for Operational Sustainability
 - Etisalat Group exits the Nigerian market.
 - UAE ranked as global leader in Fiber Optic Network by FTTH Council
- "Etisalat Group showcased agility in the first half of this year adapting to the changes in the telecom industry, while the period revealed promising opportunities for growth in telecom and digital services we also proved our strong position by dynamically managing challenges in some international markets," said Essa Mohamed Al Suwaidi, Chairman of Etisalat Group. "The financial performance laid a solid foundation for innovation allowing us to continue investing in

the development of next generation infrastructure while maintaining our focus on digital transformation, which in turn has a significant impact on enhancing the overall customer experience. Etisalat Group would like to thank the leadership of United Arab Emirates for its continued support and also Etisalat management team for their efforts in remaining focused on accelerating our long-term strategy to drive shareholder value and our loyal customers for inspiring us to set new benchmarks and to reach new business heights." Eng. Saleh Al Abdooli, the CEO of Etisalat Group, explained, "Etisalat Group's financial performance in the first half of 2017 reaffirms our strong position and demonstrates our flexible strategy in adapting to the developments and changes in the telecom sector. Etisalat Group has established a competitive position in the region as a fully integrated ICT solutions and services provider. Today we are proud that Etisalat is a key strategic player in major digital transformation projects in the UAE and beyond. Our recent announcement of the longest submarine cable system is another step to enhance our long-term growth and bring new capacity to UAE making it an international hub." Al Abdooli also added, "Etisalat group's geographic footprint expands across the Middle East, Africa and Asia witnessing various opportunities and challenges in each market that are governed by specific economic conditions. Some of these markets witnessed macroeconomic challenges that imposed limitations on investments and future growth. Etisalat

responded with confidence overcoming these challenges while maintaining a sustainable business portfolio." Al Abdooli further continued, "Today Etisalat Group has established a solid foundation driven by its ability to adapt its operations to maintain business sustainability. Our focus will be to continue investing in futuristic solutions and next generation technologies to deliver the best-in-class services and solutions to our customers while ensuring that shareholders gain long-term value from businesses." Etisalat UAE Subscriber base reached 12.4 million representing Year over Year increase of 2 percent. Etisalat UAE's Revenues amounted to AED 7.8



billion representing 3 percent increase comparing to Q1 2017. Etisalat UAE's net profit amounted to AED 2.2 billion representing 6 percent increase year over year and 7 percent increase comparing to Q1 2017. Etisalat UAE's EBITDA for Q2 totaled AED 4.3 billion representing 4 percent increase quarter over quarter and resulting in EBITDA margin of 55 percent.



Omantel to Pay 20 Percent Dividend to Shareholders



Oman Telecommunications Company (Omantel) said that the company got board approval to distribute interim dividend of 20 per cent of the share nominal value for the financial year 2017. The dividends will be paid to its shareholders as of the end of August 31. The company in its MSM filing said its board also approved unaudited financial results for the period ended June 30. For the first half of year,

the company posted a net profit of 66.80 million rials. The fall in net profit is predominantly attributed to the increase in royalty rates effective from January 1, 2017. The increase in royalty expenses was 12 million rials in 2017, Omantel said. Royalty paid by the company was higher at 29 million rials, against 17 million rials. The company's total revenue stood slightly lower at 267.7 million rials.



Türk Telekom to Support Technological Enterprises

Turkish telecom giant Türk Telekom is planning to support 10 new technological enterprises through its entrepreneurship acceleration program "PILOT." The selected enterprises, in different fields, including artificial intelligence and virtual reality, will have an opportunity to improve their projects through a 12-week training and mentoring program. An ever-growing number of entrepreneurship acceleration programs have helped newer enterprises emerge and old ones grow with backings from business angels and the entrepreneurship ecosystem. PILOT has so far supported 35 enterprises over four terms. In its fifth term, the program will offer the 10 selected enterprises TL 750,000 (\$211,972) in funds as well as training, mentorship and an opportunity to work with Türk Telekom. To successfully implement their business ideas, the teams will be trained by a group of experts on various subjects, including developing business models, growth models, digital marketing, sales and investor presentations. A substantial part of the new enterprises will help organizations with a conventional business model to acquire digital work habits as well as help small and medium-sized enterprises comply with present conditions. The teams will also benefit from office space, cloud based services and mobile communication package.

Growth Potential

PILOT considered a wide range of qualities in its project assessment phase, including the potential of cooperating with Türk Telekom, the projects innovativeness, the applicability of the idea, the size of the target market, growth potential, and consistency of the business model as well as competence of the team. Following a rigorous vetting process, Artiwise, Bifatura, Frizbit, Mobilya Takip, Nara, Optiyol, Propars, SaltCommerce, Vexrob and Visar were accepted into the program. The teams after successfully completing the program will present viable products and business models in the Demo Day, which will host leading figures from the entrepreneurship ecosystem.

Ideas to initiatives

Speaking at the program, Firat Yaman Er, Deputy General Manager of Strategy, Business Development and Business

Planning at Türk Telekom, said: "We enjoyed a great deal of interest during the application process. It was quite a challenge to choose among a whole slew of valuable technology enterprises. In PILOT's fifth term, we will support 10 enterprises working on advanced technology applications such as augmented reality and artificial intelligence. Within the scope of the



project, we will provide these upcoming enterprises with an opportunity of being trained and mentored by some of the leading names in the sector, and with funding that will help them realize their business ideas. Türk Telekom will continue supporting entrepreneurs and the ecosystem with its technologies, technical know-how and business networks."

Artificial Intelligence to follow up ideas

Artiwise offers media outlets and media monitoring agencies a cloud based textual analytics platform that utilizes natural language processing techniques and operates using machine learning. It facilitates the work of journalists, engaging in press follow up, with a platform utilizing artificial intelligence technologies and lets them quickly access data with its Turkish language supported search engine. By providing combined search, the platform presents secure, quick and simple access to data in different platforms from one base. <http://artiwise.com/>

E-commerce is not only for large companies

In Turkey, there is a common bias that e-commerce is only for large companies. Bifatura endeavors to overcome this bias by offering an advanced invoice generation system developed for small

and medium sized enterprises, who engage in e-commerce through market places and their own websites. They aim to introduce their users to new technologies like cloud computing, without setting any barriers. It can also generate invoices very quickly for different e-commerce sites. bifatura.com

Furniture sector gets up to date

Many companies in Turkey lack

experienced employees or the required abilities in manufacturing, sales or marketing. The furniture sector is one of the leading industries that are experiencing difficulties as a result of not being able to manage businesses in the growth stage. Mobilya Takip offers a platform for furniture manufactures and sales companies. The platform introduces business management solutions such as scaling the companies in the growth stage. mobilyatakup.com

Aiding physiotherapy

Organizing effective exercise programs is of vital importance in physiotherapy. Vexrob has created a database for patients and doctors to make an outline of their physiotherapy programs. It enables physiotherapy and rehabilitation patients to receive personalized exercise programs from expert doctors and physiotherapists. Both patients and experts can register at Vexrob. vexrob.com

Beetech Awards for working bees

The Beetech 2016 awards that evaluated the accomplishments of organizations and enterprises at Istanbul Technical University's (İTÜ) Arı Teknokent, 20 companies were awarded in six different categories and four companies received special awards. Speaking at the ceremony, İTÜ rector, Professor Mehmet Karaca said

the Beetech was awarded to encourage companies of different sizes. "At İTÜ Arı Teknokent, we believe that we serve as a model for many companies, with our aims on support R&D and innovation. With our contributions to entrepreneurship, R&D and the innovation ecosystem, we have become a leading trademark in the world. We will continue supporting new projects that would create added value

for our country," Karaca said. During the awards ceremony, İTÜ Arı Teknokent General Manager Kenan Çolpan said: "Our staff number reached 6,183 by the end of 2016. We have also achieved a 27 percent increase in women employment, something we attach great importance to. Today, the companies here are working on a total of 807 projects at the moment." He added: "Compared to 2015,

our R&D endorsements have increased by 22 percent while exports have increased by 9 percent, on dollar basis despite the fluctuating exchange rate. Also, there has been a 24 percent increase in the number of companies established by academics. We continue working with the objective to become the base of entrepreneurship and technology production in Turkey.

Turk Telekom Q2 Net Profit Sees Growth

Turk Telekom posted a net profit of 890 million lira (\$249 million) in the second quarter, jumping from 248 million lira a

year earlier, it said in a statement to the Istanbul stock exchange on Tuesday evening. Sales in the second quarter

climbed 14.2 percent to 4.5 billion lira, it said.



Zain Publishes Sixth Annual Sustainability Report Titled 'Innovate for a Sustainable Future'

Zain Group, the leading mobile telecom innovator with a presence in eight markets across the Middle East and Africa, announces the publication of its sixth annual sustainability report, entitled 'Innovate for a Sustainable Future'. The release of this latest report, which is aligned with the United Nations Guiding Principles (UNGP) and adheres to the G4 reporting guidelines set by the Global Reporting Initiative (GRI), reinforces Zain Group's position as one of the most consistently transparent mobile operators in the MENA region given the depth of information it openly shares. Zain's 2016 report details the company's sustainability agenda, highlighting key partnerships and commitments with global entities such as the United Nations High Commissioners for Refugees (UNHCR), The Whitaker Peace Development Initiative, Child Helpline International (CHI), REFUNITE and Facebook. Additionally, the document communicates Zain's triple bottom line approach (social, environmental and economic) to all stakeholders. Available exclusively online through an interactive interface that is user-friendly, and which also minimizes the company's environmental impact, this year's publication has a key new development. The report includes a section demonstrating the company's ongoing commitment to align its policies and activities with the United Nations' Sustainable Development Goals (SDGs),

highlighting launched and established initiatives across all operating companies that address the goals. Commenting on the release of the report, Zain Vice-Chairman and Group CEO, Bader Al-Kharafi said, "Zain Group is renowned for being a pioneer across many of its different activities and this has also become true of our sustainability report. I urge as many

do in this area, the more that remains to be done, and we are up to the challenge of further implementing initiatives that are impacting all our stakeholders for a greater good." Mr. Al-Kharafi concluded, "I would like to acknowledge all the Zain people across the Group and operations who are working so diligently to achieve our sustainability goals. It is not by



corporate entities and people as possible to review this latest report and perhaps gain some inspiration for themselves of the types of activities that can be entered into to help uplift society." The Vice-Chairman and Group CEO continued, "We firmly believe that corporate entities should play a pivotal role by actively supporting socio-economic development and promoting the innovative potential of the region, especially in regards to the youth. It is clear to us that the more we

accident that we have become one of the most recognizable and appreciated brands in the region, and we shall continue earning this accolade through our transparency and the initiatives we drive." Zain's commitment to sustainability is reflected in the long list of activities and initiatives the company runs in any given year, many of which are highlighted within the latest report. All operating companies continue to drive the sustainability agenda through activities

such as the introduction of Zain Cash in Iraq and re-launch in Jordan, of which a case study is provided in the Report, offering a view on how the commercial service provides a secure and convenient means to conduct financial transactions. With approximately 90% of the population unbanked in Iraq and a high percentage in Jordan as well, Zain Cash has a significant positive impact on the society as it helps address economic disparity. The company has also been involved in highly visible corporate sustainability pursuits such as Zain Jordan's collaboration with the UNHCR and Facebook to provide free hi-speed Wi-Fi connectivity for refugees and underserved communities in pre-selected centers across the Kingdom, with the project set to be in place for five years. Other examples highlighted, include flagship operator Zain Kuwait donating a sizeable amount in 2016 to support the education of underprivileged children in Kuwait as part of its ongoing humanitarian strategic partnership with the Kuwait Red Crescent Society. This partnership aims to create and develop inclusivity when it comes to providing access to education for marginalized segments in Kuwait. Focusing on developing its 7,000-talented workforce, Zain provided more than 115,000 hours of training to its employees across operations with an average of 20 hours of training per employee during 2016. Zain Group has always been known as a strong contributor to employment across its markets, though this year's report identifies the extent to which its operations have a knock-on effect in their

respective countries of operation creating a significant amount of jobs through its value chain by providing more business to local suppliers. During 2016, Zain also continued to focus on further developing the entrepreneurial and youth-focused ecosystem through initiatives such as its participation in the MIT Enterprise Forum (MITEF) Startup Competition, a regional startup competition that offers participants seed money, training, media exposure, and networking opportunities. A record 6,000 teams (representing over 12,000 individuals) submitted to the competition. Additionally, Zain partnered the MITEF 'Innovate for Refugees' competition that invited entrepreneurs and refugees from around the world to come up with tech-driven, innovative solutions to help address the global refugee crisis. The initiative attracted over 1,600 applications from across the globe. Zain Iraq hosted a startup weekend in Baghdad, Iraq, which provided a workshop in which students and other young Iraqis were brought together to pitch their entrepreneurial ideas to assembled judges and members of the audience. While, in Sudan, Zain sponsored the country's first business accelerator program to promote a more startup friendly and innovative ecosystem in the country. Addressing a major deficit of 'skills mismatch' in the region, Zain continued in its efforts to narrow the gap with Zain Bahrain holding a 'Youth City ICT Jobs' workshop to educate youth about job potential in the ICT sector that was attended by 80 high school students. Similarly, based

on a Silicon Valley curriculum, Zain Jordan undertook 'ReBoot Kamp', a 16-week program designed to produce high quality software engineers that saw 17 students graduated from this course in 2016, with two students being refugees and all participants attaining quality jobs thereafter. Established in 2014 Jordan's Zain Innovation Campus (ZINC) is again highlighted in the report. A space dedicated to cultivating innovative ideas and startups, during 2016 ZINC hosted various events that aimed to address the skill mismatch that our region faces. One key initiative was centered around cyber security and women, with ZINC hosting the 'Girls in Tech'- Jordan Chapter for the first Tech Talk that covered cyber security, privacy, and what precautions women need to take when assaulted online. Overall, ZINC attracted 15,791 young aspiring attendees over the year. Jennifer Suleiman, Zain Group's Head of Corporate Sustainability concluded, "Our latest report highlights that we continue to do the things that actually matter for our stakeholders and for the environment as we build strong links in the communities in which we operate. It is highly satisfying to see the mix between our more mature sustainability activities and the new initiatives, which continue to push the boundaries of what organizations such as ours can achieve in this area. We pledge to continue learning and improving, and sharing our experiences with the view to our successes being identified and replicated by other corporate entities across the region."

Zain Group Reports Flat Net Income in 1H17

Kuwait-based telecoms giant Zain Group has published its consolidated financial results for the first half of the year (ended 30 June 2017), reporting revenues of KWD508 million (USD1.7 billion), down 8% year-on-year, while EBITDA decreased 17% annually to reach KWD212 million. The company booked a net profit of KWD82 million in the six months under review, unchanged from the KWD82 million reported in the corresponding period of 2016. Zain disclosed that it incurred foreign currency losses amounting to USD58 million in net income, USD305 million in revenue and USD131 million in EBITDA for the six-month period to 30 June, predominantly due to a 61%

currency devaluation in Sudan. Excluding the currency translation impact, revenues and net income would have grown by 8% y-o-y, while EBITDA would have increased by 21% annually. Further, intense price competition in Kuwait coupled with additional operational costs in network expansion and upgrades severely impacted the operation and consequently Zain Group's overall financial metrics. In operational terms, Zain Group reported a consolidated customer base of 45.2 million at 30 June 2017, unchanged y-o-y. In Kuwait subscriber numbers reached 2.6 million, while Jordan and Sudan saw customer base increases to 4.3 million (up 3% y-o-y) and 12.9



million (3%), respectively. Zain Saudi Arabia's subscriber base, meanwhile, decreased 15% to nine million in Q2 2017 as a result of the government's biometric identification project, while Zain Iraq served 12.9 million users at that date, up 15% y-o-y from 11.2 million in 2Q16.



Huawei Announces Launch of Coveted ICT Skill Competition to Unearth and Nurture Local Talent

Huawei has announced the launch of its Middle East ICT Skill Competition 2017. Aimed at universities and students, the program seeks to unearth and nurture the region's finest ICT talent. In line with Huawei's mandate to support governments' digitization strategies, national visions and plans for growth of critical industries, the competition will foster development for the next

generation responsible for driving the digital transformation. Ten countries in the region are expected to participate, with registration open till October 10. In the Middle East, the competition is a critical initiative for enhancing the quality of future ICT professionals, a key pillar in national agendas of building knowledge-based economies. The competition increases national ICT competitiveness, supporting local communities across the Middle East. The generation of students involved is expected to lead the Middle East's ICT industry into the future by embracing the digital transformation. The ICT Skill Competition is specifically designed to prepare this generation for such a responsibility. Close to 80 of the region's best universities have registered for the competition. The top 13 most skilled teams will be selected to travel to Huawei's home in Shenzhen, China, where the final stage of the competition

will take place between 11 and 15 December. This will be the last step in an arduous journey-competitors registered at the event starting from June, and those who make it to the final stage will already have passed through two rounds of highly selective examinations at the local and national level. In the past, the competition has attracted top talent globally, with competitors hailing from countries ranging from the Netherlands to Malaysia to Pakistan. Not only will the winners of the competition receive certificates, trophies, and prizes, they will also have a once-in-a-lifetime opportunity to travel to China and gain insider access to a top global ICT company. Huawei will grant the winners an exclusive fully paid trip to the company's international headquarters in Shenzhen and the chance to meet with the brand's leadership. They will gain unrivaled exposure to Huawei's expertise in telecommunications, enterprise, and consumer business, not to mention a priceless cultural experience and knowledge exchange. The competition is part of Huawei's longstanding effort to have a positive impact on the community in the Middle East. Huawei has already implemented a Seeds for the Future program to offer training and internships to promising students across the region. The ITC Skill Competition offers students additional opportunities to gain valuable experience in the industry. Participants will work in a real laboratory, and tackle some of the industry's most complex challenges. The competition material is based on advanced IP and IT material, and tests competitors on their knowledge of cloud computing, switching, routing, and network security. It is a unique opportunity for students to test their abilities in ICT's most cutting edge fields. The ICT Skill Competition works in partnership with local government authorities to ensure Huawei is doing all it can, together with leading universities, to nurture local ICT talent, in order to support and grow the future leaders of the industry. As one of the world's leading innovators, the promotion of innovation and creativity among ICT students is essential to Huawei. "Knowledge transfer and nurturing future ICT talent has always been a core pillar of the Huawei way, and we are thrilled to be able to launch the ICT Skill Competition for that exact reason. The future of ICT progress lays in the hands of our students, and by developing platforms and programs that allow them to grow and mature into experts, we can better equip the next generation of technology leaders," said Charles Yang, Huawei ME President "We are committed to supporting governments in the region as they work towards achieving their national targets. We do this by fostering lasting relationships with all levels of society, from business leaders to students. The ICT Skill Competition allows us to work closely with the future champions of industry, using the Huawei way to grow a generation that will drive the digital transformation forward," Charles added. In addition to awarding the top US\$ 30,000 cash prize to the most outstanding team, the next two teams will claim second place and three teams will be awarded third place. The next seven teams will receive Excellence Prizes, while 6 tutors and 5 academies will also be recognized with the Excellent Tutor and Best Academy Prizes.



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Huawei Partners with Zain Jordan to Value-Driven New Growth

Zain Jordan and Huawei Monday announced the launch of Smarthome system successfully in Kayed Al Armouti Street with joint effort with I. Khatib & partners Co. This is another new innovation service launched after Joint Innovation Program initiated by Zain Jordan and Huawei in 2016. Smart Home will offer end user 3 services: Home Surveillance, Home Safety, and Home Automation. The service brings the user comfort, security, energy efficiency and peace of mind at their fingertips at any time at anywhere. The SmartHome is a typical vertical industry

service enabled by IoT platform, which brings better experience to end user. Zain Jordan CEO Mr. Ahmad Hanandeh, COO Mr. Yousef Abu Mutawe, Marketing Director Mr. Muhanned Audeh, Huawei ME Regional VP Lan Yun, Jordan office GM Andy Wu, CEO of I. Khatib & partners Mr. Issam Khatib attended the launch celebration. Joint Innovation Program announced in 2016 was targeting building a sustainable digital transformation serving consumers and enterprises with a rich lifestyle experience. The 1st service under the program is Gaming which commercial launched

was in Jan 2017, already serving 260k+ subs with rich type of gaming service. Huawei is a leading telecommunication solutions provider with existing supply contracts with Zain Jordan and intends to provide best innovation technology and business model to support Zain Jordan's strategy innovation program. Zain Jordan and Huawei agreed to continue Joint Innovation Program, both parties will work together on 4.5G IaaS, IoT in coming period, and 4.5G pilot is under preparation and will be ready soon.

Huawei X Haul Uses Cloud to Support 5G and Network Slicing

Huawei launched its X-Haul platform targeted at providing connectivity for 5G networks tasked with supporting network slicing and taking advantage of cloud-based capabilities. The firm said increased agility based on a cloud architecture can allow for greater network scaling of backhaul and fronthaul resources needed to support network slicing. This includes the ability for operators to partition portions of their network resources to specific services like enhanced mobile broadband and the Internet of Things (IoT). X-Haul components include the use of IP, microwave, and optical transport network (OTN) access technologies. These are designed to support fronthaul, which is connectivity between telecom equipment and the transporting medium, and backhaul, which is the connectivity between telecom equipment and an IP network backbone. The backhaul product

includes Huawei's adaptive network slicing router that can support 100-gigabit Ethernet (100GE) compatibility. If optical fiber is not available, Huawei offers a microwave product with support of up to 10 GE compatibility. Flexible Ethernet (FlexE) technology is also used as part of the network slicing capabilities. Huawei said the technology can "divide a single physical Ethernet port into multiple Ethernet flexible hard pipes based on timeslot scheduling." This allows for multiple services to be supported in the same network "slice" without impacting service quality. Huawei said its Network Cloud Engine provides cloud-based centralized orchestration for the management and control plane for the IP, optical, and microwave connectivity products. Further control of the device plane is provided by segment routing, Ethernet Virtual Private Network

(EVPN), and Open Service Platform (OSP) protocols. These are designed to help automate lifecycle management of the connectivity network. "Through the Network Cloud Engine, end-to-end coordination between FlexE-based network slices and wireless and core networks is achieved, with support for the flexible slice creation, on-demand bandwidth adjustment, on-demand service-level agreement (SLA) assurance, and rapid fault location for each network slice," Huawei said. "This enables one network to serve multiple purposes, maximizing backhaul network value." Huawei earlier this year said it planned to invest up to \$1 billion in a public cloud platform. The company has also been very aggressive in targeting 5G network infrastructure deals with service providers.



Turkcell's Revenue, Net Profit Up 28.5%, 69.2% in Q2

Turkcell's consolidated quarterly revenues grew by 28.5% year-on-year to TRY4.316 billion (USD1.213 billion) in April-June 2017, whilst group net income was up 69.2% to TRY704 million in Q2 2017, mainly due to 'solid operational performance', the Turkish company reported. Consolidated EBITDA climbed 41.6% y-o-y in the second quarter to TRY1.457 billion, driving the EBITDA margin up to 33.8% from 30.7% recorded in 2Q16. Turkish operations (mobile and

fixed) accounted for the lion's share of revenue – TRY3.803 billion (up 26.4%) – and EBITDA – TRY1.298 billion (up 40.6%). Growth was driven by year-on-year total subscriber net additions of 2.1 million in Turkey, as Turkcell recorded its highest quarterly net customer adds of the past six years – 757,000 – to reach 34.2 million mobile connections at end-June 2017, whilst the share of post-paid customers climbed to 53.2% on the back of its highest net post-paid user take-up

in five years. 4G LTE data usage surged – total per capita data consumption increased by 69% year-on-year to 4.1GB in June as data consumption of LTE users reached 5.9GB – and usage of Turkcell's in-house range of online digital applications was also highlighted as a significant revenue growth factor. Fiber broadband customers rose by 32,000 in the quarter to 1.1 million, whilst total fixed broadband customers exceeded two million.



Eutelsat to Provide Arqiva with Broadcast Capacity in United Kingdom and Ireland

Arqiva, the UK's leading communications infrastructure and media services company, and Eutelsat Communications (NYSE Euronext Paris: ETL) announced an agreement that strengthens their relationship at the premium 28° East video neighborhood. The multi-year, multi-transponder agreement covering high-power transponders at 28° East reinforces Arqiva's competitive position as a leading service provider for DTH services in the UK and Ireland. With multiple teleports, transponders and connectivity solutions, Arqiva offers its customers an end-to-end suite of services to deliver channels into over 10 million Sky and Freesat homes. David Crawford, Managing Director, Satellite and Media at Arqiva, said: "This new multi-transponder deal with Eutelsat gives Arqiva and our customers true flexibility for future developments including the growth of HD channels. Our on-going strategic partnership with Eutelsat reinforces our commitment to providing premium UK DTH satellite capacity and service excellence in the market." Michel Azibert, Chief Commercial and Development Officer at Eutelsat, added: "The far-reaching agreement announced today is a new milestone in the longstanding relationship between our



two companies. It guarantees Arqiva long-term visibility on its capacity requirements to ensure it can meet demand generated by the solid broadcast dynamic in the UK and the accelerating transition to HDTV."



ADL Releases 5G Flagship Report As Well As 3 Viewpoints

ADL has had a productive 2nd quarter 2017 and have released their 5G Flagship report as well as 3 ViewPoints. These comprise of 5G deployment models are crystallizing - Opportunities for telecom operators to facilitate new business ecosystems. The WHY strategy: there is no strategy without meaning – In our changing business environment we need new strategic reasons to exist. What the customer wants! - From Networking to Network PaaS. Procurement 4.0 in the digital world - Transforming procurement into an agile, linked innovation leader and catalyst. Following is the short summary of the content and key questions addressed in each Report / View Point:

5G deployment models are crystallizing - Opportunities for telecom operators to facilitate new business ecosystems:

Arthur D. Little has issued a 3rd report on 5G. In this edition we describe the 'big bets' and "strategies" being pursued by leading telcos setting the scene. The report details five 5G rollout-models as follows i.e. to ...

...provide gigabit broadband to residential homes and an effective last mile complement to existing fiber or cable networks

...deliver a next generation nationwide mobile experience enabling new use cases driven by virtual reality, tactile internet, etc.

...deliver highly reliable, low latency connectivity and solutions to corporates improving both efficiency and productivity

...enable digital industrial ecosystems with machine to machine connectivity enabling new service ecosystems with multiple partners, providers and end users

...deliver next generation infrastructure-as-a-service for the entire country

The WHY strategy: there is no strategy without meaning – In our changing business environment we need new strategic reasons to exist:

In this View Point ADL proposes a framework to rethink your company. It addresses fundamental questions and topics to consider how best to accelerate corporate's transformation.

What the customer wants! - From Networking to Network PaaS: This viewpoint is the result of 12 months of intense activity, in which BBVA, supported by Arthur D. Little, developed a vision, defined requirements and sourced its global networking platform concept.

Procurement 4.0 in the digital world - Transforming procurement into an agile, linked innovation leader and catalyst:

The world is changing: decreasing levels of in-house value-add and increasing speed of market and technological changes require procurement to transform into an agile, linked innovation leader and real-time, integrated supply-chain manager.

PCCWGlobal

PCCW's OTT International Media and Entertainment Business Brings in Hony, Foxconn and Temasek as Investors

PCCW Media is introducing Hony Capital (Hony), Foxconn Ventures (Foxconn) and Temasek as investors of PCCW International OTT (Cayman Islands) Holdings Limited (PCCW OTT). This strategic investment will strengthen PCCW OTT's ability to enhance its core value proposition of relevant content including distinctive original productions, and to continue to deploy the latest technologies and leverage its patents in video streaming and encoding to offer the best customer experience. As a rapidly expanding business, PCCW OTT aims to increase its penetration within the existing markets where it has made significant inroads as well as to expand its footprint in other high-growth markets. PCCW OTT engages in the provision of OTT (over-the-top) Internet media and entertainment services in 24 markets globally, including video streaming services under the "Viu" and "Vuclip" brands as well as a music streaming service under the "MOOV" brand. Hony, Foxconn and Temasek will own approximately 18% of the enlarged issued share capital of PCCW OTT for a total consideration of US\$110 million. PCCW Media will remain as the controlling shareholder of PCCW OTT. Ms. Janice Lee, Managing Director of PCCW Media Group, said, "Our focus on content, pricing and technology that are locally relevant in various markets, together with our fast tracked rollout across the region, has enabled Viu to become a leading OTT video service in Asia. We are very excited to have Hony, Foxconn and Temasek join us as strategic shareholders. Bringing these reputable partners in the business will support our current plans and strengthen our leading position in the market with the introduction of more locally relevant and original content, and technology to support innovative product development - all of which are beneficial to our ecosystem comprised of users, advertisers and business partners." Mr. John Zhao, Chairman and CEO of Hony Capital, said, "Hong Kong is the forefront

of international collaboration responding to the Belt and Road Initiatives, and Viu at present has laid out effective business map in Southeast Asian countries along the Belt and Road, which will no doubt play an essential and unique role to help the culture, content as well as creative ideas to travel abroad. We are glad that we can join hands with Viu led by Ms. Janice Lee, and we hope Hony Capital can bring in not only the capital support, but also other value-added services and resources. In the meanwhile, Hony Capital can incorporate the business into our existing endeavors in the cultural and creative industry, to eventually offer even

a premium subscription tier of service with more features. Viu delivers premium Asian content in different genres from top content providers with express delivery of local language subtitles as fast as four hours after original telecast. It also offers original production series under the "Viu Original" initiative. Viu is available in 15 markets including Hong Kong, Singapore, Malaysia, India, Indonesia, the Philippines, Thailand and the Middle East countries of Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia and the UAE. Vuclip joined the PCCW family in May 2015. It provides web-based and short-form content video services under the "Vuclip"



better Chinese contents to the world." Mr. Fang Ming Lu, Executive Vice President of Foxconn, said, "Foxconn is transforming to be a Technology Service Provider from content creation to network transmission. We will work with PCCW to deliver advanced OTT service to the market. We believe the collaboration will enhance the customer experience in entertainment life and accelerate the development of the OTT ecosystem." Launched in October 2015, Viu has over 12 million monthly active users as of June 2017. The service operates on a dual-model

of an ad-supported tier of service and brand in 19 markets including India, Southeast Asia, Middle East, Africa and other emerging markets. With multiple patents in video streaming and encoding technologies, both Viu and Vuclip users can enjoy smooth and unbuffered viewing experience regardless of device or network conditions. MOOV is Hong Kong's first and largest multi-platform digital streaming music service and ranked number one on brand awareness and user satisfaction in Hong Kong*. It is also available in Vietnam.

PCCW Solutions Awarded Contract to Modernize the Transport Information System for Transport Department



"This contract award reflects our proven expertise in building highly-sophisticated IT systems integrated with innovative technologies to generate value for clients. It is part of our continuous focus on making Hong Kong a leading smart city."

Mr. Ramez Younan
Managing Director
PCCW Solutions

PCCW Solutions, the IT services flagship of PCCW Limited, has been awarded a US\$17.6 million contract to help the Transport Department of HKSAR Government to modernize its existing Transport Information System (TIS), which will enable more efficient processing of a vast amount of traffic and transport data to facilitate and streamline

day-to-day operation of the Transport Department. Riding on the successful implementation of the first TIS a decade ago, PCCW Solutions is selected to design, implement and maintain the advanced TIS, synchronizing with the smart city initiative of the HKSAR Government. The new TIS will make use of the latest information technology to

process both textual and spatial data integrated with Geographic Information System for managing traffic flow. The intelligent transport system will enhance citizen experience by allowing the general public access to traffic and transport information real-time through government portals. The system will also enable real-time traffic condition predictions to improve the mobility of Hong Kong. Mr. Ramez Younan, Managing Director of PCCW Solutions, said, "We are honored to be the digital transformation partner of the Transport Department to create an efficient and effective solution that provides more informed choices to the road users with access to real-time information and enhance the utilization of existing transport infrastructure. It is part of our continuous focus on making Hong Kong a leading smart city. This contract award reflects our proven expertise in building highly-sophisticated IT systems integrated with innovative technologies to generate value for clients."



Mobily Signs an Agreement worth 2.4 Billion Riyal with Mega Telecom Companies to develop its Network in all Kingdom Regions

Etihaad Etisalat (Mobily) signed an agreement to develop its mobile network in different regions around the Kingdom with three international Telecom & IT suppliers; Nokia, Huawei, Ericsson. This project is considered the biggest of its kind in the history of the company, and the aggregate value reach 2.4 Billion Saudi Riyal. Eng. Ahmed Aboudoma, Mobily Chief Executive Officer, confirmed by saying, "this agreement comes in line with 2030 Kingdom Vision and its objectives that focus on developing Telecom & IT sector. Moreover; it will allow Mobily to provide the best services to its customers that comply with its new strategy "RISE" in which its objectives revolve around

boosting up the level of provided services by using the latest Telecom technologies." "Mobily's current network has a competitive performance among the sector, whereas; the new agreement will contribute in raising network performance significantly to allow Mobily customers enjoy unprecedented services. The agreement discussions lasted more than 6 months to ensure adding plans comply with Telecom technology rapid developments, in addition to adapting future technologies within an efficient contractual framework." Eng. Aboudoma added. This agreement will have a positive impact on the company's financial statements, as will

contribute in enhancing the company's future capital efficiency and network-related operational expenses. Mobily fully believes in the changes made by Telecom & IT sector, where the company seeks through one of its new strategy objectives to reach the highest and latest technologies in the Kingdoms' Telecom sector. This is based on preparing its infrastructure to accommodate the renewed and continuous gap in the world of Telecom & IT. Accordingly; Mobily's efforts comes to ensure the enjoyment of its customers and subscribers with future technology.



Nokia Selected by Telia and Telenor to Manage TT Radio Network in Denmark

Telenor and Telia have signed a managed services contract with Nokia that will see the company manage their joint mobile radio network in Denmark. The agreement will allow Telia and Telenor to offer customers of Denmark's largest mobile network even better coverage and greater capacity for a world-class mobile experience. Nokia will take over all operational and development tasks of Telia and Telenor's radio access network in October 2017, and provide network planning and optimization, network implementation, and network operations for the network that consists of more than 4,000 mobile sites around the country. This will expand network capacity, ensure a quality boost in the customer experience

and pave the way for the introduction of new technologies. Henrik Kofod, CTO, Telia Denmark said: "The combination of Telia and Telenor's network has been a historic business. Today we have a world-class mobile network, and this step to have Nokia manage it for us will ensure we also have the best network in five or ten years. Therefore, I am pleased that we have concluded a solid agreement with one of the world's most powerful network providers." Peter Nødbak, network director, Telenor Denmark, said: "We have reached a point where we need to take the TT network to a new level, and Nokia will help us do that. They have the necessary expertise, capacity and know-how in the area that will ensure the most optimal

operation and making our network ready for the future." Igor Leprince, president of Global Services, Nokia, said: "Telia and Telenor are focused on exceeding the requirements of their customers. In selecting their new managed services provider, the operators highlighted the need for experience, quality, capacity and not least, security. Nokia will provide the two operators services that will allow them to deliver the best experience to their customers." The contract win underlines Nokia's strength in services, a strategic differentiator for the company that helps customers navigate through complexity and transform their business, for example via analytics, automation and leveraging Nokia's global delivery excellence.

Nokia to Expand Development and Deployment of 5G FIRST as Industry Interest Grows

Meeting growing customer interest in 5G, Nokia is broadening its focus into multiple areas of early 5G mobility use cases, including enhanced mobile

with the 3GPP 5G Phase I protocol. This 5G NR (New Radio) air interface standard, which is due at the beginning of 2018, is designed to support a wide variety of 5G

- Massive MIMO and beamforming
- Integration with existing networks versus standalone implementations
- The use of small cells in 5G deployments
- The importance of cloud native core and cloud RAN technologies

These and many other of the key elements of 3GPP-based 5G implementation will enable Nokia to extend the scope of interoperability testing with a variety of devices. Nokia will also continue its application of leading-edge technologies, such as chipset and radio frequency innovations, in its end-to-end 5G strategy. Marc Rouanne, president of Mobile Networks at Nokia said: "There should be no doubt about the huge potential of 5G. Through 5G FIRST, Nokia is evolving its 5G strategy to drive the industry rapidly towards the adoption of standards-based commercial applications - as early as 2019. Doing so will require broad cross-industry support, and we call upon regulators and governments to free up and enable the use of spectrum at low-, mid- and high-frequency bands for trials. This will allow robust evaluation of 5G to take place, so that collectively, we can deliver one of the most important new technologies in history, one that will truly drive the Fourth Industrial Revolution."



broadband and ultra-reliable, ultra-low latency communications. Nokia will push for accelerated 3GPP industry standardization while building on early customer experiences with its Nokia 5G FIRST end-to-end solution, launched in February at Mobile World Congress. With clear interest for 5G mobility applications already emerging from operators, notably in markets like the U.S., China, Japan and South Korea, Nokia will implement early 5G specifications, enhancing 5G FIRST

devices and services. Nokia will continue to evolve and expand 5G FIRST as an end-to-end solution, designed to drive broader market adoption of 5G, via both mobility and fixed applications, as well as testing multiple 5G use cases. The company is building on extensive field experience already gained with Nokia 5G FIRST, which has generated valuable insights into areas such as:

- Use of radio propagation in higher frequencies

Nokia and Mobily Conduct Saudi Arabia's First Trial of LAA in a Live Commercial Network

Nokia and Mobily (Etihad Etisalat Company) announced the successful completion of License Assisted Access (LAA) Once deployed Mobily's customers will be able to enjoy faster internet speeds to download high-bandwidth consuming applications. The solution will be initially deployed in the densely populated capital city of Saudi (Riyadh) and other major cities in the Kingdom. The LAA technology uses a combination of licensed and unlicensed spectrum to reduce congestion and enhance mobile data speeds. This approach is especially useful in improving indoor

mobile data coverage and speeds. The use of unlicensed spectrum allows Mobily to add capacity and provide faster speeds to its customers, without significantly increasing its expenditure, as use of unlicensed spectrum does not require any fee. Ahmed Alsharif, Executive General Manager – Network Strategic Planning, Mobily SA said: "It is a crucial trial for us as it reinforces our position as a pioneer in applying new technologies, such as LAA, in the region. Nokia's advanced products and services will enable us to provide superior customer experience to our discerning

customers. The trial is also in line with the Vision 2030 of the Saudi Government which demands robust communications network to drive digitization to enhance the lives of the people in the Kingdom." Tony Awad, head of Mobily customer team at Nokia, said: "The consumption of data-hungry applications is forever increasing, especially in urban areas. Our technological expertise and leadership position in 5G will help Mobily to maximize the utilization of available resources. The trial of LAA is a significant step in its journey towards 5G."



Arabsat Selects Kratos for Network Management Solution

The Arab Satellite Communications Organization (Arabsat) has selected Compass, Kratos' end-to-end network management product, to support its expanding satellite fleet ground operations. The Compass network Monitoring and Control (M&C) will help Arabsat scale its international operations by automating, and more effectively managing, the network functions of

its ground operations, according to Kratos. Compass will be deployed at the company's teleports in Saudi Arabia and Tunisia. Compass offers Arabsat the opportunity to develop its own network procedures according to their operations concept. "Optimization of network performance and capability to scale up the monitoring of ground assets were two of Arabsat's key objectives. Compass will monitor all Telemetry, Tracking and Command (TT&C) and Carrier System Monitoring (CSM) Earth stations of

the Arabsat satellite fleet," said Bruno Dupas, president of Kratos' operation in France, which delivered the system to Arabsat. Kratos will also provide Arabsat with Skyminer, its big data storage and analytics engine, which will be used to archive all the data collected by Compass. Skyminer will eventually archive Arabsat's Command and Control (C2) data as well, providing Arabsat overall system awareness and analytics capability from a single consolidated archive storage system, Kratos stated.



Boston Consulting Group releases report on Africa

In recent years, Africa has rapidly become an attractive investment destination for multinational companies looking to expand into some of the world's fastest growing markets. Despite the collapse of global commodity prices, African economies are growing at a notable rate. This growth manifests in different ways, including the expansion of Africa's middle class. According to the latest report by the Boston Consulting Group, South Africa, sub-Saharan Africa's annual growth rate of 7% from 2005 to 2015 is expected to rise to an impressive 12% per annum until 2035. The report also reveals that in Africa's eight biggest economies – Nigeria, South Africa, Egypt, Angola, and others – private consumption is anticipated to grow at 5% a year to US \$1.25 trillion in 2025. This proves that the continent's growth is fueled not only by its resources, but by its flourishing



consumer market as well. These consumers are found in the urban areas and are conscious about the brands and qualities

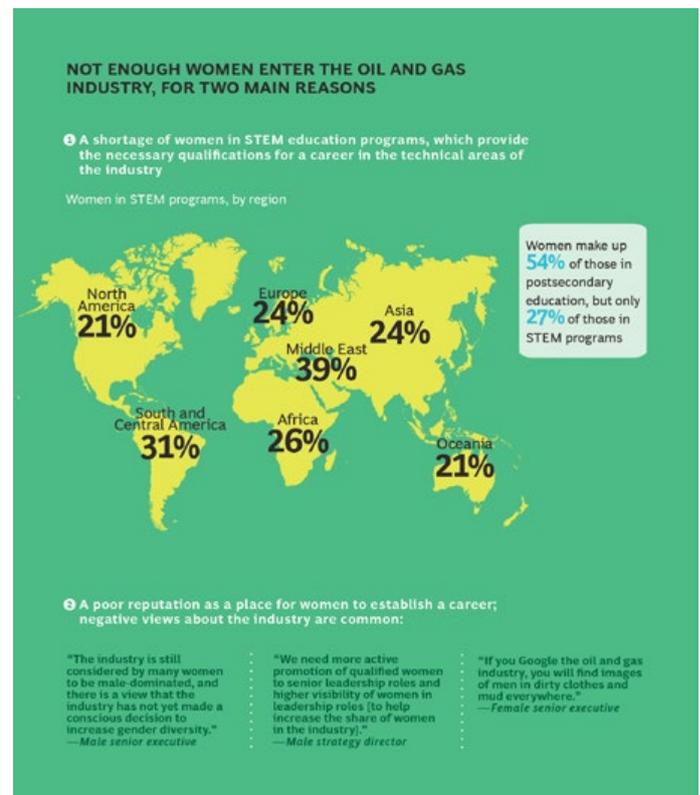
consumed. More than 90% of Africa's urban consumers that are going against the trend in maturing markets, remain optimistic about the continent's economic future. Any company seeking to get a slice of this irresistibly delicious pie that is Africa, should know that opportunity coexists with complexity. Consisting of 54 markets – each culturally, economically, and politically unique – Africa presents a different set of challenges. When it comes to trade, modern channels are as common as traditional ones. This means that multinationals need to address both in order to succeed. New channels include shopping malls, supermarkets, and the burgeoning e-commerce, while traditional trade is mainly dominated by open-air markets such as vendors, kiosks, and cantinas – small rooms packed with basic goods. This combination of channels can differ from country to country. For instance, South

Africa's modern trade is commonplace even in small, less developed cities, and Kenya's modern channels are mostly dominant in major cities such as Nairobi and Mombasa. Traditional trade also varies by market. To give an example, cantinas are more popular in Angola than anywhere else on the continent. However, Nigeria is dominated by open air markets, which offer basic goods and sometimes only provide a specific type of product. Multiple factors such as local culture, consumer preference, economics, and state of development have influence on traditional trade. These are all factors that big businesses in Africa need to consider for successful operations. African markets are further separated by consumers' varying purchasing and consumption patterns. An item as simple as tea is purchased differently depending on where you are on the continent. Moroccans prefer to buy their

tea in traditional markets, while Kenyans mostly purchase theirs at supermarkets, and Ethiopians largely buy tea and coffee at kiosks. To further complicate things, consumption patterns differ within individual countries. Take Ghana, for example, where urban consumers favor imported frozen chicken because they view it as higher quality. Conversely, Ghanaians in smaller towns lean towards fresh, locally produced chicken because it is perceived to offer higher nutritional value. Another factor that makes Africa a complex territory is a lack of reliable market data, which hinders attempts to gain insight on consumer behavior. The main contributor to this problem is poor or limited infrastructure. As a result, the lack of information is one of the major barriers to investing on the continent. For any company eyeing Africa, the ability to run their own research can be what sets them apart from the pack.

Bridging the Gender Gap in Oil and Gas Industry

A recent report by the Boston Consulting Group (BCG) explores an untapped reserve that the oil and gas industry has slept on for years: women. As the Houston Chronicle reported, the Bureau of Labor Statistics shows that women represent only 14.5 percent of the workforce in oil and gas. For scale, in technology—which is famously hostile to women—25.5 percent of the industry is female. According to the report—which was done in conjunction with the World Petroleum Council and will be updated every three years to coincide with the World Petroleum Congress—the paltry number of women in the industry are “disproportionately in office jobs; they have a very limited presence both in technical roles, which are often considered prerequisites for career advancement, and in upper management.” BCG says that the lack of gender diversity manifests in three main ways: a smaller pool of qualified candidates to draw from; the teamwork, creative problem solving, and perspective that women exhibit in higher percentages; and the lowered credibility associated with few women in senior leadership roles (there's a steep drop between the percentage of women in middle-management and senior leadership—from 25 to 17 percent). Should this trend continue, the consequences for the industry could be dire, according to BCG: “The combined effects could ultimately weigh heavily on oil and gas companies' ability to increase capital productivity, which will be vital as they wrestle with the challenges posed by the potential large-scale retirement of many experienced employees, an ongoing uncertain oil price environment, and advances in robotics and artificial intelligence that could reshape the industry in a host of ways.” But to promote more women into meaningful roles—or even being able to recruit them at all—will require a major overhaul in the industry. As BCG pointed out, not only is the boys' club aesthetic daunting for women, but the industry has “structural barriers” that make it difficult for women with families. This leads to a drop in job satisfaction for



women mid-career, and can also affect the ability for women to move up to executive positions. Certainly, career limitations for women who have families are not unique to the oil and gas industry. But it seems less likely that significant changes will be made when the very people these policies would help the most aren't in the room. Women could be beneficial and even critical to the future of oil and gas, but accessing the resource will take more than a drill.



du Simplifies Business for UAE SMEs

The preferred mobile plan for tens of thousands of UAE SMEs is now more powerful than ever. du has enriched its Business Mobile Plans to meet the communication needs of SME businesses even better, enabling them to have more flexibility, customization and simplicity in managing the communication needs of their businesses and employees. "We understand that SMEs are incredibly diverse, and that each company has different communication needs based on their business or operation model, number or type of employees and many other variables. We have upgraded our Business Mobile Plans to cater to each of these requirements, enabling our customers to simplify their business," said Fahad Al Hassawi, Chief Commercial Officer, du. Since its launch in 2015, Business Mobile Plan has grown exponentially in terms of subscriber base. During this time frame, it has become the preferred mobile plan

for tens of thousands of UAE SMEs, with its all-in-one structure including national & international minutes, national data, business calling circle minutes and roaming options. The revamped Business Mobile Plans will have 5 price points with both national and international options, giving du customers 10 rate plans in total, which they can mix and match based on their requirements. With the introduction of a prepaid wallet, Business Mobile Plan customers can now recharge their postpaid lines on their own behalf and have the option to split their business and personal usage. After topping up, all that's needed is to simply dial star before calling a number, to use the credit in the wallet. Users will also have the choice of 12- or 24-month contract options, enabling them to enjoy even more benefits for a longer time. Business Mobile Plans will continue to offer a wide-range of smartphones for

every budget, starting from AED 15 / month and business devices including laptops, printers and projectors, starting from AED 35 / month. "To cater to the unique requirements of UAE SMEs, we are matching their business needs by simplifying telecommunications to offer them a hassle free service. With the help of an enriched selection of benefits, free calling circle, prepaid wallet and more contract options, we aim to remove any unnecessary stress from our valued customers and let them get on with what they do best – run their businesses," Al Hassawi added. Customers who subscribe to the revamped Business Mobile Plans will benefit from an additional 25 GB data for free, having 1 GB each month in addition to their benefits, for up to 25 months. This offer is available for a limited time period.

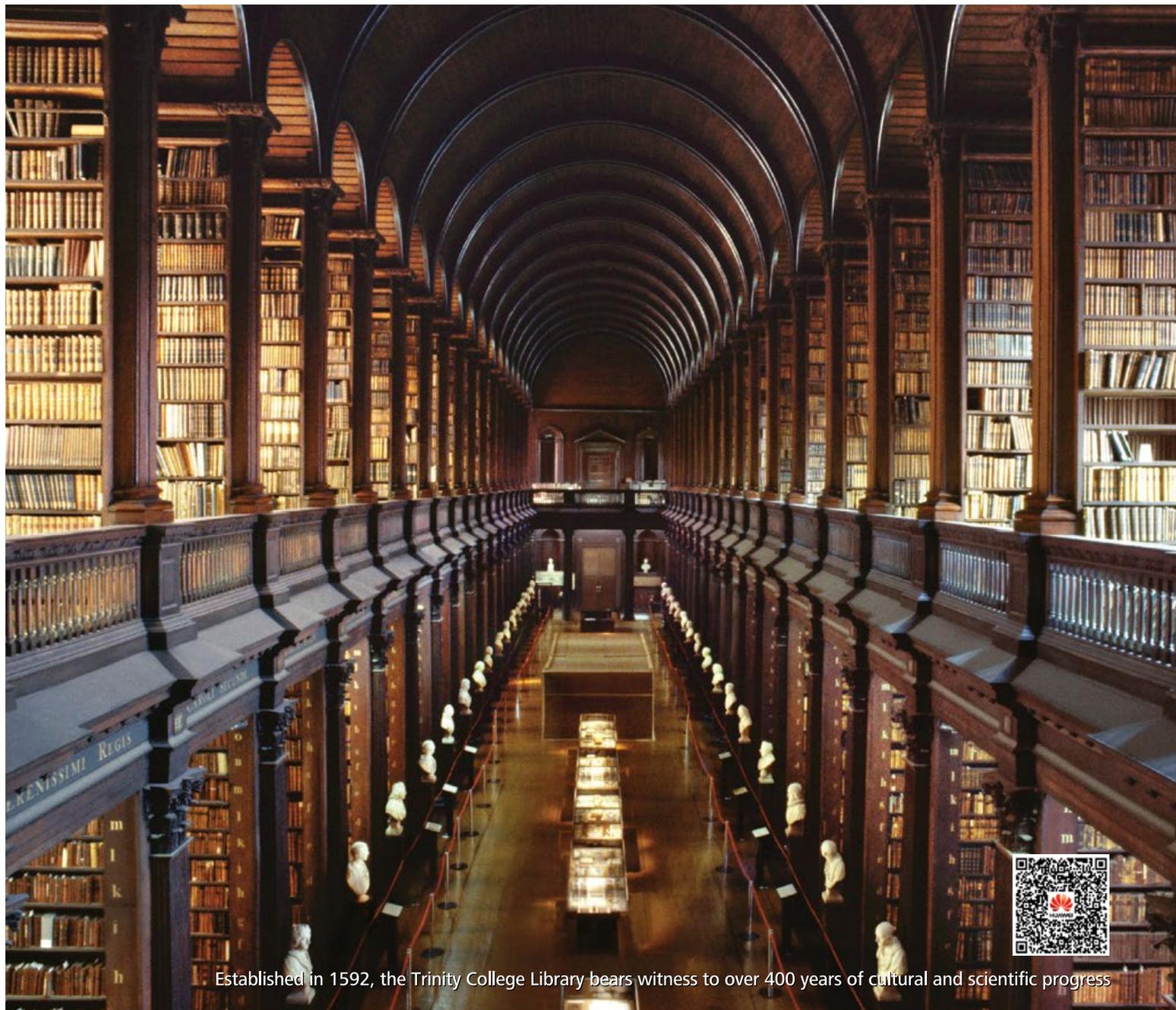


DE-CIX Madrid Arrives at the Itconic Data Center to Improve the Quality of Interconnection Services in Spain

DE-CIX Madrid – as the fastest growing Internet Exchange worldwide by network count – today announces that it is expanding its presence in Spain through an agreement with Itconic, one of the main providers of IT infrastructure in the country. This cooperation will allow its users to access DE-CIX services through the Itconic data center platform, made up of five centers located in Madrid (x2), Barcelona, Seville and Lisbon and which are interconnected through its Iberconnect network. "When expanding the DE-CIX Internet Exchanges we follow our prospects and customers. It is our customers' choice to decide what data center operator is right for them. Itconic in Madrid is a good choice for many of

our potential customers. Reaching an agreement with Itconic is a milestone for our expansion in Madrid and will help to connect more networks to our platform," says Ivo Ivanov, DE-CIX Chief Strategy and Corporate Development Officer. "DE-CIX Madrid is committed to doing whatever it takes to help build a better Internet not just for Spain, but for the entire Iberian Peninsula. Madrid is becoming one of the most important points for Internet traffic exchange in the south of Europe due to its geographical location – building a digital gateway from Africa and the Americas to Europe. In fact, Madrid will become the new London in terms of Internet Exchange traffic," Ivanov concludes. "At Itconic we believe

in the potential of the Iberian Peninsula as an excellent alternative in the current map of global connectivity. To achieve this goal, the presence of DE-CIX in our neutral data center platform allows us to improve the way our users connect to all possible networks. Now, companies and organizations can access, through the same IT infrastructure, all the advantages offered by DE-CIX and our complete ecosystem of connectivity, made up of five data centers interconnected with our Iberconnect service and with the presence of the main telecommunication operators and content and cloud providers," adds Faustino Jiménez, CEO of Itconic.



Established in 1592, the Trinity College Library bears witness to over 400 years of cultural and scientific progress

Exploration begins with sharing wisdom

The exchange of ideas opens up exciting new possibilities in a digital world



ARTICLE

Video Cloud: Protecting and Serving Cities

Video surveillance has become an important tool for the police to solve cases as well as an important means for city governance. More than 50% of criminal cases in China are solved using video. Many cities have set up video teams to enhance the professional use of video surveillance. The central government's released "966" and "Bright as Snow" project documents are clear proof of the importance the country is giving to video surveillance construction. At the same time, everyone realizes that in the process of using video, some traditional construction methods also restrict the function of video surveillance. For example, video surveillance that cannot be fully shared, low efficiency in smart analysis, video Big Data collision and mining with surrounding information that is inefficient, the video platform not being open, and so on. Therefore, the industry is in need of a new construction model to solve these problems. This is how the Huawei Video Cloud Solution came into being.

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Early May, a senior student from certain university went missing for 8 days and the news spread quickly through her circle of friends. The people not only forwarded the news, they also gave advice to the police, telling them things such as "There are no other cameras along the way, find more cameras!" and "She's been missing for many days, check the video surveillance". The author believes that the police had already done that before being told to. However, finding one person from so much video footage is like finding a needle in a haystack, one can only imagine how hard it is. The difficulties that local police encounter are not isolated, current video surveillance construction and applications have the following common problems: incomplete coverage, unavailability when incidents occur, and applications that are not smart. The author imagines that if this location had already set up the Video Cloud Solution, they could take the girl's picture, load it onto the platform, the system would be able to analyze her trajectory across the city and monitor it to quickly find the missing student.



Kevin Bai

General Manager,
Huawei Government Solution Department



Is that so? What is the Video Cloud Solution and is it really that powerful?

As cloud computing, AI, and Big Data technologies are being used more and more in public safety, how do we enable video surveillance systems to possess high intelligence and Big Data capabilities to become more valuable when incidents happen? This is an important challenge that city administrators are facing. In order to meet these requirements, Video Cloud presents a new era video surveillance construction plan. Video Cloud has the four following features: full sharing, high intelligence, Big Data, and openness.

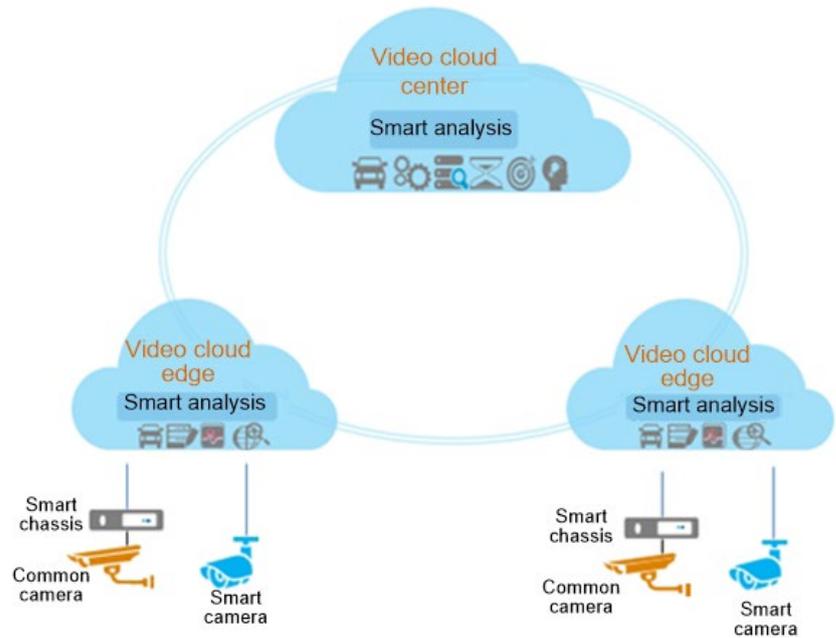
Full Sharing: A Camera Can Be Viewed at Any Time From Any Place.

Traditional video surveillance is siloed. Each area and department is constructed independently using different suppliers and technology standards. This results in siloed data, creating isolated islands of data. When the police is solving cases they often need to go to the site to check the video and making a copy of the original to bring back to analyze. The efficiency is low. After using the Video Cloud method, all cameras are connected to the cloud in a service-oriented method that allows the requesting department with the required authorization to use it, enabling video sharing and video checking anytime, anywhere. Apart from this, since the cloud system is used, every computing resource, storage resource, and network resource is virtualized into the resource pool for unified management. When a department or a business requires, resources can be distributed, scaling up or down flexibly as needed, achieving rapid service rollout and greatly improving the resource utilization rate.

High Intelligence: Distributed Smart Analysis for the Entire Network, Centralized Algorithm Management, Results are Aggregated in Layers

AI technology has already reached commercial use in recent years. Facial recognition technology in video surveillance has become widely used and video smart analysis applications have entered a new stage. However, current mainstream applications are still partially intelligent. They lack cross-domain analysis and linkage capabilities.

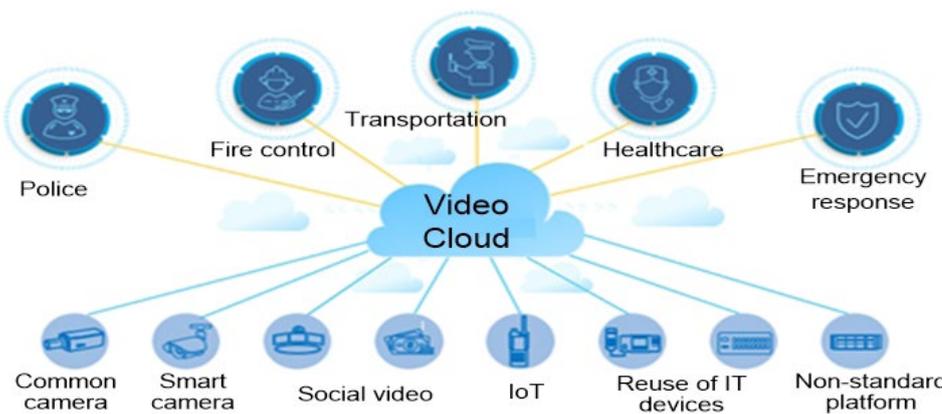
from the front end, to the edge, to the cloud center. In this way, analysis can be conducted locally, the center can conduct results aggregation, smart association, and full-city linkage. At the same time, since it is based on a cloud platform, the video can be stored and analyzed locally, unlike the traditional method which required transferring the entire original video to another device for analysis. This greatly improves analysis efficiency and saves network resources.



Nowadays, city transportation is advanced, the population's mobility is large, criminals are also displaying more mobility when committing crimes, cross-domain and cross-city crimes are common, requiring large-scale smart linkage. The Video Cloud Solution achieves network-wide distributed intelligence, smart analysis algorithms are centralized, distributed, and managed

Big Data: Deep Mining, Finding Valuable Clues Fast

Just using smart video analysis for solving cases is not enough. We still need to take the results of the video analysis for internal association (linked mining) and external association using Big Data technology, organizing large amounts of video footage data to discover valuable clues quickly. Then, we must take the video's Big Data and surrounding data (transportation, communications, residential, network, and others) to once again carry out data collision and mining, discovering more valuable intelligence. An example would be taking facial recognition and geographical positioning information for association in order to visualize the person's trajectory on a map. The person's trajectory and communications, Wi-Fi, and residential trajectory can be integrated and be used as real evidence. When searching for a cloned car, we can take the license plate and car model information for





comparison. When the license plate appears in a different area, the appearance time and physical distance are correlated, making it possible to find the cloned car. Once we have these capabilities and combine them with the entire network's distributed smart capabilities, we are able to conduct city-wide distributed control, real-time alarms, and fast arrests. Apart from this, video Big Data can also serve city management. For example, traffic flow trends can be predicted and travel efficiency can be optimized through the statistical analysis of traffic flow at different roads and intersections. Video Big Data is an important part of Video Cloud. It is an important converter for video value maximization, it is an important means to serve public safety, city management, and citizens, and it is a component that Video Cloud cannot be missing. Going back to the beginning of this article, if we had these technologies, the missing university student would have been timely found using Video Cloud.

Openness: "Platform" + "Ecosystem", Achieve Benefits for All

As cloud computing technology becomes more common, every industry is going through a cloud transformation. At the same time, smart technologies are changing by the day, updating fast, and various algorithms are merging and being used in real sites. Relying on one single enterprise or being bound to one kind of technology will mean losing the initiative to make choices in future development. Video cloud is set on the idea of "platform" + "ecosystem", using industry mainstream open OpenStack cloud operating system, Hadoop Big Data platform, GB/T 28181, ONVIF, and other standards, while using southbound open algorithm interfaces, IoT interfaces, camera interfaces, and northbound open application interfaces.

This allows customers to easily construct an open, flexible, secure, and smart video surveillance platform to meet the innovation requirements of continuously evolving and developing services. Ecosystem partners can develop algorithms and applications quickly and efficiently, achieving the fast replication of different projects. At the same time, Huawei is actively conducting joint innovation with customers and industry mainstream partners, providing customers, applications, and onsite usage with the industry's best practices at the fastest speed.

The above-described Video Cloud Solution is Huawei's customer-centric development trend that combines the customer's business requirements and new technologies with the ecosystem's development requirements. This creates

an integrated video solution that through a period of market investigation and project expansion and proves that the Video Cloud Solution can efficiently satisfy customer existing requirements regarding construction and future evolution.

The cloud era is here and Video Cloud will redefine city video surveillance. It will change the barriers of the previous video surveillance systems that looked good but were not useful. Sharing, high intelligence, Big Data, and openness will become the typical proof of the new phase of video networking construction. It will also add diversified value to video surveillance itself, which is of great significance for improving city public safety management, innovating social governance, and serving the people.

HUAWEI CONNECT 2017, Huawei's flagship event for the global ICT industry, will be held at the Shanghai New International Expo Centre, September 5 to 7, 2017. The theme is Grow with the Cloud. During this global platform for open collaboration, Huawei will help customers and partners explore new ways to grow through digitalized transformation.

For more information about HUAWEI CONNECT 2017, please visit our website: <http://www.huawei.com/minisite/huaweiconnect2017/en/>



REGIONAL NEWS

UAE Quickly Embraces Smart Technology

All levels of government in the UAE have never been slow when it comes to seeing the potential for new technologies, embracing the developments, and implementing change and innovation to enhance the efficiency, transparency and

with their day-to-day interactions with ministries and emirates, developing smart portals to help employers and employees find new opportunities and work, or making sure that the regulatory framework needed to ensure all the

network of public sector workers serves us all well. One new development in the pipeline will result in a small change for expats, with the current system whereby residency visa stickers are placed on passport pages to end in the coming months. Instead, officials envisage the entire residency visa process happening online. While the end of the passport pages' system would be the only effect on most, for administrators the change would be considerable. In a trial version of the system tested recently in Ajman, the time spent by administrators on getting the passports processed was cut in half. That represents a real-time gain in productivity and efficiency. This new initiative ties in with the goals of Vision 2021 and is indicative of the general trend towards eliminating paperwork, creating efficiencies and increasing productivity while also lowering costs. Yes, society and our relationship with work is bound to change in these coming years. The secret is to embrace change, work smarter, and figure out how new advancements in technology can work for us. And clearly, our public-sector workers are at the vanguard of this.



delivery of services to end users. Whether it's rolling out apps to help everyone

expatriates living and working in the UAE are accessible, open and transparent, the

Egypt Partakes in Sixth International Conference on FGCT 2017

Egypt, represented by the National Telecom Regulatory Authority (NTRA), will participate in the Sixth International Conference on Future Generation Communication Technologies (FGCT 2017), co-organized by the Institute of Electrical and Electronics Engineers (IEEE)-UK and Ireland Section, on August 21-23 in Dublin, Ireland. The Conference is designed for teachers, administrators, practitioners, researchers and scientists in the development arenas. It aims to provide discussions and simulations in the communication technology and broadcasting technology and related technologies. Through a set of research

papers, using innovative and interactive approach, participants can share a set of research that will help apply new technologies to their work in teaching, research and educational development amid this rapidly evolving landscape. The Conference will discuss several relevant topics including—among others—broadcast technology, future Internet and networking architectures, future mobile communications, mobile web technology, satellite and space communications, communication software, future generation communication networks and communication network security. NTRA submitted a paper entitled

“performance enhancement over emerging cellular networks through adaptive multicasting scheme”, which IEEE accepted and will be discussed during the Conference. Headquartered in New York City, the Institute of Electrical and Electronics Engineers (IEEE) is the world's largest association of technical professionals with more than 400,000 members in over 160 countries around the world. Its objectives are the educational and technical advancement of Electrical and Electronic Engineering, Telecommunications, Computer Engineering and allied disciplines.

Egypt Named among Gartner Top Nine Outsourcing Destinations for Second Consecutive Year

Egypt has been named among the top global nine destinations in the field of exporting ICT services and products to Europe, the Middle East and Africa (EMEA) region, for the second consecutive year, according to a recent report issued by Gartner— a global ICT consultancy firm. The report—entitled “Evaluate EMEA Countries for Outsourcing, Shared Services and Captives”—identified the main destinations providing such services, including Egypt, Belarus, Bulgaria, Czech Republic, Poland, Romania and Africa. In the summary of its report on Egypt, Gartner referred to the country’s competitive advantages, being an attractive destination for cross-border services. This is due to the abundance of skills at competitive prices and the distinguished geographical location to EMEA region, in addition to the English language skills of its youth and the neutral accent which differentiates Egypt from most competitive countries. The report also identified a number of factors that contributed to increasing the industry growth rates, attracting investors and growing IT services business, including the abundance of labor due to the continued flow of large numbers of graduates annually, with the expansion plans and the dissemination of technology parks in most cities and towns, and the availability of several airlines to many European capitals. Moreover, the report highlighted the doubling of cross-border services over the past five years—in terms of volume—through international, multinational and regional companies from Egypt to more than 100 countries. The report pointed out that the growth of the sector is due to the continuous investments made in the infrastructure, and efforts exerted to eliminate the bureaucracy, which includes the 2016 reforms to facilitate companies’ establishment and transactions procedures with all types of investors. The report added that Egypt has a strong telecommunications infrastructure. Fiber optic networks currently cover 36% of the country, with 17 submarine cables connecting Egypt with the rest of the world and the 4G mobile services provided in 2016. It also highlighted the low cost of Egyptian labor in a highly competitive manner. The cost of exporting services abroad declined, especially with the depreciation of the pound against the dollar, where Gartner estimated that the salary of software developer in Egypt— having two years of experience— is about five to seven thousand dollars annually. In the same context, a

report issued by Capgemini— an international French consulting institution— mentions that Egypt is qualified to be the leading destination in the Middle East and North Africa (MENA) region in the outsourcing of embedded software, thanks to its competitive advantages. As per Business Monitor International



(BMI) expectations, Egyptian software sales volume is expected to increase from \$ 182.5 million in 2016 to \$ 304.2 million by 2020 with an annual growth rate of about 13.3%. According to Capgemini report, previous estimates from the International Data Corporation (IDC) during last year mentioned that the total volume of investments in Egypt’s IT market would reach \$ 2.37 billion, with an annual growth rate of IT services exports by about 15% since 2011. IDC also expected that the market of Business Process Outsourcing (BPO) would grow by about 14% during the current year. The report analyzes Egypt’s position in the integrated software market and the outsourcing of such software, comparing to other MENA countries such as Morocco, Turkey, South Africa, or globally such as India, Poland and Bulgaria. The report predicts that the total volume of integrated software market investments will reach \$ 18.6 billion by 2023 at an annual growth rate of more than 7%, thanks to the growth in the fields of the Internet of Things (IoT), industrial automation systems, software based on specific models, cloud computing and the virtual reality.

Zain, Ooredoo and Viva Announce VoLTE Interconnection

Kuwaiti operators Zain, Ooredoo and Viva announced the launch of the first local Voice over LTE (VoLTE) interconnection in the Middle East and North Africa region. The service is now commercially available between the three operators’ networks. The collaboration will offer a seamless and direct local VoLTE-to-

VoLTE HD voice experience between Zain, Ooredoo, and VIVA customers, providing a fully-operational and stable interconnect experience during phone calls on supported devices. All parties worked closely with the GSMA, the trade association for the mobile operator community, to help make Kuwait the

first country in the MENA region to commercially launch IMS Interconnect. Before the commercial launch, the three operators jointly conducted several successful tests of the VoLTE interconnection in partnership with Huawei.

PTA & GSMA Hold Workshop on IoT Policy & Regulations

Pakistan Telecommunication Authority (PTA) and GSMA, held its first capacity building training workshop on "IoT Policy & Regulations" at PTA headquarters in Islamabad under its strategic agreement to conduct a series of workshops in the region. Internet of Things (IoT) is a growing trend and the workshop was conducted by experts from GSMA at PTA Headquarters to enhance the policy & regulatory environment for the successful growth of IoT in Pakistan. PTA & GSMA Holds Workshop on IoT Policy & Regulations. Chairman PTA, Dr. Ismail Shah in his welcome address thanked the GSMA team who took out time to visit Pakistan for this workshop and shared their knowledge and experience. Dr. Shah said that PTA is in the process of redrafting regulatory framework and its opportune time to take advantage of the recommendations by GSMA. He also said that: "After the launch of 3G/4G services in Pakistan, it is the right time to develop a regulatory framework for IoT; which is the need of hour." The experts from GSMA Stefano Nicoletti, M2M Regulation Manager and Lauren Dawes while conducting the workshop on "Capacity Building Regulatory Training Workshop on the Internet of Things", discussed case studies of developed nations who had successfully enabled the opportunities by IoTs in industry, health, education and agriculture fields. The

workshop was attended by participants from MoITT, PTA, FAB, mobile operators, Wateen Telecom and NTC. A group activity was organized at the end of workshop in which each group was given a case/industry for which IoT solutions can be introduced. The workshop was concluded with the discussion of current and future IoTs marketplace in Pakistan

content in several countries across Central Asia including Pakistan, Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. This workshop was first training session under this agreement. The fundamental objective of the agreement between these two organizations is to help policymakers, regulators and other mobile eco-system



and how each relevant stakeholder can play its role to help the public sector to develop regulatory framework for IoTs in Pakistan. Last month, the GSMA Capacity Building Program and the Central Asian Cellular Forum (CACF) signed a strategic agreement to deliver GSMA course

stakeholders to keep pace with the latest industry developments through training courses that highlight examples of policy and regulatory best practice from around the world.

Sri Lanka Telecom Reports Increased Operating Profits, Revenue in 1H17

Sri Lanka Telecom Group, which comprises eight subsidiaries including mobile arm Mobitel, has published its group and holding company financial results for the six months ending 30 June 2017, with consolidated revenue climbing 2% year-on-year to LKR37.4 billion (USD246.6 million) and EBITDA increasing by 4% to LKR11 billion; EBITDA margin was stable at 29%. Meanwhile, the group's holding company Sri Lanka Telecom recorded revenues of LKR22.1 billion for the six-month period under review, up 4% y-o-y, while also keeping a lid on operating costs, which edged up 1% to LKR16.3 billion. Commenting on the group results, Chairman Kumarasinghe

Sirisena confirmed that the new Group Strategic Directional Plan 'will drive each segment of the group together to boost market leadership, whilst enhancing corporate values utilizing group strengths'. SLT Group plans to continue simplifying and streamlining the business, and rationalizing costs going forward, he added, while its CEO Dileepa Wijesundera expressed confidence 'in achieving better returns through continuous investments in expansions and technological improvements'. Key developments in 2017 to date it says, include strengthening the National Backbone Network, raising concerns on spectrum issues, strengthening of

the broadband next generation network (NGN) in terms of improving geographical coverage of its fiber-to-the-home/premises (FTTH/P) network with speeds of up to 100Mbps, as well as continuing the deployment of its 4G LTE network. Furthermore, the Group reported that it has successfully completed a field test of 'pre-5G' LTE-A Pro technology, achieving 855.9Mbps user throughput using Advanced Carrier Aggregation in TD-LTE 2500MHz band, and over 700Mbps cell throughput, which was achieved on a single TDD carrier using Massive MIMO and 5.5 millisecond user plane latency.

IT Exports Hit a High in Pakistan

Pakistan is witnessing a growth boom in the IT industry like never before and the government is also taking steps to support the IT infrastructure. And the numbers prove that the positive activity in the IT industry is delivering good results. The figures provided by the State Bank of Pakistan (SBP) indicate that the IT industry's exports – which includes telecom, and computer and information services – in the outgoing financial year were of \$938.640 million. The exports made in the previous financial year of 2015-2016 were worth \$788.640 million. This indicates a year-on-year growth of 19%. The Pakistan Software Exchange Board (PSEB), on the other hand, has reported figures that are three times

greater than those reported by the SBP. According to the PSEB, the IT exports stand at a whopping \$2.8 billion. There is a huge disparity in the numbers that have been reported by the SBP and the PSEB. However, it should be noted here that the SBP and the PSEB calculate the final figure of IT exports in a different manner. The PSEB reports in different sectors such as financial services, healthcare sector, e-commerce, e-health, but to estimate the final figure of total exports it takes into consideration all the exports done by local software houses to international clients. If Pakistan's IT industry keeps thriving at this rate, it certainly rings good news for the country's economy. Could Pakistan hit the target of \$6 billion



software exports by 2020 or the target of \$10 billion IT exports by 2025? We'll have to wait and see. But the present certainly does look good.

Mobily Inks Multi-Vendor Agreements to Upgrade Mobile Network

Saudi telecoms operator Etihad Etisalat (Mobily) has inked three three-year framework agreements with equipment vendors Nokia, Huawei and Ericsson to modernize its mobile network. The implementation of these agreements will allow Mobily 'to renew a significant part of its mobile infrastructure and extend it, provide advanced technology to cope with current and future customer needs and

better optimize its future network capital and operating expenditure,' the company said in a press release. The operator said that the required funding will be provided by the company's cash flows and available facilities; over the three-year period, the aggregate amount could reach a total of SAR2.4 billion (USD639 million). Elsewhere, the country's three incumbent mobile network operators (MNOs) – Saudi

Telecommunication Company (STC), Mobily and Zain – were allowed to reopen their flagship offices in Riyadh, after signing agreements vowing to implement new customer protection regulations. Last week the Communications and Information Technology Commission (CITC) temporarily suspended services in the trio's Riyadh offices due to 'violation of consumer protection rights'.

Oman Ranked Third in e-Governance Index



Oman has been ranked among the top three countries in e-government in a new report. The e-government report for 2017 issued by the Institute of e-Government at Japanese Waseda University, has ranked the Sultanate third in its overall index. It also ranked Oman first in the Arab world and eighth in the index of administrative development. Singapore leads the general index, followed by Denmark and the United States of America. It includes several sub-indicators, including Internet infrastructure, government services provided through the Internet, government e-gates, open data, cybersecurity and e-participation, as well as monitoring the main trends in the use of ICT in government activities. Some of the new indicators include smart cities, cloud computing, Information and communication to combat corruption.

Internet Based Businesses Helping Sri Lankan Economy

Sri Lanka is increasingly shaped by online start-ups, who are changing the business landscape by disrupting the traditional ways of doing everyday tasks and getting people used to smoother, easier and cheaper methods for basic activities. Internet coverage has risen tremendously over the last years and will certainly not stop at around 30 percent, where it is at the moment. This provides an increasingly attractive field for tech-savvy entrepreneurs, who dive into conservative markets and change the playing field. As explained by everjobs.lk Managing Director Rushabh Sheth, "Gone are the days where you send your CV via post to apply for a job and wait for weeks to get a reply, if you get one at all. Now thousands of jobs are accessible on everjobs.lk and all that a job seeker has to do is apply to as many as he or she wants with just one click." The Sri Lankan Internet start-ups receive a lot of external support from organizations like the Information and Communication Technology Authority

(ICTA), a government-owned agency that aims to foster the economy through ICT. It runs several initiatives, such as its Spirulation Seed funding program, which provides seed funding of US \$ 5,000 per start-up along with training by industry experts. The Federation of Information Technology Industry Sri Lanka (FITIS) is another organization that strongly promotes entrepreneurship in the IT space. With its annual Infotel, an exhibition at the BMICH, it helps companies in the IT space to showcase their services and products, a good way for Internet businesses to gain publicity. The Sri Lanka Association of Software and Service Companies (SLASSCOM) launched 'Start-up Sri Lanka', an initiative, and plans to launch 1000 Sri Lankan start-ups by the year 2020. The SLASSCOM ran a survey in 2015 among 215 aspiring or existing local entrepreneurs and analyzed their demographics, as well as the barriers for growth for start-ups. Lack of affordable workspace, missing online payment

solutions, poor access to capital - most of the start-ups are internally funded - and unreliable and expensive Internet access represent the biggest obstacles. Numerous banks are currently working or introducing payment solutions, which will take away one of the worries. It is inevitable for Sri Lanka to support the start-up industry, given that eight out of 10 jobs come from the private sector. And while cities like Singapore, Bangkok, Beijing or Ho Chi Minh City are regulars in lists for attractiveness for start-ups, Colombo is nowhere to be found. However, as the SLASSCOM's survey pointed out, this is certainly not due to lack of talent in the country. More than 50 percent of the respondents had no issue at all with finding technically proficient talent. It is therefore evident that Sri Lanka has some structural, financial and legal obstacles ahead that need to be tackled in order to be mentioned with the likes of Singapore and Hong Kong.

ITC Embarks on USD930m Broadband Project

Saudi Arabia's Integrated Telecom Company (ITC) has started work on a project to build a high-speed fibre network across the country. Under the SAR3.5 billion (USD930 million) contract signed with the Ministry of Communications and Information Technology (MCIT), the company will deploy high-speed broadband services to 640,000 homes. ITC's CEO Ghassan Itani said: 'This agreement will improve the level of services provided to customers in all sectors. This agreement comes within

the framework of the continuous support and participation of ITC to the directives of the MCIT and CITC, and continuing on the company commitment to utilize all its financial, technical and human capabilities to achieve all the strategic objectives of the National Transition Program 2020 initiatives, within Saudi Vision 2030.' TeleGeography notes that ITC signed the initial agreement with the MCIT and the country's Communications and Information Technology Commission (CITC) in May 2017.



Omantel to Acquire 9.84% Zain Group Stake

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, is set to acquire 9.84% of Zain Group for USD846.1 million, after it agreed to buy 425.7 million Zain treasury shares in cash at a price of KWD0.60 (USD1.99) per share, subject to regulatory approval, the company said in a statement. Credit Suisse is acting as the exclusive financial adviser and Freshfields

Bruckhaus Deringer LLP as legal adviser to Omantel on the deal. The investment is part of Omantel's strategy to diversify its exposure, the Omani firm said, adding that the company aims to 'position ourselves as a leading digital service provider'. Going forward, the duo will look to collaborate on the wholesale telecoms business, operations and networks, and commercial activities. The share pur-

chase was announced days before the Omani Sultanate is to shortlist qualified applicants for the country's third mobile license, expected to take place on August 14, with the winner scheduled to be announced on 4 September. Zain Saudi Arabia, STC, UAE's Etisalat and Sudatel Telecom Group have all submitted comprehensive technical plans and financial offers for the concession.

Ericsson to Join Zain Kuwait for Digital Transformation Project

Ericsson has become a member of a Zain in Kuwait-led consortium, which will carry out a large digital transformation project for local utilities. The project will be completed by 2024 and as the sole technology partner, Ericsson will deploy a new smart metering solution. The Enterprise and Cloud Billing solution implemented by the consortium will make it easier for the Ministry of Electricity and Water to collect revenue and distribute energy consumption over time. It will also improve the accuracy of invoices and give customers access to real-time information about usage. Around 800,000 new smart meters for electricity and water will be connected over Zain's upgraded infrastructure. Furthermore, the cross-industry Ericsson Multiservice Delivery Platform will help digitalize channels for consumer interaction, offering personalized and user-friendly services for all types of devices through self-service portals. Additional Ericsson

solutions will provide important features for areas such as customer care, post-and prepaid services, performance management, event planning, and analysis of network data. Wojciech Bajda, head of Customer Unit Zain, Ericsson, said: "We have worked closely together with Zain Kuwait from the start of this digital transformation initiative, and we

have made a long-term commitment to enable new revenue streams. We really look forward to being part of this project and to help develop the smart city infrastructure." Ericsson will also provide a range of Managed Services for improved network operations and security, and for Internet of Things applications.



Mobile Based Health Care Service Launched in Pakistan

Instant Doctor Booking
Find the right doctor. Anytime, Anywhere

1. Find and Research the best doctor.
2. Select a doctor & time.
3. That's it!

40+ Cities
15000+ doctors
2500+ Hospitals

Pharmacy & Lab Testing
Get medicine or sample collections. Anytime, Anywhere

1. Place order over phone or via app.
2. Confirm your location.
3. That's it!

Servaid, CHEMISTRY LAB, QUALITY

Doctor Q & A Forum
Get reliable advice from local doctors near you. Anytime, Anywhere

appropriate doctor through the use of technology. The Startup has been able to bring forward quality doctors which have attracted patients to use their services. Haseeb Sattar, chief operating officer of the company said, "Just transplanting ideas from the west to Pakistan never works. We have to be aware of the local ecosystem and must ensure that our services are meeting the needs and expectations of the Pakistani market." So keeping in mind the system of Pakistan myZindagi.pk allows patients to access medical information through a mobile app, website and even a telephone call. They do have a 24/7 open call center to aid the patients. Through this, the local population of Pakistan can easily use the service without any hassles. At the moment the company is operating in 40 cities with around 15,000 doctors on board and 2500 hospital & clinics support. They are continuously expanding their services. Sattar said "Our in-house doctors serve as primary care providers. They basically do the initial assessment of patients via video call. If the illness can be dealt with through the video consultation our doctors prescribe medication or propose labs, which can all be ordered via the service." Moreover, this service is absolutely free, patients would be charged only for medications, lab tests, and doctor consultation. Sattar also said that they are coming up with more ideas to attract visitors like starting a question answer forum. Users can post queries anonymously and authentic doctors would respond to the queries. Also, the forum is a free platform for discussion between patient and doctor. The Startup received 'Best Start-up Award' at the Startup Expo organized by PTIB.

New Startups with brilliant unique ideas are starting up and receiving recognition. A Lahore based Startup with the name myZindagi launched in June 2017. Its aim is to provide health care solutions to the patients via technology. So from one single account individuals can receive all information from doctor search to booking appointments, video consultation, medicine delivery and lab sampling. myZindagi connects patients with the

E-commerce in Saudi Arabia 'Has Strong Growth Potential'



E-commerce as an avenue has strong growth potential in Saudi Arabia, Médéric Payne CEO of Home Centre, said in an interview. Commenting on the decision of the home furnishing retail stores chain based in Middle East to launch homecentre.com in KSA, its CEO said "we believe that e-commerce as an avenue has strong growth potential and this is an important step towards our goal of offering our customers a complete omni-channel experience. Given the credibility of a brand like Home Centre, we are confident that our e-commerce platform

will resonate with our customers in the KSA." He added "with the proliferation of digital, social and mobile technologies, our consumers are changing the way they shop due to which we have launched our bilingual online platform on homecentre.com. While the brick and mortar format will continue to be important for Home Centre, our foray into the online shopping space is strategically aligned to bring greater convenience to our customers and in future, help the brand reach out to new customers without the constraints of geographical boundaries."

Huawei Inaugurates Innovation Centre in Riyadh

Huawei has opened one of its largest Customer Solution Innovation & Integration Experience Centers (CSIC) for Huawei in Middle East region in Riyadh, Saudi Arabia. The center was inaugurated by Dr. Majid Alkassabi, Minister of Commerce and Investment, and Advisor to Minister

transportation, education, government amongst others that support the transformation to a digital economy, bringing tremendous knowledge-based economy benefits. Dr. Alsulaiman said: "The launch of Huawei's CSIC in Riyadh is a step forward to support the Saudi 2030 vision

to support the vision of Saudi national innovation. The company is also training more ICT talent to further the transformation of the national economy. It is truly a very commendable step. The integration of Saudi 2030 vision and China's 'belt and road' initiative will bring unlimited opportunities for business and cooperation between the two countries. I believe and hope that Huawei will continue to play a leading role in the kingdom," he added. "This launch confirms our commitment to the Saudi people and supports the Kingdom's 2030 vision, which places great emphasis on innovation in the ICT sector," said Li Xiangyu, vice president of Public Affairs and Communications, Huawei Middle East. "The center will provide both government entities and enterprises in Saudi Arabia with access to a world class facility and labs that enable them to experience the latest technologies and Huawei innovation first-hand. Huawei prides itself in successfully implementing experience gained from 170 markets around. In addition to catering to government and enterprise customers, the CSIC will also play an active role in promoting innovation amongst youth as the center opens its doors to school and university students. Huawei and universities in Saudi Arabia will be organizing the ICT Skills and Innovation Competition, which aims to provide a stage for aspiring youth to showcase their ideas and concepts, with the winners enrolled in internship programs at Huawei.



of Commerce and Investment, Governor of Small & Medium Enterprises General Authority Dr. Ghassan Alsulaiman. Dr. Abdulaziz Bin Salem Al Ruwais, Governor of the Communications IT Commission (CITC), and Li Huanxin, China Ambassador to Saudi Arabia were also present. With more than 1200 sq m of floor space in Riyadh, CSIC will accelerate the digital transformation of the Saudi economy by providing an open ecosystem for innovation. The Centre will allow industry partners to experience, architect, validate and build solutions, verify new business models, customize applications and services to sectors such as utility, energy,

and the digitization plan, which play a big role in diversifying the Kingdom's economy." "Huawei is not only one of China's outstanding home-grown companies, but also the world's leading ICT Company. Huawei is a forerunner in enhancing the economic and trade cooperation between China and Saudi Arabia," said Li Huaxin. "Huawei's advanced technology solutions have been widely used in various sectors and industries, making positive contributions not only to the development of the Saudi ICT sector but also to the development of the national economy. "Today, we see that Huawei is actively pursuing social responsibility in order

Global Cybersecurity Index (GCI) Ranked Egypt 14th among 165 Countries

Global Cybersecurity Index (GCI) ranked Egypt 14th among 165 countries and second among the Arab states, in a report issued by ITU and conducted by the Cybersecurity Team, in collaboration with the National Telecom Regulatory Authority (NTRA), the Joint Research Centre of the European Commission and others. This report assesses countries'

efforts in the field of cybersecurity based on the pillars of ITU Global Cyber Security Agenda and according to several criteria: technical, regulatory, legal and capacity-building and cooperation. The report examines the readiness of Member States and their commitment to cybersecurity activities and parameters in order to enhance the adoption and

integration of cybersecurity worldwide. The newly issued report pointed out that Egypt, which is ranked 14th among the above said member countries of ITU, ranks second among the Arab countries after the Sultanate of Oman as Egypt has "a full range of cooperation initiatives" relating to cyber security and "a number of bi-lateral and multilateral agreements."

Libyana Offers 4G in Four Major Cities

Libyana has launched the country's first 4G LTE network, The Libya Observer reports. Coverage is initially limited to the cities of Tripoli, Zawiya, Sabha and Misrata, although the company expects to add further locations to its footprint in the near future. The network is reportedly capable of delivering downlink transmission speeds of up to 150Mbps. TeleGeography notes that Libyana is



currently the only Libyan mobile operator to offer 3G services in the country,

having launched its HSDPA network in September 2006.

Ooredoo Expands 4G Experience to 200 New Locations

As data experience leaders, the new sites will allow customers to enjoy the internet even more. Whether residential or business customers, more than ever can now experience advanced 4G network functionalities. Areas benefiting from this major network expansion include Adam, Izki, Ibra, Al Qabil, Bidiyah, as well as Bawshar and As Seeb in Muscat and Salalah in the Governorate of Dhofar. Feras bin Abdallah Al Sheikh, Director of Consumer Sales at Ooredoo, said, "The expansion of our 4G coverage is part and parcel of our efforts to deliver

nothing but the best data solutions for our customers across Oman. Now, more communities and entrepreneurs can access high-speed 4G internet and enjoy the impeccable service and reliability that our network provides in today's increasingly digital world." He added, "Our 4G service delivers speeds up to 15 times faster than 3G networks, putting a world of amazing digital possibilities seconds away. Capable of meeting every lifestyle need, our 4G offers true mobile connectivity built from the ground up to provide the very best data services our

customers require. Whether surfing the internet or downloading favorite clips, our 4G network is the comprehensive solution people across Oman have been waiting for." Ooredoo's 4G network allows customers to connect and run richer business applications, download videos with ease, and enjoy an end-to-end seamless experience from the comfort of their home or on the go. For more information on Ooredoo's 4G network coverage, visit www.ooredoo.om or any of its 47 stores located throughout Oman.

Ooredoo Algeria Witnesses Growth in Customers

Ooredoo Algeria reported a 13 percent increase in EBITDA to KWD 65.1 million in the first half year ending 30 June from KWD 57.4 million in the same period in

2016. The customer base expanded by 5 percent year on year to 14.0 million customers. Revenues were reported at KWD 145.5 million, down from KWD 152.9

million for the same period in 2016, hit by the increase in VAT and a weak economic environment.

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ARTICLE

LTE and Fraud Emerge as Important Trends to Watch in MEA



Nour Al Atassi

Regional Vice President and Managing Director,
Middle East and Africa
Syniverse

Syniverse[®]

Of all the regions in the world, MEA is one in which some of today's biggest challenges in mobile are coming together to present a particularly crucial opportunity. Soaring demand for bandwidth capacity, new competition from apps and OTT players, and rapid growth of new technologies like LTE and the internet of things represent but a few of these rising challenges.

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These factors point to huge opportunities, but ones that require careful understanding and planning. As mobile data use continues to accelerate and evolve across MEA, it's imperative that operators have a full-scale strategy in place to be able to seize the opportunities now emerging.

Based on recent work that Syniverse has completed with some mobile operators in this region, I've observed two areas, LTE and fraud, and developed perspectives on trends that I see as essential for operators to place special focus on in the next few years.

LTE

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. Work we're doing with one operator has revealed some of the huge potential for LTE in this region in the near future.

- **Cable & Wireless Seychelles** - In July, we announced an agreement with Cable & Wireless Seychelles to help this operator improve its LTE roaming experiences for inbound and outbound roaming customers.

LTE roaming has become a critical mobile service in the Seychelles as the number of tourists and visiting, or inbound, roamers has soared over the past few years and far exceeded the nation's 94,000-plus citizens. According to the United Nations World Travel Organisation Tourism Barometer, the Seychelles saw a more than 18 percent rise in number of tourists in 2015, and, in 2016, this number rose by almost 11 percent, to 304,000 visitors from 275,000.

To help Cable & Wireless Seychelles better manage the roaming experiences for this growing number, Syniverse is using its network monitoring services to help enable the operator to more proactively solve subscribers' problems and tailor their individual experiences in real time.

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What we've learned from this is that ensuring a superior quality of experience and providing customized service offerings for subscribers can deliver a powerful solution for enhancing data roaming usage. With roaming competition fierce in MEA, operators must be able to make clear the direct connection between their subscribers and the unique value that operators can deliver to them when they roam.

Fraud

As long as there have been businesses and consumers, there has been fraud. And now fraud is infiltrating the quickest-growing channel for business – mobile – on a massive new scale. In MEA, this threat has recently been revealed through work we've been involved in with two customers.

- **Ooredoo Maldives** - In July, Ooredoo Maldives and Syniverse completed an agreement for Syniverse to help protect the operator against mobile roaming fraud and more accurately collect revenue for services across its operations.

The fraud protection capabilities Syniverse is providing Ooredoo Maldives are grounded on predictive analysis and a global approach that will help the operator to combat a range of mobile fraud. In particular, the services rely on high-speed analysis and processing of event records to enable the operator to better prevent and respond to particular patterns. As a related service, we're helping Ooredoo Maldives with revenue management and help obtain more accurate data on the operator's entire revenue flow and identify any problem areas to help eliminate revenue loss in the billing cycle.

Critically, what we've learned from this is that to combat today's fraud and revenue leakage effectively, it's essential for operators to be able to respond to threats in real time and understand behavior patterns on a global level.

- **Roshan** - Roshan and Syniverse were recognized in May at the Global Telecoms Business (GTB) Innovation Awards in London. There, we received an accolade for advancing the industry's ability to protect operators' revenues from the growing threats of mobile roaming fraud and revenue leakage.

Specifically, we were recognized for our collaboration in implementing predictive analytic and automation solutions that detect, identify and prevent fraudulent activity from occurring, and also protect revenues by ensuring accuracy in subscriber billing.

Syniverse uses the intelligence we gather from over 130 operators across the world to help provide Roshan with an instant view of suspicious activity that is occurring in the market, and

allow Roshan to more proactively act on fraud alerts. Similarly, for the revenue assurance portion of our collaboration, we're working with Roshan to enable rapid detection and automation that eases the task of analysis and issue resolution, and ensures integrity of revenue processes.

As we've seen through this work, evolving technology and rising connectivity demands have left operators more vulnerable than ever to threats from fraudsters and inaccuracies in revenue collection. The future of healthy mobile growth in the Middle East and Africa depends on our ability to develop dedicated strategies to isolate and combat these fraud types.

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Rising data use will soon drive a dynamic phase of mobile development in MEA. This growth will spur unprecedented demands for mobile connectivity, and as we've seen in our work, it's imperative that mobile service providers have full-scale strategies in place to address the emerging trends that come with this exciting future. 📍

SATELLITE NEWS

Turkey Starts Prototype Development of Communications Satellite

Turkey has begun the prototype development and production phase of its first indigenously developed communications satellite, the TÜRKSAT-6A. The announcement was reportedly (via TRT Haber) made during a high-level meeting between the Turkish government and the country's research and defense industry vendors. The meeting was presided by the Minister of Science, Industry and Technology Faruk Özlü and Minister of Transport, Maritime Affairs and Communications Ahmet Arslan. It was joined by the Turkish Scientific and Technology Research Council (TÜBİTAK), Turkish Aerospace Industries (TAI), Aselsan and CTECH. Turkey formally began the TÜRKSAT-6A program in December 2014. TÜRKSAT-6A is envisaged to carry 20 Ku-band and two X-band transponders. The TÜRKSAT-6A's qualification tests are scheduled to commence in 2018, with the launch

planned for 2020. The TÜRKSAT-6A will be in orbit for 15 years. Under the scope of the program, currently valued at \$170 million U.S., TAI is responsible for designing and manufacturing the TÜRKSAT-6A's structural properties, harness, thermal control and chemical propulsion subsystems and mechanical ground support equipment. The onboard data-handling software, command and control suite, and assembly, integration and testing will be jointly undertaken with TÜBİTAK. In December 2016, the European Space Centre had launched the Göktürk-1. Designed and produced by Leonardo and Thales, the Göktürk-1 is serving as an intelligence, surveillance and reconnaissance (ISR) asset for the Turkish Armed Forces' (TSK). TAI, Roketsan, TÜBİTAK and TR Teknoloji had contributed to the Göktürk-1 in various capacities. As per Leonardo, these included sourcing some of the satellite's

payload structure, telecommand and telemetry ciphering devices and constructing a local assembly, integration and test Centre (AITC). The TÜRKSAT-6A's military application will be fulfilled by its two X-band transponders, which are to come from Canada's MacDonald, Dettwiler and Associates Ltd. (MDA) under a \$30 million CAD contract signed in April 2014. Turkey is already in the process of producing satellite communications (SATCOM) terminals for its hardware, such as the TAI Anka-S unmanned aerial vehicle (UAV) (among others). Istanbul-based CTECH Bilişim Teknolojileri A.Ş. is the principal supplier of SATCOM terminals, among them the recently unveiled Airborne Satellite Terminal and Beyond Line-of-Sight (BLOS) Terminal. In addition to the domestic market, CTECH is also marketing its products for export, among them Pakistan.

After Recovering from Damages, NASA's Satellite Finally Launches

A United Launch Alliance (ULA) Atlas 5 rocket has successfully orbited NASA's Tracking and Data Relay Satellite (TDRS)-M from Space Launch Complex 41 at Cape Canaveral Air Force Station, Florida. The TDRS-M launch was in jeopardy after one of the satellite's antennas was damaged during final spacecraft closeout activities in July. The issue was

resolved and the satellite will now join the Space Network, which consists of TDRS satellites that transmit data to and from ground stations on Earth for NASA missions and expendable launch vehicles. The Tracking and Data Relay Satellite System (TDRSS), also referred to as the NASA Space Network, is a space-based communication system used to pro-

vide tracking, telemetry, command and high-bandwidth data return services. The TDRSS consists of satellites in geosynchronous stationary orbits and the associated TDRS ground stations. The TDRSS is a basic NASA capability and a critical national resource. Without it, scientists, engineers and control room staff would be unable to readily access data from missions like the Hubble Space Telescope and the International Space Station (ISS). The TDRSS is capable of providing near-continuous, high-bandwidth (S, Ku and Ka band) telecommunications services for Low Earth Orbit (LEO) spacecraft (including the ISS) and expendable launch vehicles like ULA's Atlas 5 and Delta 4 rockets that use the network to receive and distribute telemetry data during flight. This was ULA's fifth launch of 2017 and 120th overall. A ULA Atlas 5 also launched TDRS-K mission in 2013 and TDRS-L in 2014. This mission marks the 72nd Atlas V rocket since its inaugural launch in 2002.



AWN to Test First Aircraft Broadband Clusters This Year

Airborne Wireless Network (AWN) has successfully completed a series of flight tests with two Boeing 767-300 jetliners over New Mexico as proof of concept for the company's proposed air-to-air broadband network. According to AWN's Vice President of Technical Affairs Marius de Mos, now that the company has shown the system is technologically feasible, it will continue to develop its hardware and software to increase data transfer speeds to the terabit range. AWN's system, which is patented as the "Infinitus Information Super Highway," has a meshed network architecture, with each aircraft functioning as individual nodes that receive and transmit wireless signals to other aircraft or ground stations. The network would provide broadband connectivity to anyone along the flight path – and AWN's ultimate goal is to provide global coverage by



equipping between 25,000 and 35,000 aircraft with its "mobile units." The aircraft would operate in clusters of 10 to 30, with two to three thousand clusters planned in total, de Mos said. Rather than provide this connectivity to commercial end users, AWN intends to target Internet Service Providers (ISPs) and telecommunications companies, some of which have expressed concern about an encroaching "digital gridlock," de Mos said. As Columbia Law School professor Michael Heller observes in his book *The Gridlock Economy*, "prime spectrum [is] trapped in highly restricted, relatively low-value uses that can't easily be redeployed." Due to this spectrum squeeze, some telecom companies are looking at new technologies to augment or replace their existing terrestrial networks and expand their coverage zones. "Basically our business model is to become a pipeline for the telco industry ... Primary telephone companies

would be a huge part of our business," said de Mos, as well as "ISPs that want to send data from one place to another." As Via Satellite previously reported, AWN also plans to supplement the signals generated by its network with ground-based fiber optics. "We need them for the last mile of connectivity. They need us because they're running into the same gridlock issues as the major telcos," de Mos commented. AWN has already begun forming the partnerships it needs to turn its network into a reality. After striking a deal with Air Lease Corp, which markets to more than 80 airlines worldwide, de Mos said AWN has also been approached by other airlines interested in the income opportunity. According to de Mos, the biggest draw for airlines will be the revenue cut AWN will offer in return for installing its hardware. He did not, however, specify how large a percentage that cut will be. This first flight test proved that a link between aircrafts could be maintained with Radio Frequency (RF). The next step, de Mos said, is exploring the potential of laser-based high-speed communications within the meshed network. The company recently signed an agreement with ViaLight, which builds lasers that communicate with satellites and stratospheric balloons, to develop the laser links. ViaLight described the technology in a recent press release as "optical fiber for the skies." While others have been able to successfully establish laser links from a fixed location to a mobile asset, de Mos pointed out that connecting two or more mobile assets is a considerably more difficult challenge. With ViaLight's support, AWN will pursue a hybrid radio-laser-based system to maintain a seamless connection if dust or clouds obscure the laser links. The two companies aim to begin testing of the laser technology before the end of this year. "On the ground, a meshed network is pretty easy," said de Mos. "In the sky, it's very different. You have to compensate for speed and all kinds of different [factors]." With its first demonstration completed, AWN is now looking to conduct its first test of a full cluster in Q3/Q4 2018, with 20 jetliners equipped with production hardware and software, as well as AWN's self-developed pre-production antennae. AWN expects a global rollout of its network by the first half of 2019. Given today's volume of global air traffic, de Mos said he is confident the company will achieve the critical mass necessary to provide global coverage. "Right now there are 25,000 aircraft available, and at least 18,000 are airborne at any time."

Intelsat Will Help Connect Small Maritime Vessels in Brazil

Brazil's Mareste Equipamentos e Servicos de Telecomunicacao will use Intelsat satellite services to deliver communications solutions for maritime customers, the company announced. Under a new, multi-year agreement, Mareste, which is based in Rio de Janeiro, will offer Ku-band communications services delivered by the Galaxy 28

satellite for the leisure, fishing and coastal sectors in Brazil, Peru, Argentina, Chile and Uruguay. Mareste will package the satellite capacity with its Ello product, which includes antennas and hardware, to serve smaller coastal and regional vessels, where physical space for onboard equipment and budgets can be scarce or limited. According to Mareste's Chief

Executive Officer (CEO) Marcio Esteves, the leisure, fishing and coastal sectors have been traditionally underserved and forced to settle for low-speed, expensive connections. Mareste aims to deliver a more cost-effective satellite system to serve these markets.

Kymeta to Support First Responders during Total Solar Eclipse

Projected to welcome between 100,000 and 500,000 visitors during the August 21 total solar eclipse, the Greenville, South Carolina's police department is keeping its force connected with help from Redmond, Washington-based Kymeta. The company is taking its satellite-connected Toyota RAV4 on the road to provide field-trial mobile communications to the Greenville Police Department as cellular data networks become bogged down. "We chose to provide this testbed service to Greenville because we recognized

to have one of the largest number of visitors." With a population of 68,000, Greenville has been recognized as one of the best places to view the 2017 total solar eclipse, gaining the attention of news media, eclipse chasers and NASA, which has an official viewing location at the Roper Mountain Science Center. This popularity, and the surge in visitors that could increase the city's day-of-population by up to seven times the norm, will impact communications systems. "The significant increase in visitors will

and video of the eclipse to social media networks. "Communication is critical to ensuring timely response to incidents and in keeping the public safe," said Miller. "Having the extra testbed support Kymeta is offering will provide us with an additional means of communication." The Kymeta vehicle is equipped with a Kymeta KyWay terminal, the company's mobile satellite terminal featuring mTenna technology, according to Freeman. The company's road team is set to provide emergency mobile communication services to the Greenville Police Department before, during and after the eclipse event on Aug. 21. "The eclipse will allow Kymeta to test our technology in a real-world situation where terrestrial communication networks are likely to be stretched beyond capacity," said David Kervin, general manager and vice president of Kymeta Government Solutions. "Over the last several months, the Kymeta Government Solutions team has been performing extensive trials with military and law enforcement organizations, validating Kymeta technology as a force enabler. We appreciate that the City of Greenville IT team and police department have authorized Kymeta to use the eclipse as an opportunity to again put our technology to the test. Kymeta will use what we learn to make further improvements for our federal, state and local government customers."



the significance of the need here," said Tom Freeman, senior vice president of land mobile for Kymeta. "Cellular data coverage is a concern for cities along the path of totality nationwide, but of all the cities on the list, Greenville is expected

have an impact on cellular networks, which are likely to face decreased capacity, and that's a problem," said Greenville Police Chief Ken Miller. He anticipates the impact will be due to the increase in people uploading photos

Harris Delivers Navigation Payload for Third GPS 3 Satellite

Harris Corporation has delivered the third of 10 advanced navigation payloads to Lockheed Martin, which will help increase accuracy, signal power and jamming resistance for U.S. Air Force GPS 3 satellites. The payloads feature a Mission Data Unit (MDU) with a 70 percent digital design that links atomic clocks, radiation-hardened computers and transmitters — enabling signals three times more accurate than those

on current GPS satellites, according to Lockheed Martin. The new payloads also boost satellite signal power, increase jamming resistance eight-fold and help extend the satellite's lifespan. Lockheed Martin expects to integrate the payload into GPS 3 Space Vehicle 3 (GPS 3 SV03) this summer. In May, Lockheed Martin integrated Harris' second GPS 3 payload into GPS 3 SV02. The first navigation payload is already integrated aboard

GPS 3 SV01, which has now completed rigorous testing and is in storage awaiting its expected 2018 launch. Harris is also developing a fully digital MDU for the U.S. Air Force's GPS 3 Space Vehicles 11+ acquisition. The company will demonstrate the new MDU this fall, which provides even greater flexibility, affordability and accuracy versus existing GPS satellites.

Eurovision Media Services to Use AsiaSat5 for 2017 Universiade Delivery



Orbcomm announced it has signed an agreement with Beijing Marine Communication Navigation Company (MCN), a supplier of Inmarsat mobile satellite services in China, to provide Orbcomm's IsatData Pro (IDP) service in China. This agreement opens China for global enterprise customers that use Orbcomm's IDP offerings for their asset monitoring applications across industrial markets such as transportation, heavy equipment, oil and gas, and maritime. According to Orbcomm, the IDP service allows businesses to share more data across operations via emails, text messages, electronic forms and workflow information. The IDP series supports a range of security and location-based Machine-to-Machine (M2M) services,

including heavy equipment telematics, tracking and in-cab messaging for fleet management, transmitting fixed equipment telemetry information for remote oil and gas monitoring, and vessel tracking and buoy monitoring in maritime applications. Orbcomm and MCN will begin to market and distribute the IDP service in China immediately. "We believe ORBCOMM's IDP service offers a unique advantage, especially for the transportation, public service and government sectors, by enabling enterprises to share more data across diverse operations and workflow automation, while improving the security and efficiency of their business," said Song Zhen, MCN's vice president.

Thuraya Facilitates with Satellite Communication

Thuraya caters to individuals who are eager to set out on road trips and off-roading adventures in the UAE with vital mobile satellite communication equipment, providing a connectivity assurance for ventures into the country's harsh, unexplored territories that lie outside GSM coverage. The company's robust satcom services have consistently provided effective channels for emergency communications during solo and small-group expeditions. As the first homegrown MSS operator with over 20 years of experience in shaping the UAE's satcom industry, Thuraya has a superior network reach in the region and has been able to establish unique partnerships with local entities to deliver a variety of specified connectivity solutions. For example, the company's strong ties with the Dubai Police enabled the launch of the Thuraya SOS Service, allowing users of Thuraya XT handsets to send a pre-defined SMS with GPS coordinates directly to Dubai police when in crisis. In the recent past, a Thuraya satellite phone has particularly helped two Emiratis lost in the vast desert expanses of the Empty Quarter (Rub' al Khali) to seek urgent assistance from authorities. Fahad Kahoor, Market Development Director at Thuraya says, "Many Emirati families and outdoorsy expatriates in the region enjoy driving into the desert or up into the mountains for camping or hunting trips, for the sake of exploration, or simply for an exciting getaway. Our equipment is easily accessible in the

country and is compact, affordable and dependable; it has proved to be the favored choice for those locals who rely on satellite communication while on rural adventures." He adds, "At our core, we deeply value each human life and are serious about our responsibility to support every person's ability to stay in touch, share memorable experiences and foster community. We are proud that our technology has come through for many people in dire situations and are continuously advancing our capabilities to support human endeavors in remote areas." For leisure adventurers on a short trip, a Thuraya SatSleeve+ is a highly convenient product, allowing users to transform their own smartphone with satellite-based connectivity for voice, SMS, messaging, email, and apps in a fast and efficient manner. A satellite phone such as the Thuraya XT Lite is also user-friendly and delivers uninterrupted coverage via satellite mode, is compatible with accessories like solar chargers, has up to 80 hours of standby time, and offers an 'always on' connectivity feature even when the antenna is stowed. For advanced explorers, Thuraya's phones like the XT-PRO and XT-PRO DUAL are equipped with added capabilities to withstand harsh environments, function on residual battery and provide excellent navigational support. For those planning an extended stay outdoors, Thuraya's broadband terminals such as the IP+ or IP Voyager deliver internet access with data speeds of up to 444Kbps, giving users the convenience of indoor connectivity while in a vehicle or at a remote campsite. Thuraya also enables easy access to its satellite services via a partnership made with Etisalat in 2015. Known as 'Ana Emirati,' the mobile package offers Etisalat's post-paid users calling minutes and SMS via Thuraya's satellite network, even on a roaming basis. Outdoorsy customers who opt for this bundle get an additional SIM card with the same number as their regular mobile line, which is used in conjunction with the SatSleeve+.



Speedcast Receives VSAT License to Operate in Iraq

Speedcast International has received a Very Small Aperture Terminal (VSAT) license to operate in Iraq through its locally licensed entity. This has prompted the completion of a new systems integration project providing managed network services for an international oilfield services group in the country. The VSAT license is a new requirement as of January for service providers operating in Iraq, which was previously covered under the yearly telecommunications license required to operate communications networks in-country. Speedcast's local entity has renewed its general telecommunications license in addition to being awarded the VSAT-specific license, allowing the company to continue supporting customers in the region for satellite connectivity as well as other telecommunications and technology

services. According to Speedcast, the project scope includes four sites at a major oilfield in southern Iraq, using Speedcast's locally licensed entity to deliver communications services and full-time support. The company has equipped the sites with terrestrial, microwave and satellite connectivity, Closed-Circuit Television (CCTV), video conferencing, Wide Area Network (WAN) optimization and a range of IT equipment.

Fiber and microwave serve as the primary connections with satellite providing backup. Speedcast provided terrestrial and VSAT networks together to ensure business continuity for both operator and service contractors, so both drilling and critical business data could be transmitted 100 percent of the time, the company stated. Under the terms of the agreement, Speedcast will also provide end-user VSAT licenses.



Bangladeshi Satellite Company Launches Operations

Bangladesh Communication Satellite Company Ltd has started functioning, taking on its role of running commercial operations of Bangabandhu Satellite-1. The company already got registered with the Office of the Registrar of Joint Stock Companies and Firms last week and its board of directors held a meeting soon after. The company's authorized capital is Tk 5,000 crore and paid-up capital Tk 500 crore. Initially, 200 shares of Tk 10 each have been provided to each director. As per the registration, the board will consist of 11 members with the telecom secretary as the chairperson. An official of Bangladesh Telecommunication Regulatory Commission (BTRC) said Thales Alenia Space, the French

contractor for the project, has completed constructing the satellite. Now Thales is running different tests, including a number of sensitivity tests, to ensure that the satellite works fine on being launched into the space, the official said. On completion of all procedures, Thales will hand over the satellite to US firm Space Exploration Technologies Corporation (SpaceX) for launching it. SpaceX is a private aerospace manufacturer and space transport services provider that works with NASA and transports cargo to the International Space Station. In 2015, BTRC signed a \$248 million deal with Thales to design, build and launch the satellite. Citing a study of the telecom watchdog, officials said, once the satellite

is launched, Bangladesh will be able to save at least \$14 million a year, which the local television channels pay to foreign satellite companies as transmission fees. The satellite will also help launch DTH (direct-to-home) services and narrow the digital divide. Along with providing services locally, the company also aims to get foreign clients. The BTRC study found that about 70 percent of the satellite's revenue will come from neighboring countries while the rest will be earned locally. The satellite will have the capacity to serve all the South and Southeast Asian countries, including Nepal, Bhutan, Sri Lanka, Indonesia, Malaysia and the Philippines.

RRTV Award Satellite Licenses

The Czech Republic's Council for Radio and Television Broadcasting (RRTV) has awarded eight satellite licenses, each of which are for a period of 12 years, to AMC Networks Central Europe. The licenses are for Spektrum Home, Minimax Channel Hungary, TV Paprika Central Europe, Film Mania, Sport1 Czechia

and Slovakia, SportM, Sport1 Hungary and Sport2 Hungary. RRTV has also awarded a 12-year license to MGM Channel RU for delivery through what it terms "special transmission systems". These include cable, DTH, IPTV, OTT, mobile TV and web TV and covers mostly the Baltic Republics and CIS countries.

Proton M Rocket Launches Satellite for Russia's Ministry of Defense

International Launch Services (ILS) announced the Proton Breeze M launch vehicle successfully orbited the Blagovest №11 satellite for the Ministry of Defense of the Russian Federation. The Aug. 17 launch was the 100th heavy lift for Proton M, which has been in use since 2001, and the 414th launch in the Proton rocket since its maiden flight in 1965. Information Satellite Systems – Reshetnev Company designed and built the Blagovest satellite around its unpressurized heavy-class Express-2000 platform. The company stated Blagovest is the first satellite that has a payload fully designed and manufactured by ISS-Reshetnev. The satellite is intended to provide high speed internet access, communications services, television and radio broadcasting, telephony and videoconferencing, according to the company. Blagovest №11 took off at 01:07 Moscow time from the Baikonur

cosmodrome atop a Proton-M launcher. Nine minutes into the flight the fairing enclosing the Breeze-M upper stage and the Blagovest satellite successfully

separated from the launch vehicle. The satellite will orbit the Earth on the geostationary orbit 36,000 kilometers above the equator.

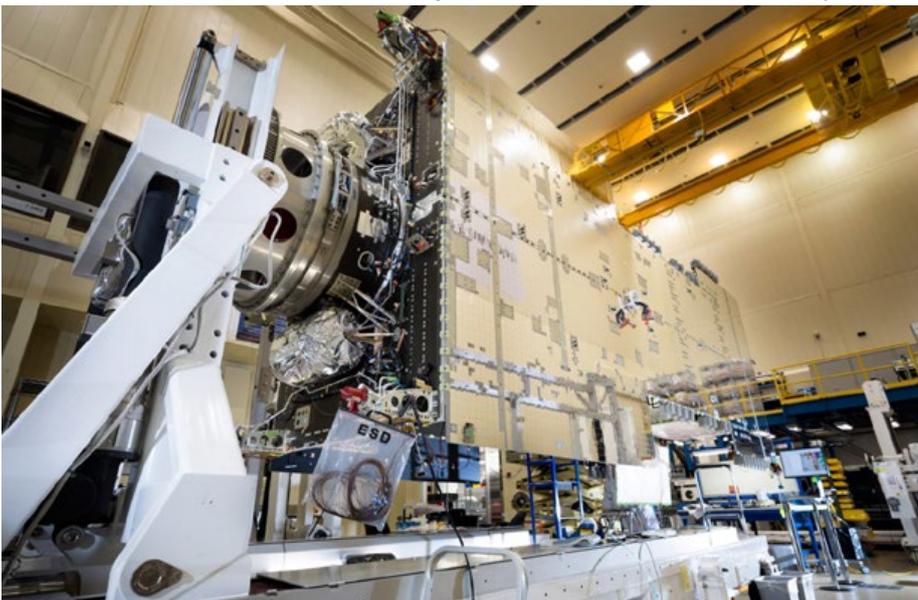


First Modernized A2100 Satellite Prepared for Final Assembly and Testing

A team of engineers and technicians at Lockheed Martin has completed the integration of the company's first modernized A2100 satellite, known as Hellas Sa-4/SaudiGeoSat 1. The satellite now moves into final assembly

and testing, on track for launch in the second quarter of 2018. Built for Arabsat and King Abdulaziz City for Science and Technology in Saudi Arabia, the satellite will provide advanced telecommunications capabilities,

including television, internet, telephone and secure mode communications, to customers in the Middle East, Africa and Europe. "We've modeled this activity in our virtual reality lab hundreds of times, but this is the first time we've performed the integration activity of our modernized A2100 satellite in a clean room," said Rick Ambrose, executive vice president of Lockheed Martin Space Systems. This milestone on a modernized A2100 satellite sees the hybrid propulsion integrated with the payload module and transponder panels. Using a combination of electrical Hall current thrusters and liquid apogee engine, the propulsion subsystem serves as the structural backbone of the satellite and is essential for maneuvering it into its final orbit as well as keeping it on station throughout its mission. The modernized A2100 builds on a flight-proven bus that is the foundation for more than 40 satellites in orbit today. Lockheed Martin has another five modernized A2100 satellites currently under contract.



Globecomm Provides Satellite Communications to US Navy Aircraft Carrier

The USS Gerald R. Ford (CVN 78), the first in the new Ford class of nuclear-powered supercarriers commissioned July 22, is going to sea with a Globecomm-designed, multi-functional communications and entertainment system along with the first IP video system in the U.S. Navy fleet, the company announced. As a turnkey solutions provider and systems integration subcontractor to Huntington Ingalls Industries' Newport News Shipbuilding, Globecomm provided the USS Gerald R. Ford (CVN 78) with an advanced satellite and fiber-optic-based communications distribution infrastructure in addition to a newly improved SITE TV IP video system that provides the crew with live streaming media options, multimedia programming while at sea, as well as pier-side cable services. A 10G fiber optic backbone supports the system as well as the ship's video surveillance capabilities. The system includes interface to the ship's onboard video production studio where live and/or pre-recorded broadcasts can be accessed and viewed. Other capabilities include Video on Demand (VOD), digital signage and collaborative access to webcasting and video sharing applications. "This was an engineering-intensive, five-year design, integration, assembly and testing program that represents a significant technological

upgrade to the Navy's existing analog system for video acquisition and onboard content delivery," said Globecomm Executive Vice President and General Manager for Government Solutions, Dwight Hunsicker. USS Gerald R. Ford (CVN 78) is the lead ship of the new Ford class of aircraft carrier, the first new class

in the Navy, in the U.S. government and to the nation. During World War II, Ford attained the rank of lieutenant commander in the Navy, serving on the light carrier USS Monterey (CVL 26). Released from active duty in February 1946, Ford remained in the Naval Reserve until 1963. Ford was elected to the U.S.



in more than 40 years. Commissioning of CVN 78 begins the phased replacement of Nimitz-class carriers. CVN 78 honors the 38th President of the United States and pays tribute to his lifetime of service

House of Representatives in 1948, where he served until President Nixon tapped him to become Vice President in 1973; he then served as President of the United States from 1974-1977.

Ghana's First Satellite Is Now Operational



Ghana's first satellite was recently launched into orbit and is now operational, TechCrunch reports. The device is a cubesat, a miniature satellite which weighs 1.33kg and is launched as a secondary payload on a launch vehicle. The GhanaSat-1 cubesat was launched on a SpaceX rocket in July and delivered into orbit along with a primary payload. Speaking to TechCrunch, Ghanaian professor Richard Damoah said the satellite has two missions. "It has cameras on board for detailed monitoring of the coastlines of Ghana," said Damoah. "Then there's an educational piece – we want to use it to integrate satellite technology into high school curriculum." The satellite was built by a team of engineers at All Nations University and it will relay information to a ground station at the university's Space Systems and Technology Laboratory.

SSL-built B-Sat 4a Satellite Arrives in French Guiana

Space Systems Loral (SSL) has delivered the BSat 4a satellite it designed and built for Broadcasting Satellite System Corporation (B-SAT), a broadcasting satellite operator in Japan, to the European Spaceport in Kourou, French Guiana. Arianespace will launch the satellite aboard an Ariane 5 launch vehicle,

after which it will provide Direct-to-Home (DTH) television services in Japan. BSat 4a carries 24 Ku-band transponders and according to B-SAT will expand the availability of advanced television services such as High Definition (HD) and 4K/8K Ultra-HD. The satellite is based on the SSL 1300 platform, and has a lifespan

of 15 years or longer. B-SAT has started 4K/8K test broadcasting using its BSat 3 series and will provide new 4K/8K regular broadcasting services via BSat 4a in December. SSL won the contract to build the BSat 4a satellite in June 2015.

Amazonas 5 Satellite Arrives at Kazakhstan Launch Site

Hispasat's Amazonas 5 satellite arrived on-site at International Launch Services' (ILS) Baikonur Cosmodrome in Kazakhstan on Aug. 8 in preparation for mission integration and launch aboard an ILS Proton Breeze M launch vehicle in September. Hispasat will use the satellite for both video content delivery and internet connectivity, among other services, in Latin America. The satellite recently passed all the functional and environmental tests in the construction process after Space Systems Loral (SSL) completed manufacture in its Palo Alto, California facilities. SSL will run the last series of tests at the launch site in order to verify proper functioning of the satellite after its transfer to Baikonur. It will then be integrated into the Proton M Breeze M launch vehicle for its launch scheduled for this coming September. Amazonas 5 has an estimated useful life of 15 years and was built on SSL's 1300 satellite platform. This new satellite expands the space capacity of the Hispasat fleet in the American continent from its orbital slot at 61 degrees west longitude. It carries 24 Ku-band transponders offering coverage over Central and South America that will provide Direct-to-Home (DTH) television services. According to Hispasat, Amazonas 5 will enable it to broadcast 500 new TV channels and will be key in promoting 4K TV in the region. The satellite also incorporates 34 Ka-band spot beams that will provide connectivity services to more than a half a million people. It will offer transportation or backhaul services to deploy 3G, LTE and 5G cellular networks on top of its satellite internet services.



SSL, NASA Get Closer to Servicing Satellites in LEO

Space Systems Loral (SSL) announced that it successfully completed the Preliminary Design Review (PDR) for NASA's Restore-L mission to provide satellite servicing in Low Earth Orbit (LEO). With the completion of the PDR, Restore-L is proceeding on schedule to the next phase of development and its launch in 2020. SSL is working with NASA Goddard Space Flight Center's Satellite Servicing Projects Division (SSPD), to build a spacecraft that will change the nature of how infrastructure in space is

managed by refueling a satellite in orbit that was not designed for servicing. Restore-L will use robotics along with a suite of other technologies to grasp and refuel an existing U.S. government satellite already in LEO with the goal of extending the operational lifetime of space assets, as well as to demonstrate the tools, technologies, and techniques that will help enable future space exploration missions and a new U.S. satellite servicing industry. The design review took place over a three-day period

at SSL's facilities and demonstrated that the Restore-L design meets system requirements. Due to the success of the PDR, Restore-L will now proceed to the detailed design phase, according to the company. The SSL-built spacecraft will provide the structural support, propulsion, attitude control, data and communications interface, and power to support the Restore-L robotic payload for the on-orbit demonstration.

Using Artificial Intelligence to Track Illegal Activities at Sea

ImageSat International (ISI) has been investing heavily in its development of Artificial Intelligence (AI) analytics in hopes of capitalizing on the abundance of new satellite-based imagery. In an interview with Via Satellite, ISI Business Development and Product Manager Ori Zeisel detailed the technology that drives the company's maritime domain awareness service, Kingfisher. According to Zeisel, ISI developed Kingfisher to address the range of issues related to tracking maritime assets, including Illegal, Unreported and Unregulated (IUU) fishing, foreign military activities at sea, and counter-terrorism and piracy. Specifically, the service works by shining a light on ships – known as non-cooperative vessels by NATO and other organizations – that would otherwise fly under the radar of maritime Automatic Identification System (AIS). Until a few years ago, AIS was the only way to keep track of goings-on in the middle of the ocean, Zeisel said. "The problem with this solution is that only the good guys are using AIS," he explained. "If you want to do illegal fishing ... or nautical trafficking or even military activity, you do not use AIS because you do not want the other side to understand what you're doing. Basically, all the criminal and military activity is being kept in the dark." To add another layer of visibility for its customers, ISI has turned to commercial satellite imagery, using algorithms run by AI to analyze the data collected from its disparate sources. "We start with analyzing open-source intelligence and AIS. By doing this, we can focus on hotspots [where] there is higher probability for detection of illegal activity," Zeisel said. Once ISI has an idea of where to look, the company tasks satellites from commercial providers to image the hotspot and downloads the data to be inspected by a combination of human analysts and automatic AI detection. Tasking commercial satellites can sometimes be a time-intensive process, Zeisel said, in which case ISI reorients its own Eros B satellite to provide the necessary data. ISI then cross-references the data with AIS signals from the specific time the image was taken. "From this stage we get the output of vessels that do have AIS and vessels that were detected only in the imagery but do not transmit AIS. And now it's a new ball game," Zeisel said. In order to catch illegal fishers red-handed, for example, ISI must be able to predict where the vessel will be in a few hours' time to know where to aim the

cameras of high-resolution optical satellites. To achieve this, the company turns again to AI algorithms, leveraging multi-agent simulation and deep learning techniques alongside AIS historical behavior. "[We're] simulating all the possible positions of the vessel," Zeisel said. "At the end, you get a heat map with a statistical probability of where the vessel can be in up to 12 hours." As proof of concept, ISI partnered with the Coast Guard of an unnamed South American country to monitor its Exclusive Economic Zones (EEZ). In one situation, a vessel cruised along the outside edge of the country's EEZ before switching off its AIS system and sailing out into international waters. Using



Kingfisher's predictive behavior AI algorithm, ISI was able to forecast the vessel's sailing pattern, which allowed the Coast Guard enforcement team to pursue and engage with the unlawful fishing vessel. Other than AIS, Kingfisher relies largely on electro-optic satellites to image the visual characteristics of vessels, as well as Synthetic Aperture Radar (SAR) due to its ability to cover large areas and penetrate cloud cover. Zeisel believes the technology can be applied to a number of use cases in the maritime domain where AIS alone falls short. "We understand that satellite images are becoming a commodity because of companies like Planet," he said. "It's very logical business-wise to put the focus more on the analytics side and not just providing images."

Eutelsat Renews Long-Term Video Capacity Agreement with Digiturk

Eutelsat Communications and Digiturk have concluded a multi-year multi-transponder agreement on the Eutelsat 7A satellite, extending a collaboration that began in 2000 with the launch of the Turkish pay-TV platform. Digiturk has confirmed it will use 17 transponders on the Eutelsat 7A satellite to broadcast

an array of content that includes the Turkish Football Super League and the Tahincioglu Basketball Super League, as well as the country's first full-time Ultra-HD channel. According to Digiturk, the company broadcasts 221 channels to approximately 3.5 million subscriber homes. Digiturk broadcasts exclusively

from Eutelsat's 7 degrees east video neighborhood, using the Eutelsat 7A satellite that operates a high-power beam over Turkey and into Western Europe. Digiturk has also secured backup capacity via the co-located Eutelsat 7B satellite.

Gilat and Eutelsat Power New High-Speed Internet in Russia

Russian digital satellite television service NTV-Plus will start offering high-speed internet to its Direct-to-Home (DTH) TV subscribers across the European part of the Russian



Federation. The company has selected the broadband service developed by Eutelsat Networks and powered by Gilat's Very Small Aperture Terminals (VSATs) to operate the new service. Gilat's satellite solution leverages multi-beam high throughput capacity on the Express AMU1/Eutelsat 36C satellite, whose wide-beam capacity NTV-Plus already uses for TV broadcasting. The service is based on Gilat's broadband VSATs — Gemini for enterprise and Scorpio for consumers — which support self-install and automatic service activation. The targeted customer base includes both private consumers and corporate customers in unserved and underserved locations, according to Gilat. "Broadband over satellite has become a reality with High Throughput Satellites (HTS) now answering the market demand for affordable, plentiful and quality data connectivity. We see more and more Mobile Network Operators (MNOs) and DTH providers using broadband over satellite as a mainstream vehicle to acquire new consumers as well as to reduce churn," said Michal Aharonov, Gilat's vice president of commercial.

Arianespace Lofts Two Satellites for Earth Observation

Arianespace has successfully launched two Earth Observation (EO) satellites for civil and military applications: Optsat 3000 for the Italian Ministry of Defense, and Venus, a joint mission between the Israel Space Agency (ISA) and the French space agency, the Centre National d'Etudes Spatiales (CNES). The launch took place on Tuesday, August 1 from the Guiana Space Center in French Guiana. Optsat 3000 is the fourth satellite Arianespace has launched for the Italian Ministry of Defense since 2001. According to the Ministry, the satellite will enable the acquisition and use of high-resolution images from any part of the globe. The Optsat 3000 system will be interoperable

with Italy's second-generation Cosmo-SkyMed radar satellites. This will ensure maximum operational capabilities with the combined optical and radar data offered by these two systems. Telespazio is responsible for the entire system, with OHB Italia in charge of launch services and related engineering support. Venus is an Earth and vegetation observation and exploratory mission, designed to monitor the effects of climate change. By analyzing and comparing images of the same area at different times, researchers will be able to evaluate soil conditions, understand the development of vegetation, and detect the outbreak of a disease or the contamination of a field.

Vega has now logged 10 launches in total, all successful, since starting operation in 2012 at the Guiana Space Center. In June, Arianespace announced the first two contracts for the Vega C launcher. Scheduled to make its first flight in 2019, Vega C will offer higher performance than the current version in terms of payload weight and usable volume. It will be able to handle a wider range of missions, including nanosatellites and large optical and radar observation satellites, according to Arianespace. Vega and Vega C now have an order book totaling nine launches, with one-third of them for European governments and two-thirds for commercial customers in export markets.

General Dynamics to Manage Landsat 8 Satellite

The U.S. Geological Survey (USGS) has awarded General Dynamics a contract to manage the current Landsat 8 mission from the existing Landsat mission operations center at the Goddard Space Flight Center (GSFC) in Seabrook, Maryland. Concurrently, the company will design and integrate a new Landsat Multi-satellite Operations Center (LMOC) at GSFC while continuing the flight of the

current Landsat 8 satellite. The company expects the LMOC will be ready to provide flight and mission operations following the launch of the new USGS Landsat 9 satellite in 2020. The contract is valued up to \$155 million over five years with five additional, one-year options. According to USGS, Landsat represents the world's longest continuously acquired collection of space-based, moderate resolution,

land remote sensing data. Initiated in 1966, millions of sensor images provide a free resource of documenting agriculture, geology, forestry, regional planning, education, mapping, and global change research. Landsat images also provide life-saving information for emergency response and disaster relief operations. The Landsat Project is a joint initiative between the USGS and NASA.

Inmarsat Demonstrates Seamless Global Xpress Connectivity

Inmarsat has successfully completed its Global Xpress "Around the World" test flight. The exercise, conducted on a Gulfstream 4 aircraft between June 5 and June 11, covered more than 25,000 miles and demonstrated Global Xpress' ability to deliver seamless, worldwide coverage across multiple spot beams and satellites. The flight route spanned the Northern and Southern Hemispheres, beginning in the United States with stops in the United Kingdom, the United Arab Emirates, Thailand, Australia and Fiji. Inmarsat configured a Global Xpress subscription-based data plan for the Honeywell aero Tail Mount Antenna (TMA), with a committed information rate of 4Mbps forward and 1Mbps return but capable of 15Mbps or more. The company reported uniform coverage and service delivered to the aircraft as it moved across 28 beams with handovers that went unnoticed by users, as well as three satellite-to-satellite handovers. The terminal's global plan enabled access to the Global Xpress network without the need to pre-coordinate and receive satellite-specific option files, the company stated. During the flight, Global Xpress supported voice, data and streaming applications to include video teleconferencing, high-speed internet access and file transfer, Virtual Private Networks

(VPNs) as well as phone calls, and fully delivered or exceeded the committed information rate. According to Inmarsat, with four high-capacity satellites linked as one network, Global Xpress' spot beam architecture ensures uniform distribution of capacity, allowing for consistent, uninterrupted connectivity no matter where the user is operating. Steerable antennas on each Global Xpress satellite enable flexible augmentation of network capacity, as driven by user demand.



UrtheCast Wins Contract to Deliver Dual-Frequency SAR Satellite

UrtheCast has entered into a contract with an unnamed customer for the development and delivery of a dual-frequency stand-alone Synthetic Aperture Radar (SAR) operational-class satellite. While UrtheCast did not release the exact value of the contract, the company confirmed it is valued at more than CA\$100 million (\$78 million). The contract is for the delivery of the SAR spacecraft, key elements of the ground segment – namely the mission control and planning system and the SAR processor – and in-orbit operations support, but does not include the price of the launch or insurance, which are the customer's responsibilities, UrtheCast stated. This same customer has previously signed a Memorandum of Understanding (MOU) with UrtheCast for the OptiSAR Constellation. UrtheCast expects work on the program to begin in early 2018 for launch in late 2020. As part of the

deliverables under the contract, UrtheCast has also agreed to provide elements of the satellite ground segment and post-launch maintenance and operational support, each to be further detailed and extended in separate definitive contracts. Using the same SAR technology that UrtheCast has been developing for the OptiSAR constellation, this contract will allow UrtheCast to accelerate both the operationalization of its SAR technology and the start of its SAR data services business, the company stated. The contract enables UrtheCast to build and launch a SAR satellite as a precursor mission to the OptiSAR constellation and to thereby demonstrate its high-capacity, high-throughput class capability with a range of imaging modes and scientific-grade data quality. Under the contract, the two companies have agreed to enter into a separate definitive contract to provide UrtheCast with the exclusive commercial

distribution rights to the customer's unused satellite imaging capacity outside specified regions on a shared 50/50 net revenue basis, allowing UrtheCast to sell the SAR-XL data and SAR-derived services in advance of the deployment of the OptiSAR constellation – the date of which is now pushed out by at least a year. With six independent apertures, this SAR satellite is expected to be the first to fly more than two independent apertures. Having six apertures will provide several advantages, UrtheCast said, including improved data quality and spotlight-class higher resolution in full stripmap mode, which enables more coverage capability at high resolution than is currently commercially available. UrtheCast also disclosed that the OptiSAR technology, which is now in its third design iteration, could be configured in future missions to image simultaneously in three bands (for example, X, S, and L).

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ARTICLE

Nokia's 5G FIRST Solution

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

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

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

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



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

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

Radio:

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

Core:

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

Transport:

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

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

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

We can already see many opportunities for 5G.

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

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

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

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

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

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

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

WHOLESALE NEWS

Ofcom Consulting on Revised List of SMP Providers for Wholesale Call Termination

British telecoms regulator Ofcom has launched a consultation on a revised list of telecoms providers that it proposes have significant market power (SMP) in wholesale call termination (WCT). In addition, the watchdog has called for comment on its proposal to include an additional service in a planned wholesale



ISDN30 charge control. Previously, in its 2016 Narrowband Market Review (NMR) consultation – which launched in December 2016 and closed in March 2017 – Ofcom published proposals for the future regulation of five wholesale markets that underpin the delivery of fixed voice telephone services to consumers, including fixed WCT. Now, Ofcom has put forward an updated list of providers which removes those companies that have returned their number ranges or had them withdrawn since the initial consultation, while also removing those

providers that are in liquidation or have been dissolved. Meanwhile, the 2016 NMR consultation proposed services for inclusion in the wholesale ISDN30 charge control, but omitted an ISDN30 service (direct dial inward planning service) from the draft legal instrument. As per the latest plans, Ofcom has said it now proposes to include this additional service. Submissions to the consultation are being accepted until 22 September 2017, with Ofcom saying it will take these into account before publishing a statement on the matter later this year.

Russian Cellcos Granted another Four Months to Cease Domestic Roaming Charges

Russia's Federal Antimonopoly Service (FAS) has extended a deadline for mobile network operators to cease charging their users additional fees for 'roaming' between regions of the Federation. Having previously set a date of 15 August, the FAS has issued a new ultimatum, ordering MegaFon, Beeline,

MTS and Tele2 to scrap 'on-net national roaming' charges by December 15, 2017, TelecomDaily reports. All four operators agreed to comply with the new deadline, and are expected to send monthly reports to the FAS regarding their compliance. Earlier this week, MegaFon withdrew a court action from the Moscow Arbitration

Court wherein it had intended to oppose the FAS' actions on tariffs. Consideration of FAS' claims against MegaFon and Beeline regarding tariffs are scheduled for 26 September, whilst similar hearings on FAS claims against MTS and Tele2 are set for 28 September and 29 September, respectively.

The FAS and the Furious: Watchdog to Bring National Roaming Case against 'Big Four'

Russia's Federal Antimonopoly Service (FAS) is preparing to begin proceedings against the 'big four' mobile network operators (MNOs) – MegaFon, Mobile TeleSystems (MTS), Beeline Russia (PJSC VimpelCom) and Tele2 Russia (T2 Mobile) – after the quartet failed to comply with instructions to end national roaming charges. Deputy Head of the antitrust watchdog Anatoly Golomolzin was quoted by news agency TASS as saying at a press conference this week: 'Communication operators were to

present proposals on national roaming. This was not done and FAS has therefore decided to open a national roaming case against the big four'. The official went on to say that FAS will open cases against the cellcos on 13 August if the operators do not comply with the regulator's orders, adding that none of the companies had responded so far. As previously reported by TeleGeography's CommsUpdate, FAS issued a notice in mid-July ordering the operators to cease charging customers additional fees for using their mobile

devices in Russian regions outside their home region within 14 days. Explaining its decision, the regulator noted that its analysis showed prices for telecommunications services (calls/SMS to numbers within and outside the region of the user's current location, as well as mobile internet/data services) should not differ from prices charged in the user's home region when travelling to other regions of the Federation, as the cost difference is 'not technologically justified'.

Court Backs America Movil in Asymmetric Interconnect Row

Mexican telecom regulator given power to set termination rates for market leader's network, as opposed to current zero rating arrangement. America Movil revealed that Mexico's Supreme Court has ruled in its favor as it seeks to overturn a series of asymmetric regulations set up three years ago in a bid to curb its market dominance. Essentially, the court ruled that the law prohibiting America Movil's Telcel operating unit from charging rival players to terminate calls on its network is unconstitutional and gives telecom regulator the IFT the right to set the interconnection rates that those rivals should pay. America Movil, which is itself required to pay other companies for interconnection, had protested this zero rating regime. In a statement lauding the result it noted that

going forward it will be paid "based on international best practices, cost oriented methodologies, transparency and rationality." The IFT published a similar statement. Other carriers will be required to pay for interconnection with Telcel's network from 1 January 2018. However, they will not be required to compensate America Movil for the lack of payment over the past three years. In that time, the competitive landscape has changed significantly in Mexico, in no small part due to the government's determination to create a positive investment climate, which included tackling America Movil's dominance through regulation. Most note worthily, AT&T entered the market in early 2015 through the acquisition of Iusacell, and bulked up its presence by buying Nextel's local unit later that year,

creating a more able competitor for the market leader. America Movil's fixed-line unit lost eight percentage points of market share between mid-2013 and the end of 2016, when it claimed 63% of the market, according to a recently-published report from the IFT. The big gainers over that period were Grupo Televisa and Megacable-MCM. In the mobile market its Claro business lost four percentage points, taking a market share of 65% at end-2016. Meanwhile second-placed Telefonica gained three points to reach 23% and AT&T took an 11% share. Mobile virtual network operators (MVNOs) had 1% of the market. "The entry of AT&T, as well as the creation of eight MVNOs, has generated greater competition in this market, which has had a significant effect on price reduction," the IFT said.

OFCOM Consults on Wholesale Charge Controls after BT's Universal Broadband Rollout Offer

With BT having offered to ensure that 99% of the UK's premises are able to access broadband at downlink speeds of at least 10Mbps by 2020 last month, local telecoms regulator Ofcom has responded by proposing to allow higher wholesale charges, should the telco reach a deal with the government regarding a universal broadband rollout. As noted by Ofcom in a press release regarding the matter, in March 2017 it published a consultation on proposals made as part of its ongoing wholesale local access market review, with these including plans for charge controls for certain wholesale services. In the wake of BT's offer to voluntarily roll out universal broadband at

speeds of at least 10Mbps, the regulator said that, should the government accept this offer, it expects BT to enter into a 'clear and public agreement' with the state. With an eye to such a deal being made, Ofcom's updated charge control proposals reportedly take into account the additional relevant costs BT would incur, should it commit to making the investment in universal broadband. Specifically, the updated proposals would allow BT to recover 'relevant efficient costs of this investment through an increase to the charges for broadband lines supplied in the WLA market'. Feedback regarding the plans is being accepted until 27 September 2017, while



Ofcom has said it will take responses to this further consultation into account before reaching a final decision and publishing a statement on the review in early 2018, with any measures expected to take effect from April 1 that year.

webe Inks Deal With iBasis For LTE Signaling and Roaming Services

US-based vendor iBasis has announced that Telekom Malaysia subsidiary webe has connected to its LTE Signaling eXchange (LSX). In a press release regarding the development, iBasis said that it is now providing webe with a full, secure and scalable roaming solution for 4G services, including LTE signaling (Diameter/S6), LTE Data Roaming traffic

(GRX/S8) and international voice-over-LTE (VoLTE). Via the iBasis multiservice IPX network, webe will reportedly offer Malaysian consumers a high-quality roaming experience, with its users gaining immediate access to an LTE Roaming footprint of more than 480 networks in 170 countries. Commenting on the matter, webe CEO said: 'Working with

iBasis is part of webe's long term plans to ensure that we provide our members with a seamless connected experience at home, on the go or even as they travel abroad with advanced connectivity solutions like VoLTE through our high speed LTE network.'

ACCC Publishes Quarterly NBN Wholesale Access Statistics

According to the most recent quarterly data published by the Australian Competition and Consumer Commission (ACCC), more than 20 companies are now providing services over the National Broadband Network (NBN), with nbn now supplying a total of 2.51 million

broadband wholesale access services at end-June 2017, up 21% quarter-on-quarter. Fiber-to-the-node (FTTN) and HFC wholesale access services continue to increase as a proportion of the overall total, with the number of connections utilizing the former technology having

increased from 102,293 at mid-2016 to 906,662 a year later. Meanwhile, HFC-based services accounted for 153,371 of the NBN total at 30 June 2017, up from just 14,551 six months earlier. Connections based on fiber-to-the-premises (FTTP) technology continued to account for the highest proportion of the total at the end of the reporting period – 1.125 million, or around 45% – though this represented quarterly growth of only 4.1%. In terms of the companies serving subscribers over the NBN infrastructure, Telstra remains well ahead of the pack, accounting for just over 40% of all connections, or 1.03 million, while other notable players include TPG (491,216) and Optus (264,595) and Vocus Communications (159,027).



Chinese Telcos to Eliminate Roaming Fees

China's three state-owned telecommunications companies announced that they will scrap domestic roaming charges for mainland users from September 1, one month ahead of the original schedule. China Unicom, China Mobile and China Telecom made the announcement in separate statements. China Telecom also said it would cancel domestic long-distance charges from September 1. At the same time, the three companies have pledged to lower internet access and leased line fees for small and medium-sized enterprises, and cut international long-distance voice tariffs as part of China's overall effort to cut consumer costs and encourage companies to adopt new technologies. In March, Chinese Premier Li Keqiang renewed his call for the country's three telecommunication network operators to "raise speed, drop prices". The three companies had immediately agreed and pledged to implement the changes by October 1. Yang Jie, chairman of China Telecom, said in a forum on Thursday that about 80 million users were expected to benefit from free domestic long-distance and roaming services. The fees, charging customers who leave their local service area, range from 0.6 yuan (\$0.09) to 0.8 yuan per minute, and generate as much as 10 per cent of net profits for the operators. China Unicom, the world's sixth-largest mobile network operator by subscribers, estimated in March that the



cancellation of roaming fees would cost the company about 1.6 billion yuan in lost revenue each quarter, which may hurt the company's effort to turn around its business this year.

Motiv Cuts Roaming Rates in Turkey

Russian mobile operator Motiv, working in several regions in the Urals, has reduced its roaming rates in Turkey. Calls

within Turkey and to Russia cost RUB 30 per minute, a text-message is RUB 6, and the mobile internet rate totals RUB 6.6 per

MB. The rates are valid on the network of Turk Telekom.

Slim Victory as Supreme Court Sides with Telcel in 'Zero Rate' Interconnection Dispute



Carlos Slim-backed America Movil (AM) has confirmed that the Second Chamber (Segunda Sala) of the Mexican Supreme Court of Justice has granted an injunction to its domestic wireless subsidiary Telcel against a series of provisions set out in the Federal Telecommunications and Broadcasting

Law (Ley Federal de Telecomunicaciones y Radiodifusion), in relation to the ban imposed on Telcel to charge other carriers for termination services on its network – commonly referred to as the 'Zero Rate'. As such, the Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT)

will now determine the interconnection rate that other carriers shall pay Telcel; AM says that this rate will be based on international best practices, cost oriented methodologies, transparency and rationality. Going forward, the new interconnection rate will take effect on January 1, 2018. Rival operators will not be forced to repay interconnection charges to Telcel retroactively, however, the court ruled. TeleGeography notes that the Zero Rate was imposed on runaway market leader Telcel in 2014, as part of measures to level the playing field for its rivals. As at March 31, 2017 Telcel claimed a 65.6% share of the Mexican mobile market, comfortably ahead of Movistar (23.1%) and AT&T (11.3%).

Regulator Warns Italian Operators on EU Roaming

Italian communications regulator AGCOM told Vodafone, Telecom Italia and Lycamobile they must comply with all aspects of EU roaming legislation, amid concerns the companies are not fully adhering to new rules. In a statement, AGCOM's supervisory authority said although the country's operators had shown "substantial respect" for the EU

legislation, it believed some features were not being universally applied. The regulator pointed to promotions from both Telecom Italia and Vodafone, which were limited to Italy and – as such – didn't adhere to digital single market rules. Its case against Lycamobile is based on a wider flouting of regulations. AGCOM said the MVNO "does not apply

the same conditions that you subscribe to at the national level to the use of roaming services." All three operators are required to inform AGCOM of changes they plan to make to comply with EU law. EU regulations were imposed on June 15 to abolish retail roaming charges across the economic zone, although individual operators can apply to their national regulator for permission to add a small surcharge or change their charging model in "exceptional circumstances". The negative impact of the law has been flagged by several operators in recent trading updates and is expected to begin to be felt on their bottom lines during the third quarter of this year. Despite industry concerns, ahead of the regulations coming into force, the European Commission released a statement warning operators against trying to circumvent regulations by applying roaming-only allowances or changing tariffs to extend home market-only services as a promotion or gift. Last week, Telefonica's UK unit – O2 UK – admitted it had temporarily throttled roaming speeds to ensure service availability for a greater number of customers following high roaming demand.



ARTICLE

The Importance of Spectrum Planning

The radio spectrum is utilized for numerous purposes and has civil, social, scientific, emergency, safety, and defense applications. As such, a large number of end users require access to the spectrum on a continual basis. To ensure that the availability and usage of the spectrum are optimized, spectrum planning processes are essential. They provide basic direction that supports the formulation of policy and outlines the steps that are required to ensure that access to the radio spectrum achieves its full potential and adheres to international and national regulations, rules, and agreements in terms of technical characteristics, availability, and reliability. Spectrum planning involves mapping the current and future requirements of the frequency spectrum and considering major trends and developments in technology. In addition, there is also a need to identify and map the systems that are required for frequency management activities; for example, monitoring systems, channeling plan techniques, and frequency management tools.

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The rules and regulations that govern frequency management are continually being updated. The ITU, a division of the United Nations, is a global body that was established with the responsibility for coordinating the shared global use of the radio spectrum. Other than the scope of optimal radio spectrum usage, among many duties, the ITU also assists in the development and coordination of worldwide technical standards that subsequently guide spectrum usage. Due to the complexity of this task, the ITU also organizes worldwide forums and exhibitions that share the latest updates on the interrelated evolutions and discrepancies associated with frequency planning and availability. These events are attended by representatives from governments and radio, telecommunications and ICT industries.

It is the end users that drive the market and dictate the requirements for the frequency spectrum. In the radio telecommunication environment, the users have many devices at their disposal that are served by the networks. Networks support and distribute the information to the end-



Mohammed A Alabdulqader
Director, Spectrum Management
Etihad Etisalat (Mobily)



users of devices via physical means (fix services) or via air (wireless services, namely simplified in 'communication of the radio-spectrum carried by radio waves'). Furthermore, those wireless services can be terrestrial, maritime, or aeronautical in the range of 8.3 kHz to 3000 GHz according to the 2015 ITU Radio Regulations.

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In the telecommunication market in recent years, the spectrum has become the basic 'physical means' by which the majority of current services are provided to end users, be they civilian, commercial or governmental, and these services will undoubtedly grow further in the future. As such, this resource needs to be managed in a way that maximizes the optimal technical usage and economic revenues for all the stakeholders in line with this market trend.

When defining high-level objectives for spectrum planning, it is important to take several factors into consideration including the need to maximize the value of the outputs produced by the spectrum that is currently available, including the valuation of public outputs provided by the government or other public authorities, and the need to update the guidelines that manage the optimization of the resources that have already been allocated and are in operation. Last, but not least, refarming represents a method by which technical resources can be optimized, and the economic benefits that are available to all the stakeholders can be potentially increased, even if this involves long-term activities.

The allocation of the spectrum to different uses has to be processed in a way that the marginal economic benefit of the additional spectrum is the same for every use or is 'normalized' across every stakeholder. Some important factors need to be taken into consideration when attempting to achieve this objective. Suppose a part of the spectrum (a band) is available for use in only two sectors (civilian and commercial); for instance, mobile communications and commercial broadcasting. How should it be fairly divided between the two uses?

Technically efficient spectrum use is somewhat of a self-explanatory benefit. Indeed, technical efficiency rationally counts as the leading factor in spectrum allocation decisions. In practice, however, it can bring competing policy goals or directives into play. Occupancy and data rate are two basic measures (KPIs) that are used to determine how efficiently certain allocated bands and/or assigned frequencies or channels are being used by services and users. However, in practice, both measures have inherent problems. Some uses are crucial, yet only occasional. In the absence of procedures that govern how the spectrum is shared with other users, which may be very costly to implement, the capacity that is

The allocation of the spectrum to different uses has to be processed in a way that the marginal economic benefit of the additional spectrum is the same for every use or is 'normalized' across every stakeholder.

often left unused could be essential; for instance, for public safety services.

Even though spectrum management is in the interests of private, public, commercial, and military end-users, there are many more stakeholders involved in the sector. Examples of those who access the spectrum include equipment manufacturers, technology

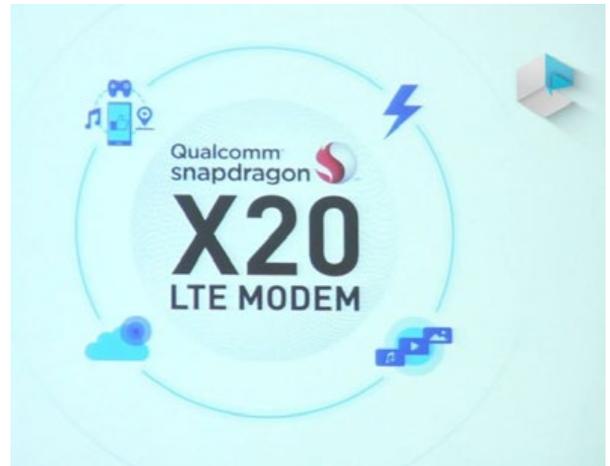
...it is essential that the processes employed to regulate and manage spectrum use are efficient for all stakeholders. Even if the required knowledge and expertise of all stakeholders and users is present, the regulator will encounter the challenge of balancing the needs of all the involved parties...

companies, and public sector users, all of whom can be affected by spectrum management decisions. As such, it is essential that the processes employed to regulate and manage spectrum use are efficient for all stakeholders. Even if the required knowledge and expertise of all stakeholders and users is present, the regulator will encounter the challenge of balancing the needs of all the involved parties with different sectorial interests and will be required to supervise, control, and manage the executions of its allocations, allotments and assignments, as defined in ITU-R Radio Regulations. 

TECHNOLOGY NEWS

Verizon, Ericsson Achieve Over 1 Gbps with Qualcomm LTE Cat 18 Modem

Verizon, Ericsson and Qualcomm Technologies said they achieved an industry first with commercial silicon and network infrastructure, delivering 1.07Gbps download speeds over a Cat 18 LTE network. The companies used the Qualcomm Snapdragon X20 LTE modem, the first announced modem to support Category 18 LTE speeds, during an Ericsson lab trial. This achievement builds on the recent announcement by the partners about gigabit LTE with support for License Assisted Access (LAA). Also of significance, the 1.07 Gbps speed was achieved using only three 20MHz carriers of FDD spectrum, achieving new levels of spectral efficiency for commercial networks and devices. These efficiencies will enable the delivery of the gigabit experience to more customers and lead to new wireless innovations, Verizon said. In the lab, the 1.07 Gbps speeds were achieved using all licensed band combinations with 12 LTE streams with tri-cell carrier aggregation of FDD spectrum, 4x4 MIMO per carrier, as well as 256 QAM per carrier.

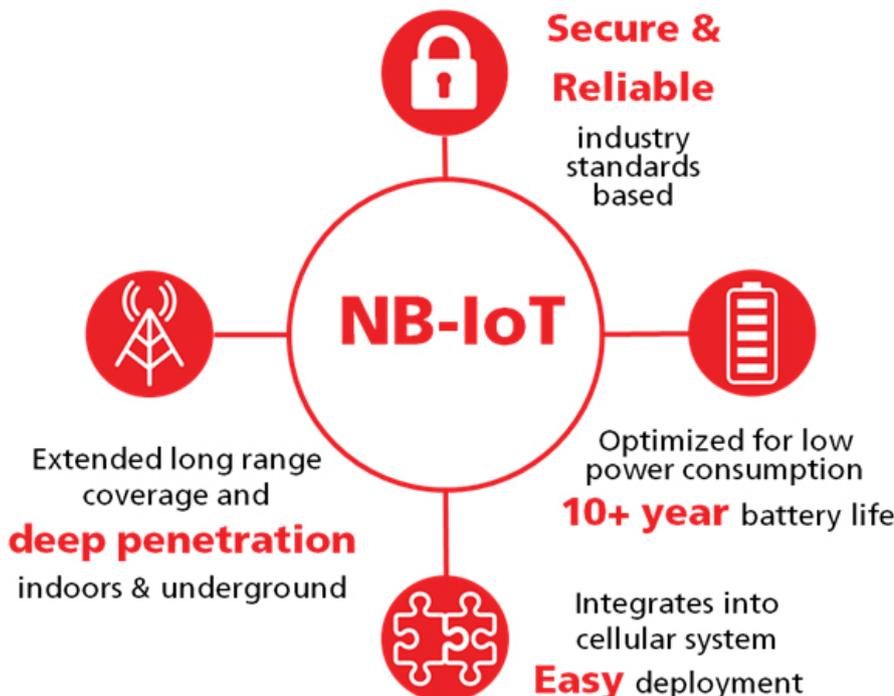


Vodafone Reveals Latest NB-IoT Progress

Vodafone updated on the launch of NB-IoT deployments across its global footprint, following the first activation in Spain at the beginning of this year. A blog post from the GSMA, based on an interview with Vodafone Group's R&D Director Luke Ibbetson, noted the Spain network is now available in Barcelona, Bilbao, Madrid, Malaga, Santander, Seville, Valencia and Zaragoza, with 1,000 base stations live. The operator claims

the network – based on a low power wide area (LPWA) technology using dedicated bandwidth and licensed spectrum – is exceeding expectations in terms of network performance, with an uplink first transmission success rate greater than 97 per cent, reaching 99.9 per cent with retransmissions. Use cases for the technology include sensor networks, smart city applications including lighting and refuse services, tracking and “other

new use cases”, such as customer service feedback terminals. Media reports earlier this year suggested Vodafone had missed its NB-IoT launch deadlines in several other European markets. But today the operator says it has NB-IoT networks live in nine cities in the Netherlands and is on track for a commercial launch in the Republic of Ireland this year (where it currently operates a test network). Vodafone New Zealand, as previously reported, will pilot the technology “with a select group of business customers in late 2017 before a network rollout in 2018,” while Vodafone Germany is undertaking customer trials including installing smart bins for the Deutsche Bahn. Its majority-owned operation Vodacom is testing NB-IoT and launched the first site in Africa within its campus in Midrand, Johannesburg. Vodafone is one of the strongest supporters of NB-IoT technology in Europe (along with Deutsche Telekom), as the LPWA tech ramps up commercial deployment after being standardized by the 3GPP in 2016. Another cellular-backed LPWA technology, LTE-M, is registering growth in the US via AT&T, Sprint and Verizon. Both NB-IoT and LTE-M are playing catchup with unlicensed LPWA offerings already established in the market, including Sigfox and LoRa.



MTS, MGTS, Nokia Test 10GPON Compatibility With '5G' Equipment

Russia's Mobile TeleSystems (MTS) and its fixed network subsidiary Moscow City Telephone Network (MGTS) have carried out compatibility tests for fixed and mobile networks using 10GPON backhaul and '5G' standard equipment supplied by Nokia. The tests at MGTS' premises included the connection of prototypes of the Nokia 5G base stations to the MGTS 10GPON network sections, confirming the compatibility of the networks, whilst recording a maximum data transfer rate

of 9.5Gbps with a latency of less than one millisecond. Alexander Trokhin, MGTS Technology Director, said: 'The first tests showed that when connecting base stations through fixed operator networks, cellular companies, according to our estimates, will be able to cut network construction costs by 50% and launch time by 40%.' Demetrio Russo, Nokia vice president for Eastern Europe, added: 'The role of fixed access technologies in the evolution of mobile communication

networks, in particular the 5G, is becoming more relevant than ever. Due to the ability to deliver network services with extremely low latency and provide the Internet of Things, fixed access technologies are an excellent foundation for supporting 5G.' A press release continued that the first 10GPON pilot zones will appear in 2017-2018 on the busiest sections of the MGTS network, whilst 'the total investment in modernization' may amount to about RUB10 billion (USD169 million).

AIS Introduces Gigabit Download Speeds via LTE-A, Wi-Fi

Advanced Info Service (AIS), Thailand's largest mobile operator by subscribers, has introduced 1Gbps download speeds under the 'Next G' banner. The new network leverages the cellco's tri-band carrier aggregation (3C) LTE-Advanced (LTE-A) network (including 4x4 multiple-input, multiple-output [4x4 MIMO] and 256 QAM functionality), alongside its so-called 'Super Wi-Fi' network. The former is said to deliver standalone downlink

transmission speeds of up to 700Mbps, while the latter supports 650Mbps speeds. According to the Bangkok Post, the new network is available in major provinces nationwide. AIS now has 49,000 LTE base transceiver stations (BTS) alongside 80,000 Wi-Fi hot-spots. At present, only four handsets are compatible with the new network, namely the Samsung Galaxy S8, S8+, S7 and S7 Edge models. Other Samsung devices will be made

available in the future. While further clarification has not been made available by AIS, the aggregation of LTE and Wi-Fi frequencies is widely referred to as LTE-Unlicensed (LTE-U). While the parameters of LTE-U have yet to be formally defined by the 3GPP, existing networks are known to bolster 4G coverage using publicly available Wi-Fi frequencies.



T-Mobile Launches 'World First' 600MHz LTE Network in Wyoming

T-Mobile US has switched on its new 600MHz LTE network in Cheyenne, Wyoming using Nokia equipment. The launch – which T-Mobile claims is the first such deployment in the world – means that the cellco is leveraging the massive haul of low-band spectrum it won in the Federal Communications Commission's (FCC's) 600MHz Broadcast Television Spectrum Incentive Auction far earlier than expected. Starting in rural America, and other markets where the spectrum is already clear of broadcasting, T-Mobile

plans to compress a two-year rollout process (from auction to consumer availability) into just six months. Between now and end-2017, T-Mobile intends to activate 600MHz spectrum in locations such as Wyoming, Northwest Oregon, West Texas, Southwest Kansas, the Oklahoma panhandle, Western North Dakota, Maine, Coastal North Carolina, Central Pennsylvania, Central Virginia and Eastern Washington. TeleGeography notes that T-Mobile US agreed to pay USD7.99 billion for a total of 1,525



regional licenses in the FCC licensing process, securing an average of 31MHz of 600MHz spectrum nationwide.

Broadcom Unveils First Chips with Next-Generation 802.11ax Wi-Fi

Broadcom announced the launch of Max WiFi, claiming an industry first with products using the next Wi-Fi standard, 802.11ax. The Max WiFi chips enable up to four times faster download speeds, six times faster upload speeds, four times better coverage, and seven times better battery life than the previous generation 802.11ac. Max WiFi is the sixth generation of Wi-Fi, with innovations that go beyond speed, according to Broadcom. In addition to dual-band spectrum use, it supports Orthogonal Frequency Division Multiple Access. OFDMA significantly increases efficiency and capacity of the wireless network as several devices communicate concurrently in portions of the frequency spectrum allocated proportional to their needs. In addition, it enables quality of service for complex applications via the implementation of advanced downlink and uplink scheduling, Broadcom said. Max WiFi is designed to support delivery of simultaneous video, voice, data and IoT services for the growing number of connected devices in the home and office. Its architecture is also optimized for internet

upload, to support services such as social media live-streaming and cloud storage. Broadcom's new products, the BCM43684, BCM43694 and BCM4375, target Wi-Fi routers, residential gateways, enterprise access points, and smartphones. The chips are currently sampling with selected customers.



Nokia, Comcast to Stage 3.5GHz Spectrum Trials

Finnish vendor Nokia has requested permission from the Federal Communications Commission (FCC) to stage a trial using 3550MHz-3700MHz (3.5GHz) spectrum at the corporate headquarters of cable giant – and wireless market aspirant – Comcast. In an FCC filing uncovered by Fierce Wireless, the vendor seeks a special

temporary authority (STA) covering the period from 15 September 2017 to 15 March 2018. TeleGeography notes that a number of US players have scrambled to initiate 3.5GHz trials in recent months. In May this year US Cellular requested an STA to conduct experimental testing in parts of Maine and North Carolina, after T-Mobile US requested FCC permission

for an 'experimental license' that would cover three sites in Washington, near its Bellevue headquarters, in April. Previously, in April 2015 the FCC voted to add another 100MHz of spectrum in the 3.5GHz band (3550MHz-3700MHz) to the 50MHz in that range already available for commercial use.

AT&T Applies for 6-Month STA to Test 28 GHz 5G in Dallas

AT&T Services has filed an application for Special Temporary Authority (STA) to conduct 5G tests using equipment from multiple vendors at one of its facilities in Dallas. Operating in the 28 GHz band, the demonstrations will involve communications between fixed base stations placed indoors in a room or open space inside a building at 208 S. Akard Street in Dallas, according to the application. The building has concrete walls and windows with coated glass—typical indoor obstacles for wireless. AT&T says the 5G wireless link will be established between the base station and mobile end user equipment located in the same room or space as the base station at a distance of about 10 meters. The base station will have connectivity to an ISP providing Gbps internet access for the purpose of the 5G demos using

various applications and web servers, the company explained. "The demonstrations using this STA will provide valuable information to potential users whose feedback on the perceived performance of services provided through these 5G systems will also enable future standards and system optimizations," AT&T said. The proposed duration of the STA is September 1, 2017, until March 1, 2018. AT&T is contributing to the 3GPP wireless standards process and is working with more than a dozen technology companies to get 5G ready for actual deployment. The company caused a ruckus in April when it announced it would offer "5G Evolution internet speeds" in 20 metro areas by the end of 2017, leading some rivals to call it "fake news" and "fake 5G" because the technologies being deployed are still very much attached to LTE. But AT&T defended

its use of the 5G Evolution branding and said it's laying the foundation for 5G while the standards are being finalized. The company already offers its 5G Evolution service in parts of Austin, Texas, and in Indianapolis, and it has announced plans for Atlanta, Boston, Chicago, Los Angeles, Nashville and San Francisco. At an investor conference in Boston last week, AT&T SVP and CFO John Stephens said 5G is another opportunity to provide high-quality solutions. In one of its more recent tests in San Francisco, the company saw speeds of 750 megabits per second. Granted, that was on an unloaded network, but if you can get 10% or 20% of that on a loaded network, "that's still tremendous wireless speeds in an urban area with high traffic levels," he said.

Deployment of 5G Networks Expected to Start in 2019

Senator Maggie Hassan, D-NH, joined Senators Roger Wicker, R-MS, and Brian Schatz, D-HI, last week, in introducing a bipartisan resolution in support of deploying 5G mobile broadband technology across the country. The deployment of 5G networks is expected to begin in 2019, after official standards have been developed to define the scope of the technology. Potential benefits of the deployment of 5G networks include three million new jobs, a \$275 billion investment from the wireless industry and a boost of \$500 billion to the economy. Deploying 5G would also provide consumers in both rural and urban areas greater access to innovative technologies, said Hassan in a press release, including precision agriculture, telemedicine and other Internet-connected applications and services that depend upon fast, reliable broadband connections. "Access to the internet is vital in today's 21st century economy," Senate Hassan said of the bipartisan 5G Resolution. "As the importance of internet access increases, the digital divide between urban and

rural areas is widening, putting those living in rural areas at a disadvantage. This bipartisan resolution emphasizes the importance of making life-changing technology more accessible and fostering the spirit of innovation in hard-working Granite Staters and Americans." Senator Hassan and Senator Cory Gardner, R-CO, also introduced the AIRWAVES Act, which will help lay the groundwork for 5G technologies by ensuring the future spectrum needs of wireless carriers are met. The AIRWAVES Act also requires 10 percent of all of the proceeds from spectrum auctions in the bill to go directly to wireless broadband infrastructure buildout in unserved and underserved areas throughout rural communities across the country. Spectrum is the invisible network of airwaves over which signals and data travel. The legislation aims to make more efficient use of spectrum and encourages the federal government to auction off more spectrum in a timely manner, as well as free up additional unlicensed spectrum to support wireless devices like tablets, as

well as Wi-Fi and Bluetooth technologies. Over the past several years, the federal government has auctioned off billions of dollars of spectrum that the wireless industry has used to free up more space on the airwaves for their customers' mobile phones, and unlicensed spectrum also contributes billions annually to the economy, according to Hassan's office. "So many of the wireless services we depend on – from telehealth to wireless phone service to Wi-Fi – require the use of spectrum, which is a finite resource," said Hassan in a press release. "The bipartisan AIRWAVES Act will help ensure that there is an adequate supply of spectrum for licensed and unlicensed use, which in turn will enhance wireless services to our people, stimulate our economy, and spur innovation. Our bill also makes meaningful investments in rural broadband infrastructure in places like New Hampshire, helping to strengthen local economies and provide our businesses and hard-working Americans in rural areas with the resources they need to get ahead and stay ahead." "As we charge full speed ahead into the fifth generation – or 5G – of wireless connectivity, it's incredibly important for the U.S. to make spectrum available in low-, mid- and high-band frequencies to meet the demands of consumers," said Vince Jesaitis, vice president of government affairs for technology industry trade group ITI. "For that reason, we applaud the introduction of the AIRWAVES Act by Sens. Gardner and Hassan. This bill requires the FCC to look at making spectrum available for licensed and unlicensed use in a number of bands, while setting aggressive timelines for FCC action to ensure US leadership as the world makes the leap to widely deploying 5G."



MegaFon Claims 979Mbps 4.5G Speeds in Moscow

Russia's MegaFon has enabled near-1Gbps peak mobile speeds on its LTE-Advanced (LTE-A) network in Moscow, based on three-carrier (3C) aggregation (using two 20MHz carriers in the 2600MHz band and one 20MHz block in the 1800MHz band), combined with 256

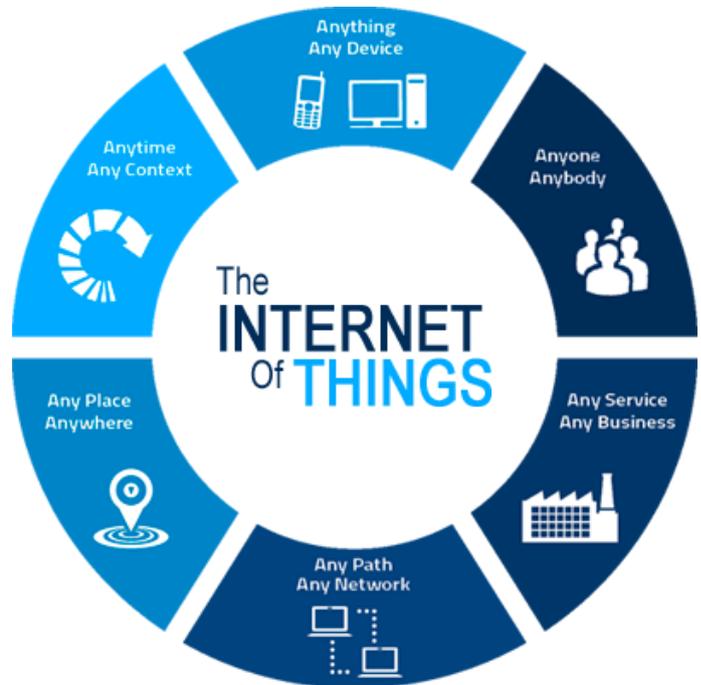
QAM modulation and 4x4 multiple-input, multiple-output (MIMO) technology. MegaFon demoed speeds reaching 979Mbps on its network, using Nokia's LTE-A Pro (categorized as 4.5G) AirScale equipment, whilst the Sony Xperia XP Premium smartphone (with Qualcomm

Snapdragon 835 processor) and Qualcomm X16 LTE modem were also used in the tests. MegaFon notes that it is the first operator in Russia to launch LTE Category 16 (Cat 16) technology on its network.

Middle East and Africa to Invest in IoT

Middle East organizations are adopting the latest Internet of Things (IoT) technology infrastructure to drive the wider region's \$8 billion market, global IoT enabler SAP recently announced. As the inter-connected IoT era advances, Middle East organizations are forced to manage a vast network of connected devices, wearables, and physical objects – from cars to oil drills. Using machine-to-machine technology, organizations can provide a secure, usable infrastructure that shares machine and sensor data for actionable information in real-time. In the Middle East and Africa, the IoT spend is set to reach \$8 billion in 2017, according to a recent report by IDC. In particular, the highest-spending industry verticals include manufacturing and transportation, both at \$1.3 billion, and utilities at \$918 million. "Every industry vertical in the Middle East is set to be transformed by the Internet of Things – from smart utilities predicting service outages, to health care providers predicting patient treatments," said Gergi Abboud, Managing Director for the Gulf, Levant, North Africa, and Pakistan at SAP. He added: "The strength of an Internet of Things use case improves exponentially when you unleash the connectivity between all of the 'things' inside and outside of an enterprise across its supply chain. Hence, a secure Internet of Things platform on the cloud becomes vital for supporting next generation applications, which can scale up quickly and easily." About 82 percent of organizations see the Internet of Things as "strategic" or "transformational" to their business, according to a recent survey by IDC. In the Middle East, SAP is seeing strong demand for the SAP Leonardo digital innovation system. SAP Leonardo provides breakthrough technologies and services that lets organizations take advantage of embedded

IoT capabilities and other technology innovations on the cloud. SAP is already working closely with Middle East organizations on IoT co-innovations, such as a remote inspection robot for the Dubai Electricity and Water Authority, and Emirates NBD bank on augmented reality housing loans. SAP's global IoT customers include Italy's Trenitalia, Buenos Aires, Argentina to prevent floods, and the Hamburg Port Authority for smart port logistics.



Nokia Partners with Tech Giants on €8M 5G Project

Nokia launched the 5G Mobile Network Architecture (MoNArch) research project with 14 partners including Huawei, Telecom Italia and Samsung Electronics, which will run for two years and has a budget of €7.7 million. The program will focus on using network slicing to enable pre-standard 5G use cases in areas such as healthcare, media and the automotive industry and aims "to bring 5G mobile network architecture from concept to [the] real world". "As 5G networks need to simultaneously support various services with different requirements, network slicing will be a crucial aspect of the

network architecture, providing flexible and adaptive networks which fulfill the 5G requirements," Nokia explained in a statement. 5G MoNArch involves mobile network players from UK, Germany, Spain, Greece, Italy, and France with "the technical know-how required to turn the project's vision into reality" and will include "two real-world test bed implementations". It is part of Phase II of the EU-backed 5G Infrastructure Public Private Partnership (5G-PPP). The EC first announced the initiative in December 2013 with plans to invest €700 million by 2020 through the Horizon 2020 program.

According to Peter Merz, head of end-to-end mobile networks solutions at Nokia Bell Labs: "Nokia is fully committed to the 5G-PPP. we have delivered know-how and innovative technologies since its launch in 2015 in order to strengthen the European 5G footprint." Earlier this month Nokia announced plans to broaden its focus "into multiple areas of early 5G mobility use cases", in response to growing interest in the technology from operators in the US, China, Japan and South Korea and expectations of a 2019 global deployment.

First Commercial NB-IoT Network Rolled in Southeast Asia

Singapore telco player M1 made history with its launching of Southeast Asia's first commercial nationwide Narrowband Internet of Things (NB-IoT) network. According to the group, this is in efforts to catalyze smart solutions innovation and support Singapore's transformation into a Smart Nation. M1's CEO Karen Kooi said a key Smart Nation building block in enabling connectivity in millions of devices, sensors, and services is the Internet of Things. She noted that the



launch of the NB-IoT network allows solution providers and businesses to develop and deploy new IoT-enabled solutions. "The launch of Southeast Asia's first commercial nationwide NB-IoT network will accelerate our journey into a digital society. The Internet of Things will open up an incredible array of fresh opportunities and innovation. We look forward to working closely with government agencies, technology partners, and customers to enable smart solutions for everything and everyone," Kooi said in a press statement. Meanwhile, the Infocomm Media Development Authority of Singapore Chief Executive Tan Kiat How mentioned that the IoT is a vital area of growth which can spur advancement's in Singapore's push for a digital economy. "We are heartened that M1 has rolled out their narrowband IoT network on a nationwide

basis and partnered enterprises to bring ready solutions to market and accelerate innovation to empower possibilities. We encourage companies to embrace the exciting benefits of NB-IoT as we move towards the digital future," he noted. One such firm embracing the newly-rolled out tech is Leppel Electric. As part of the collaboration, the firm is piloting the NB-IoT Energy Management Meter, which is expected to enable it to deploy power and water meters to its customers' premises faster and more cost-effectively. Keppel Electric General Manager Janice Bong said with the full liberalization of the electricity market expected in 2018, the launch of M1's NB-IoT network is a timely development for their customers. "We also see the potential of such implementations helping consumers to manage their electricity use more prudently," Bong explained.

IoT and Transformation Driving ITOM Investment

The growth of digital business and the IoT will drive large investment in IT operations management (ITOM) through 2020, Gartner has predicted. Organizations are moving towards ITOM open-source software (OSS), and a primary driver of this transition is the promise of a lower total cost of ownership, the research firm said. "While acceptance of OSS ITOM is increasing, traditional closed-source ITOM software still has the biggest budget allocation today. Moreover, complexity and governance issues that face users of OSS ITOM tools cannot be ignored. In fact, these issues open up opportunities for ITOM vendors. Even vendors that are late to market with ITOM functionality can compete in this area," Gartner research director Laurie Wurster said. Gartner believes many enterprises will turn to managed ITOM or ITOM as a service (ITOMaaS) enabled by open-source technologies and provided by a third party. With OSS, vendors can provide more cost-effective and readily available ITOM functions in a scaled manner



through the cloud. Through 2020, public cloud and managed services are expected to be leveraged more often for ITOM tools, which will drive growth of the subscription business model for both cloud and on-premises ITOM. However, on-premises deployments will still be the most common delivery method. This imposes multiple challenges to incumbent ITOM vendors. First, those vendors that do not offer a cloud delivery model will face continuous cannibalization from ITOM vendors that

can deliver ITOM through both cloud and on-premises. Second, platform vendors, such as Microsoft Azure and Amazon Web Services (AWS), are providing some native ITOM functionalities on their public clouds. Customers that are running workloads solely on these platforms may prefer these native features. There are also "hybrid" requirements for ITOM tools that can seamlessly manage both cloud and on-premises environments.

Singtel to Roll out NB-IoT and Cat-M1 Network

Singtel has announced that it will be rolling out an Internet of Things (IoT) network across Singapore by the end of next month, with the telecommunications company focusing on supporting both Cat-M1 and narrowband IoT (NB-IoT) technologies. The two cellular-based network types will allow for IoT devices with battery lives of up to 10 years and a broader range of coverage than traditional mobile broadband, while its Cat-M1 network will allow businesses to make voice-over-LTE (VoLTE) calls across the network using smaller devices such as wearables. According to Singtel, it will also "harness its cybersecurity expertise" in ensuring that any businesses connecting to its IoT network will be secure, with CEO of Singtel Group Enterprise Bill Chang saying the network will aid Singapore's smart nation initiative through digital transformation. Singtel has invited businesses and technology partners to utilize its IoT Innovation Lab, launched in partnership with Ericsson, to develop and trial IoT solutions. "The launch of our network provides an ideal platform for the proliferation of IoT devices and applications," Chang said. "We welcome businesses to be part of the growing IoT ecosystem by leveraging on

our robust infrastructure and network." Earlier this month, Singtel also said that it is hoping to showcase its Massive Multiple-Input Multiple-Output (Massive MIMO) network technology on August 9 -- Singaporean National Day -- after working with Ericsson, Huawei, and ZTE on the solution. Singtel said it will use base stations with 64 antennas that can channel signals to individual devices, rather than a wide-area broadcast, as well as using the 2.5GHz spectrum band. Singtel had spent SG\$563.7 million during Singapore's spectrum auction in April to acquire 3x 5MHz in the 2.5GHz band, 4x 10MHz in the 700MHz band, and 2x 10MHz in the 900MHz band. Ericsson and Singtel in January also launched 450Mbps speeds across the latter's entire 4G network in Singapore for customers with compatible smartphones, with the companies announcing attaining speeds of up to 1Gbps in a trial. In July, Singtel then began its LTE-A rollout on Orchard Road, which it said would be extended to Raffles Place and Clarke Quay before the end of August. According to the telco, it was able to attain speeds of 800Mbps via triple aggregation, 4x4 MIMO, and 256 Quadrature Amplitude Modulation (QAM) using Ericsson technology. Ericsson and

Singtel have additionally been working on a "blueprint" for 5G deployment across Singapore since January 2015, and completed a live trial of License Assisted Access(LAA) 4G in July last year. In February last year, Singtel and Ericsson also announced their collaboration on enabling Singtel's 4G network for IoT, including a trial of NB-IoT technology during 2016. In March, they then unveiled an IoT ecosystem dubbed the Assured+ Consumer Connected Device Solution for operators, networks, and devices. Ericsson has also been working with Telstra on Cat-M1, with the network switched on across the Australian incumbent's 4GX network last week in an effort to boost IoT uptake. "We see this as an investment in the IoT ecosystem in Australia that will support new startups across a range of sectors, including agriculture, transportation, healthcare, and mining," Telstra COO Robyn Denholm said. "Cat-M1 operates over our expansive 4GX coverage, and we will shortly deploy range extension capability which will take the Cat M1 coverage footprint for compatible Cat-M1 devices to around 3 million square kilometers."

South Korean Telecom Starts Bid for 5G Equipment for Commercialization



SK Telecom has started its venture into establishing fifth-generation network, being the first mobile carrier in South Korea to do so. SK Telecom has embarked on commercialization of the fifth-generation network by starting to receive bids for 5G equipment, it said Sunday. According to the announcement, SKT sent a request for proposals to network equipment

manufacturers, officially beginning talks about establishing 5G network infrastructure as the first mobile carrier in South Korea. The latest proposal includes detailed requirements for core equipment and technologies, such as data transfer specifications for 5G frequency spectrums. Establishing the next-generation network system earlier than competitors is crucial in the mobile network industry, because the technologies and equipment for the new system can set new standards for the global market. "The proposal includes the structure and operation of 5G system designed by SKT based on the 5G technologies being discussed as international standards," the company said. SKT, the largest telecom business by sales and subscriber number in the country, will examine specifications of equipment proposed by manufacturers for the next three months and select preferred bidders in late October. "By sending the proposal, SKT may move forward commercialization of the 5G network services," said Kang Jong-ryeol, head of infrastructure at SK Telecom. The South Korean mobile carrier has been participating in the 5G Trial and Testing Initiative run by the Next Generation Mobile Networks, a global mobile carriers association, in order to achieve early commercialization of the next generation network.

Digitization: Changing the Game for Manufacturers

Digital transformation, as we've come to realize, means something different in every industry. In Manufacturing, the term can be broad-reaching, encompassing everything from automation and robotics, to fully-fledged 'smart factories', all the way to the reinvention of the entire sector – captured in the 'Industrie 4.0' concept. For manufacturing execs, digitization presents numerous opportunities, to enrich their processes with new data insights, to pool their human and their Artificial Intelligence (AI) resources, and to evolve their classic value chains into more collaborative and digitized networks of specialists. With the right mix of strategy, culture and technology, manufacturing organizations can shift from their outdated legacy processes, towards more flexible and digitized platforms, enhancing their competitiveness and positioning themselves for an unpredictable future. In the smart factory vision, almost every piece of equipment and tooling is fitted with sensors that are continually piping information into a nerve-center – producing the insights that inform resource allocation, warn of potential machine downtime, and quickly reveal any bottlenecks in the factory's processes. General Motors, for example, uses sensors to monitor humidity in the painting process, automatically shifting the work to another part of the plant if the levels breach a certain threshold. Another prime example is that of a gold mining house that boosted yield by 3.7% by understanding and reacting to fluctuations in oxygen levels during the leaching process. Digitization collapses borders and time zones, compressing distance and bringing different parties

closer to one another. With new collaboration tools, manufacturing execs can digitally connect designers, engineers, researchers and supply-chain partners, and integrate these new networks into the products being developed on the factory floor. Suddenly, manufacturers can access a wider array of specialist resources from across the globe, creating platforms for enhanced collaboration, communication, and real-time decision-making. The emergences of digital and 3D printing technologies are starting to change the way many production lines operate. With new advancements such as direct metal laser melting, for instance, it's possible to create stronger components at reduced cost, reduced waste, and greater efficiency. But manufacturing technology isn't just about new ways of producing goods and materials. We're starting to see sensors and data being used in interesting, innovative ways, even in the context of 'traditional manufacturing'. For example, some aircraft manufacturers are using sensors on smart tools to help workers drill holes with perfect precision. Tools detect the

exact torque required to tighten bolts correctly, for instance, among other tasks. All of this helps to elevate manufacturing excellence to new heights. While we certainly can't predict the future direction of the manufacturing industry, one thing we can be sure of is that digital will play an essential role. By starting to adopt greater levels of digitization in the factory, manufacturers position themselves to capitalize on emerging trends for the coming decade: the likes of rapid prototyping, crowdsourcing, augmented reality, increased robotics and artificial intelligence, and image-recognizing cameras. Traditional manufacturing business models are coming under increasing threat, and the pressure to digitize is intensifying. Today's leading manufacturers are taking bold steps to reshape their operations, remove the processes hindering transformation, and change their company cultures. For these fast-moving manufacturers, able to access the technology and the skills that they need, digital is creating exciting new opportunities in the production and distribution of goods.



Verizon Confident 5G to Be Rolled Commercially in 2018; Trials up in Eight of 11 Trial Markets, CFO Says

Verizon Communications still sees 2018 as the commercial rollout for initial 5G-based services as it continues to collect results from its initial batch of field trials, which are using 5G-based technologies to deliver speedy fixed-wireless broadband. "[It's] too early right now to be more definitive...but we're still confident that we'll have commercial product in-market during 2018," Verizon

EVP and CFO Matt Ellis said Q2 earning's call. Ahead of more advanced use cases for 5G, such as mobility and self-driving cars, Verizon is starting off by testing it as a fixed-wireless technology in 11 markets (Ann Arbor, Mich.; Atlanta, Bernardsville, N.J.; Brockton, Mass.; Dallas; Denver; Houston; Miami; Sacramento; Seattle; and Washington, D.C.) so it can get a feel on how it performs in different

environments and settings and how the economics will add up. Ellis said trials are up and running in eight of those pre-commercial trials. "We have the first batch of customers on the network. We will have trial results towards the end of the year that will give us valuable insights for commercial deployments," he said.

Verizon Starts Nationwide LAA Deployment

Verizon Wireless is ready to start rolling out license-assisted access technology nationwide. Following a demonstration that delivered 953 megabits per second with commercial network equipment, the carrier's VP of network support, Mike Haberman, said Verizon will be installing LAA* radios at select cell sites around the U.S. "You're going to see these pop up all across the country," Haberman said. He said Verizon's regional teams will be upgrading cell sites over the next several months according to their own timetables. Haberman noted that LAA cannot be implemented via software, but instead requires the addition of new radios to the cell sites. The radio used in Verizon's recent demonstration was Ericsson's micro Radio 2205 for LAA, an LTE radio that operates in the unlicensed 5 GHz band. Verizon is aggregating three 5 GHz channels with one 20 megahertz channel of AWS spectrum. To reach the 953 Mbps achieved in its recent demonstration, Verizon combined four carrier aggregation with 4X4 MIMO* and 256 QAM.** Haberman said that some cell sites will get 4x4 MIMO and LAA at the same time, and that these site upgrades may also include the refarming of some 3G spectrum for LTE. He said Verizon's 4x4 MIMO deployments

include antennas from several vendors, and often use remote electrical tilts and other antenna-optimizing equipment. 4X4 MIMO antennas are already being deployed throughout Verizon's network, and software upgrades to implement 256 QAM are starting this month. Most Verizon subscribers don't have a smartphone that supports these technologies, but that doesn't mean they can't benefit from the network upgrades. Haberman said smartphones enabled by Qualcomm's X16 modem will leverage Verizon's network enhancements to "get on and off the network faster," leaving more capacity for other users. If enough subscribers in an area have capable phones, all users should benefit. Right now there are just two smartphones on the market that support these technologies: the Samsung Galaxy S8 and the Moto Z2 Force Edition. Verizon is not the only U.S. carrier to leverage LAA. AT&T is also testing the technology in combination with 4x4 MIMO and 256 QAM. T-Mobile is testing LAA, and has also made LTE-U available to its subscribers in a handful of cities. Sprint is the only U.S. carrier that is relying entirely on licensed spectrum for superfast LTE. The company is taking advantage of its high-band spectrum by using massive MIMO antennas in

combination with carrier aggregation and 256 QAM to boost LTE speeds.

*LAA combines licensed spectrum with unlicensed spectrum to increase network capacity. It is similar to LTE in unlicensed spectrum (LTE-U). Both technologies operate in the 5 GHz spectrum that is also used for high-speed Wi-Fi. LTE-U relies on a proprietary duty-cycling approach to minimize interference with Wi-Fi, and LAA uses a protocol called listen-before-talk, meaning that radios don't transmit until the coast is clear.

**MIMO is multiple-input multiple-output and refers to the antennas on wireless transmitters and receivers. MIMO configurations use more than one antenna on the transmitter and on the receiver, boosting the number of potential data paths. 4x4 MIMO means four transmit antennas and four receiver antennas.

***QAM is quadrature amplitude modulation, and 256 is the number of points in the modulation scheme. At 256 QAM, each point, or symbol, can transmit 8 bits. Each time the QAM coefficient doubles, the number of bits per point increases by one.

Nokia Accelerates 5G Push to Meet Market Appetite

Nokia announced plans to broaden "its focus into multiple areas of early 5G mobility use cases", in response to growing interest in the technology from operators in the US, China, Japan and South Korea and expectations of a 2019 global deployment. The Finnish vendor said in a statement the move builds on 5G First, its so-called end-to-end bundle launched at Mobile World Congress this year aimed at operators which are keen to test and trial the technology. Nokia said there was "clear interest for 5G mobility applications", including enhanced mobile broadband and ultra-low latency communications, and it would now "push for accelerated 3GPP industry standardization". The company added the "market appetite points to meaningful rollouts in 2019", and it further called on governments and regulators to free up and

enable the use of spectrum at low-, mid- and high-frequency bands for 5G. Marc Rouanne, president of Mobile Networks at Nokia, said evolving the company's 5G strategy to "drive the industry rapidly towards adoption of standards-based applications" would require "broad cross-industry support". The announcement comes a week after CEO Rajeev Suri said in the company's Q2 earnings call that 5G was accelerating much faster than anticipated. He suggested the rapid development could create some near term risks for the company, with the timing of certain project completions now uncertain. "Our original expectation was that 5G would only really take off in the 2020 to 2021 time period, that is now changing, as we see some lead customers [in] both the US and China preparing to move earlier, and that should drive others

to respond," he said. As part of the push, the company will continue to "evolve and expand" 5G First via both mobility and fixed applications, as well as testing multiple use cases. Nokia explained "industry interest" in 5G from markets "like the US, China, Japan and South Korea" had led to the move, but notably there was no mention of Europe. Although operators, governments and industry bodies across the continent have spoken repeatedly of their ambitions to emerge as a 5G leader, Nokia did not highlight Europe as a market where there is "clear interest for 5G mobility applications". Nokia's omission follows comments made by CTO Hossein Moïin, who said in a briefing in June he was not optimistic about the continent's 5G prospects. He warned Europe will be left behind unless there were changes at regulatory level.

IoT Technology to be used to Curb Noise Problems

The Ministry of Science and ICT (MSIP) and the Ministry of Land, Transport and Maritime Affairs (MOLIT) will adopt IoT-based environment sensors in Busan's Gangseo District as part of a collective smart environment monitoring initiative, the two government branches revealed. Gangseo District was chosen as the location for the new environment monitoring initiative due to mounting complaints over environmental pollution linked to a number of large industrial

complexes in the area. The new demonstration project will gather data continuously through sensors installed in Gangseo District which will then be sent to the smart city center in the area, allowing local officials to get on top of the problems of environment pollution more quickly. In the past, complaints of environmental pollution took a long time to be dealt with because of the slow and tedious process involving physical visits from officials, but the new move

by the MSIP and MOLIT is set to shorten the environmental complaint process drastically through the use of CCTV cameras and IoT sensors that can help pinpoint the whereabouts of a problem and the level of pollution. The government plans to install the system in Gangseo District to go ahead with the environment monitoring initiative by the end of this year, with the prospect of expanding the system to other local governments across the nation from next year.

Qualcomm to Collaborate on 5G Small Cell Development with ITRI

Recently Qualcomm Incorporated through its subsidiary, Qualcomm Technologies, Inc., announced an intent to collaborate on 5G NR-enabled small cell technologies with Industrial Technology Research Institute (ITRI), a non-profit organization engaged in applied research and technical services. The effort is expected to accelerate delivery and global commercialization of 5G NR small cell products and infrastructure by Taiwanese original equipment manufacturers (OEM) and original design manufacturers (ODM). "This joint effort with ITRI is a key part of the investments we are making in Taiwan to ensure the industry continues to move rapidly toward deployment of 5G NR technology," said Jim Cathey, senior vice president and president, Asia Pacific & India, Qualcomm International, Inc. "Supporting rapid innovation of 5G NR small cells by OEMs and ODMs in Taiwan is a major step towards enabling much anticipated 5G experiences and will result in faster time to market and lower cost." "Small cells will be a key component of 5G networks, delivering enhanced performance utilizing both mmWave and sub 6 GHz spectrum, and we are looking forward to working closely with Qualcomm Technologies as a global leader in end-to-end 5G development," said Dr. Tzi-Cker Chiueh, General Director, Information & Communication Labs, ITRI. "This new collaboration will provide ITRI early access to Qualcomm Technologies' key 5G small cell technology, including the creation of industry-grade quality

assurance capability for communication protocol product and a live network test bed to enable product testing and performance verification under real world environment prior to product launch field trials. It places local companies and Taiwan in a leadership position to drive 5G networks of tomorrow." Small cells are commonly used in densely populated areas, such as city centers, airports, sports venues and shopping centers to provide supplemental capacity in those areas. Small cells are also often deployed in homes, offices and other indoor or outdoor areas for coverage enhancement. To cater to such varying deployment use cases, small cells come in various forms, such as femtocells, picocells and microcells – each variant offers varying levels of capacity and coverage area. Small cells can be deployed either in a distributed (or standalone) architecture or in a centralized architecture with remote radio heads (RRH). Small cells including RRH will be needed to realize the full potential of 5G and are particularly well suited to support a wide range of spectrum bands including sub-6 GHz and mmWave (e.g., 28 and 39 GHz); and to support hyper-densification with expanded capacity and coverage, especially in challenging indoor environments. Small cell innovation will also be a key enabler for new types of deployments, both in mmWave and sub 6 GHz bands, such as private 5G networks, neutral hosts and fixed wireless. "As a worldwide leading manufacturer of

telecom and broadband equipment, Sercomm has devoted significant R&D resources in finding innovative solutions to deliver enhanced telecommunication services. Through the collaboration with Qualcomm Technologies and ITRI, we look forward to continuing technology innovation on the path to 5G," said Ben Lin, Chief Technology Officer, Sercomm. "MOEA is very pleased to see the collaboration among Qualcomm, ITRI and Taiwan companies in 5G small cell development," said Dr. Ta-Sheng Lo, Acting Director General, DoIT/MOEA. "It is an imperative example showcasing how Qualcomm and Taiwan can collaborate to bring innovative technologies to the market quickly and transform our industry to the next level." Taiwanese manufacturers have played a key role in the development of the global small cell ecosystem from the inception of the technology. Qualcomm Technologies has engaged with and relied on various Taiwanese partners over the years to develop 3G and 4G small cell products to serve global operators and OEM customers. Through delivering 3G and 4G small cell platforms to vendors and operators around the world, Taiwanese manufacturers have built the reputation and expertise required to scale the market effectively and deliver quality platforms cost effectively. Taiwan is well suited to be at the forefront of 5G small cell development – driving products that will improve experiences of wireless consumers around the world.

REGULATORY NEWS

NCC Seeks Corporate Governance to Protect Telecoms Investment

Nigerian Communications Commission (NCC) has mandated all Mobile Network Operators (MNO) and Internet Service Providers (ISP) to fully integrate the industry's Code of Corporate Governance (CCG) towards sanitizing the sector, particularly to protect the sectorial multi billion dollars' investments. The Board and Management of NCC, during the week, gave further concrete expression to the Commission's 8-Point Agenda, particularly the eighth point related to operational efficiency and regulatory excellence, as it proclaims to the agreement of industry stakeholders, the activation of the enforcement of the telecom industry Code for Corporate Governance. By this declaration, the Code has become part of the extant regulatory instruments for telecommunications operation in Nigeria, said Professor Umar Danbatta, the executive vice-chairman of NCC during a Sensitization Workshop held in Lagos for operators in the sector. Nigerian Communications Commission (NCC) has mandated all Mobile Network Operators (MNO) and Internet Service

Providers (ISP) to fully integrate the industry's Code of Corporate Governance (CCG) towards sanitizing the sector, particularly to protect the sectorial multi billion dollars' investments. The Board and Management of NCC, during the week, gave further concrete expression to the Commission's 8-Point Agenda, particularly the eighth point related to operational efficiency and regulatory excellence, as it proclaims to the agreement of industry stakeholders, the activation of the enforcement of the telecom industry Code for Corporate Governance. By this declaration, the Code has become part of the extant regulatory instruments for telecommunications operation in Nigeria, said Professor Umar Danbatta, the executive vice-chairman of NCC during a Sensitization Workshop held in Lagos for operators in the sector. Factoring in direct & indirect investment in the Telecoms sector over the last 16 years, it has pulled in over \$68 billion said the EVC hence need for the Corporate Governance Code to guard against leadership mismanagement, unethical

practices and un-wholesome business structures. Speaking on the provisions of the Code, he said the centrality of telecommunication to all spheres of the Nation's life demands that "we raise the standards of leadership and management in the sector to sustain the sector's role as a driver of economic growth". The code, which has been in existence for four years, had earlier been presented to stakeholders in 2016 at an all-inclusive forum, as an instrument which provisions are mandatory as the Sensitization Workshop marked the commencement of the enforcement of the Code, indicating that NCC has activated the processes for monitoring compliance by sectoral players. "The adoption of the concept and principles are intended to present a win-win model of inter-relations predicted on openness, accountability, transparency and integrity," he said. Danbatta said that when all operators comply, it would aid the growth of the nation's economy beyond the current contribution of 9.8 per cent to the Gross Domestic Product (GDP).

Regulator Clears China Unicom Ownership Reform Plan



China Unicom's Shanghai-listed unit clarified strategic investors will provide no more than CNY61.7 billion (\$9.2 billion) of a total CNY78 billion it aims to generate through a private placement, as the company fleshed out the details of the plan following a green light from regulators. State-owned China United Network Communications (CUNC) reported to the Shanghai Stock Exchange

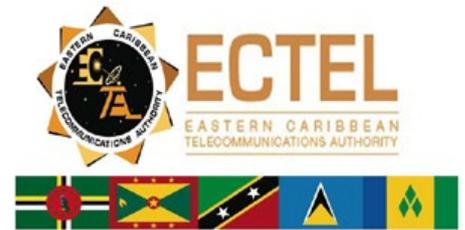
the operator will issue just over 9 billion shares to a group of 14 investors including Alibaba, Baidu, Tencent and state-owned China Life Insurance, Financial Times (FT) reported. In a statement, the company confirmed it will raise a further CNY3.2 billion by offering 84.8 million shares to some employees, and another CNY12.9 billion through a transfer of 1.9 billion shares to the China Structural Reform Fund. The private share placement cleared the final regulatory obstacle Sunday (20 August) after the country's securities regulator said the mixed-ownership plan doesn't violate rules. The China Securities and Regulatory Commission said in a statement it will "treat the private placement in China Unicom's ownership reform as an exceptional case". It said

it reviewed the relevant legal procedures with the National Development and Reform Commission and other departments, Reuters reported. Hong Kong-listed China Unicom announced last week, after a number of denials, it would raise funding by selling a 35 per cent stake in the company to a group of 14 strategic investors as part of the government's mixed-ownership reform effort. Shares of both companies resumed trading in Hong Kong and Shanghai today after they were suspended in the days before the 16 August announcement. The Chinese government is eager to encourage private investment to improve the country's telecoms infrastructure and fuel competition in the sector by reducing state ownership, but not control.

ECTEL Telecommunications Reform Slowly Gathering Momentum

The five member states of the Eastern Caribbean Telecommunications Authority (ECTEL) – Dominica, Grenada, Saint Kitts & Nevis, Saint Lucia, and Saint Vincent & the Grenadines – are moving forward with a wide-reaching telecoms reform program, with a new Electronic Communications Bill expected to come before the parliaments of each member state for debate and subsequent passage into law. The new Electronic Communications (EC) Bill was approved on March 18, 2017 and is designed to address issues such as consumer protection; submarine cable regulations, specifically in terms of defining conditions for fair access to submarine cable capacity; access to network infrastructure and wholesale services regulations, including rules on how operators with significant market power (SMP) allow rivals to access their networks; and new regulations and guidelines on the conduct of market analyses. It will replace the

Telecommunications Act when promulgated. The Council of Ministers approved the new legislation in October 2016. ECTEL's decision to enact new legislation stems from issues surrounding the 2015 USD3 billion regional merger of Cable & Wireless Communications (CWC) and Columbus Communications group. In March this year talks between ECTEL and the enlarged group – which trades under the Flow banner – ended without 'amicable' agreement. ECTEL is concerned about the potential anti-competition issues presented by the tie-up and has been working diligently with CWC since the merger announcement was made in November 2014. Having failed to secure agreement with CWC-Columbus on matters such as the minimum speed and price for entry-level broadband packages, maintaining an open internet, sharing of telecommunications infrastructure for existing and new entrants to provide new services, and protection provisions to



ensure customers are not disadvantaged by new services and pricing, to be implemented following the merger, ECTEL began to consider alternative ways of resolving its concerns. Subsequently, in September 2016 – with the latest round of talks having broken down – ECTEL decided to declare the joint operations dominant in the sector and review the legislation to return some balance to the market. ECTEL was established on May 4, 2000, by a treaty signed in St George's, Grenada, by the governments of the five Eastern Caribbean member states.

EE Threatens Legal Action over OFCOM Auction Rules

EE said it will take Ofcom to court if the regulator doesn't reverse a decision to set a spectrum cap on upcoming 4G and 5G auctions, a move which was backed by O2 UK. Ofcom in July announced plans to impose a cap of 340MHz on all UK operators for spectrum expected to be usable by 2020 in an attempt to reduce the share held by EE, the country's largest asset holder, and its parent company BT. At the time, O2 UK and 3 UK said the measure fell short, while EE believed it was unnecessary. Earlier this month 3 prepared to launch a legal challenge



against Ofcom's rules, which it said failed to address competition concerns. 3 is a long-term critic of the division of spectrum in the UK, and threatened action if Ofcom failed to address the market dominance of BT and Vodafone with its auction rules. As the UK's auctions for 4G and 5G spectrum were scheduled to be held by the end of 2017, legal action would significantly delay the allocation process. While EE accepted Ofcom's cap for 4G, the operator wants to be able to take part in the auction for the most up-to-date 5G spectrum. An EE company representative said: "In response to 3's action, we have made the difficult decision to challenge the proposed structure of the next auction of mobile spectrum. We need to protect our customers' mobile experience, and help build the platform for the UK to have the highest quality 5G networks." According to Financial Times, Ofcom said any legal action puts the future of mobile data at risk by potentially delaying the issue of new spectrum and airwaves. The regulator warned of a potential knock-

on effect on the rollout of 5G services, which have already been held up by 3's attempted acquisition of O2, owned by Telefonica. Meanwhile, O2 CEO Mark Evans said 3's "legal action will inevitably cause delay to the auction and gives no thought to the impact and harm this will have to UK customers, companies and economic growth." In a statement, Evans said he believes any litigation must be swiftly dealt with, and Ofcom should press on with its auction plans "either on a permanent or temporary basis" to enable "spectrum to be used whilst a potentially protracted legal process in relation to the 3.4GHz spectrum is contested." "This country desperately needs more mobile airwaves. It is possible to hold the 2.3GHz auction now and grant immediate access to the newly-available spectrum. Ofcom can and must act," he added. According to GSMA Intelligence, EE led the UK market with a 32 per cent market share in Q2 2017, followed by O2 (30 per cent), Vodafone (24 per cent) and 3 (13 per cent).

TRAI Releases Recommendations on Cloud Services



Telecom Regulatory Authority of India
(IS/ISO 9001-2008 Certified Organisation)

Telecom Regulatory Authority of India (TRAI) issued its recommendations on Cloud Services. Cloud services in India have been growing in the past decade with other IT companies eyeing Indian customer base. "From 2012 to 2015, demand of cloud computing accounted for 70% growth of related IT market," TRAI said. This move comes in response to Department of Telecom (DoT)'s vide letter dated December 31, 2012, which sought recommendations from TRAI on Cloud Services on broad eight categories. The categories as listed by TRAI were as follows – regulatory framework, security over the cloud, cost benefit analysis, quality of service, inter-operability, incentivization, legal framework, implementation strategies of

cloud services in government. Some of the main features of recommendations by TRAI are mentioned below:

1. Light touch regulatory approach has been adopted to regulate cloud services.
2. DoT shall prescribe a framework for registration of cloud service providers (CPs) industry bodies, which are not for profit. All CSPs above the threshold to be notified by the government have to become member of one of such industry body.
3. Industry body will prescribe Code of Conduct (CoC) for its functioning which have to be followed by their members. In addition to CoC, there will be a governance structure of the industry body aimed to support effective and transparent implementation, management and evolution of the CoC. Industry body, not for profit may charge fee from its members, which is fair reasonable and non-discriminatory.
4. Industry body will also have a disclosure mechanism to promote transparency regarding inter-operability, billing, data security and other related matters.
5. A Cloud Service Advisory Group (CSAG) to be created to function as oversight body to periodically review the progress of cloud services and suggest actions, if any, to the government.
6. Telecommunication Standard Development Society of India (TSDSI) has been tasked to develop standards for ensuring interoperability for cloud services.
7. Government may consider enacting an overarching and comprehensive data protection law covering all sectors.
8. Government shall draw a robust Mutual Legal Assistance Treaty (MLAT) to address the jurisdictional issues and amend existing MLATs to include lawful interception of access to data on the cloud.
9. Government shall continue its policy to promote cloud services through cloud infrastructure projects. Ministry of MSME may also continue to promote adoption of ICT in the sector including providing subsidies as being done at present.

BSNL Appeals for License Extension

State-owned full service provider Bharat Sanchar Nigam Limited (BSNL) has appealed to the government to extend its mobile and spectrum licenses for two years, pushing the expiry date to 2022. The operator noted that the permission it was granted in 2000 was only a letter of intent that would later be converted to a full license, subject to certain other

conditions, with the license upgrade not taking place until March 2003. The Times of India quotes BSNL Chairman Anupam Shrivastava as saying: 'We were given [the] license in 2000 subject to finalization of terms and conditions by licensor on recommendations of the Telecom Regulatory Authority of India (TRAI), and the first rollout was done in

2002. Therefore, the license's effective date should be from 2002 for a period of 20 years.' BSNL's sister company Mahanagar Telephone Nigam Limited (MTNL) – which provides services in the Delhi and Mumbai circles – appealed to have its licenses extended by two years, from April 2019 to January 2021.

Mauritius Telecom, ICTA Ordered to Pay Emtel Following Unfair Competition Ruling

The Supreme Court of Mauritius has this week issued a ruling in favor of mobile network operator (MNO) Emtel in a case dating back 20 years, Agence Ecofin reports. Emtel had previously accused Mauritius Telecom of unfair competition, while arguing that the Information & Communication Technologies Authority (ICTA) had failed to act against the

incumbent telecoms company. Emtel was awarded an exclusive GSM contract from 1 January 1989 to 31 December 1995, while in March 1996 Mauritius Telecom launched mobile activities via its subsidiary Cellplus Mobiles Communications, despite not being granted a license to offer such services until 5 September 1996. With the judge

ruling that Emtel had suffered in the period where Mauritius Telecom was offering mobile services without a license, it was also determined that the ICTA had failed to intervene in the matter. As a result, Emtel will receive MUR554 million (USD16.2 million) of the MUR1 billion it had been seeking from the two parties concerned.

FCC Consults on Mid-Range Spectrum Bands for 5G

The FCC has opened a public consultation on opening up new bands of spectrum above 3.7 GHz and below 24 GHz for 5G mobile services. Specifically, it's considering the mid-range bands 3.7-4.2 GHz, 5.925-6.425 GHz and 6.425-

7.125 GHz, while respondents can also identify other frequencies not in use by the government that may be suitable for use. In addition to interest in the bands, the regulator is looking for feedback on how to allow flexible use while avoiding

interference. This may include different types of authorization, such as non-exclusive or unlicensed use, or modifying existing service rules to make the bands more suitable for mobile.

NBTC Creates Subcommittee on OTT Regulatory Framework

The board of the National Broadcasting and Telecommunications Commission (NBTC) assigned its subcommittee yesterday to amend a draft of the over-the-top (OTT) regulatory framework that will cover all digital... The board's resolution represents a significant change of stance after it earlier defined OTT video-on-demand services as part of the broadcast business under a sweeping regulatory framework. "The board wants to see the OTT regulatory framework cover broadcasting, telecom and digital media," NBTC Secretary General Takorn Tantasith said. OTT includes digital applications or services that operate on internet networks such as mobile VoIP apps, mobile instant messaging, online video and TV, and online music, he added. The same board approved a decision to add four more members to an existing subcommittee tasked with working on the framework that was set up in line with an NBTC resolution issued in April. It currently... Mr. Takorn said several parties have expressed concern about the draft of the framework and have requested revisions. It is scheduled to be completed in September. In April, the board decided video-on-demand falls into the broadcast business segment. But at the time, the NBTC's top goals were dealing with "improper content", especially video-streaming on social media, and creating fair competition in the TV industry. The subcommittee said it oversee OTT businesses based on the following laws: the NBTC Act, the Broadcasting Business Act, and the Radio Communications Act. The subcommittee ordered



OTT operators and OTT platform providers to register within 30 days of the framework being addressed. It also tried to ban advertising activities on unregistered OTT platforms. Facebook, YouTube and Netflix were among the OTT platform providers that failed to register. But OTT services involve sophisticated issues and require careful handling, especially in the event of regulatory drafting, said Bunyati Kirdniyom, Director of Vriens & Partners. He pointed to previous attempts to regulate OTT video services by the European Commission (EU) from which lessons could be learned.

ICCC Gives Green Light to Merger of Telikom and bmobile

Papua New Guinea's Independent Consumer and Competition Commission (ICCC) has approved the proposed merger of local fixed line incumbent Telikom PNG with mobile network operator bmobile-Vodafone. Summarizing its assessment of the planned tie-up, the ICCC said it believed that the enlarged company would not be able to 'significantly and sustainably' increase prices, while it did not envisage that the merger would 'substantially increase or reinforce any vertical integration'. Moreover, with the ICCC claiming the merger would in fact be 'pro-competitive', it has argued that

it will create a company that is stronger in financial terms and more able to increase its investment. Commenting on the matter, ICCC chief executive Paulus Ain said: 'Based on available information, the ICCC has assessed the potential competition effects of the Telikom/bmobile merger and is satisfied that [it] would not have, or would not be likely to have, the effect of reducing or lessening competition substantially in the market for the provision of retail mobile voice, SMS and internet services in PNG.' Also of note, meanwhile, the ICCC has confirmed its withdrawal of the clearance

application for a merger between Telikom and PNG DataCo, the latter of which is responsible for overseeing the construction of the country's National Transmission Network (NTN) and acting as a non-discriminatory provider of telecommunications transmission services over that infrastructure. With this development said to have come about at the request of the applicant, Kumul Consolidated Holdings Limited (KHCL), the ICCC said no reasons were provided by that company as to its decision to withdraw its merger application.

Three UK Confirms Intention to Initiate Legal Challenge over 2.3GHz/3.4GHz Auction Rules

British mobile network operator (MNO) Three UK is preparing to launch a legal challenge over the rules for the country's upcoming of spectrum in the 2.3GHz and 3.4GHz bands, according to The Register. With the cellco having argued that the rules – which Ofcom outlined last month – failed to address competition concerns, a representative for Three UK confirmed it has notified the regulator concerning its intention to seek a judicial review of the matter in the High Court. In terms of the timings for this review, the MNO has suggested it should not delay commercial deployments of 5G technology, noting: 'We anticipate a short process and a court decision by early 2018. Ofcom does not expect commercial 5G services in the UK before 2020, so this short process

will not impact the availability of 5G to UK consumers.' Explaining the reasoning behind its decision, a statement by a Three UK regarding the matter added: 'For a relatively short process, we feel it is a proportionate response to request an independent review of Ofcom's proposal, which we feel unduly puts at risk its stated objective of a competitive four-player market and is to the detriment of UK consumers.' As previously reported by CommsUpdate, as per Ofcom's plans it will impose two different restrictions on bidders, which will limit the amount of spectrum that can be won in the 2.3GHz band, while also placing an overall cap on the total frequencies that any single company can lay claim to across both bands in aggregate. In line with this,

Ofcom has said it will introduce a cap of 255MHz on the 'immediately useable' spectrum that any one operator can hold following the auction; this cap, the regulator noted, means that BT/EE will not be able to bid for spectrum in the 2.3GHz band. In addition, Ofcom will implement a cap of 340MHz on the overall amount of mobile spectrum a single operator can hold once the sale process concludes. As a result of the watchdog's stipulation, it has been noted that BT/EE will only be able to win a maximum of 85MHz in the 3.4GHz band, while Vodafone UK will be pegged to a total of 160MHz across both 3.4GHz bands; based on the current spectrum holdings, however, there will be no restriction on the amount of spectrum any other bidder could win.

Vodafone/Idea Merger Gets Conditional Approval from SEBI

The proposed merger of India's second and third-placed wireless providers Vodafone India and Idea Cellular has been granted conditional approved by the Securities and Exchange Board of India (SEBI). The Economic Times writes that the conditions of SEBI's approval relate to a complaint that one of Idea's promoters had purchased 0.23% of Idea's shares before the announcement of the merger agreement, in violation of securities laws.



Idea has given a voluntary undertaking

not to dispose of the shares in question until it receives further direction from SEBI. The cellco also stated that if the complaint was found to be valid, any liability would be bore by Idea Cellular. Vodafone and Idea have now filed for an approval with the National Company Law Tribunal (NCLT). The merger has already been greenlit by the nation's antitrust watchdog, the Competition Commission of India (CCI).

3 UK Seeks High Court Review of 5G Auction Rules

3 UK is set to launch a legal challenge against Ofcom's rules for an upcoming 4G and 5G spectrum auction, which the operator said fails to address competition concerns. A company representative confirmed it notified Ofcom of its intent to seek a judicial review in the UK's High Court. It expects the process to be complete by early 2018 – a timeline it said would not impact the country's 5G rollout timetable. However, as the UK's auctions for 4G and 5G spectrum were scheduled to be held by the end of 2017, legal action would significantly delay the allocation process. In a statement, the company representative said: "It is

absolutely vital that the regulator gets this auction right for the long-term benefit of all consumers. For a relatively short process, we feel it is a proportionate response to request an independent review of Ofcom's proposal, which we feel unduly puts at risk its stated objective of a competitive four-player market and is to the detriment of UK consumers." The move comes as little surprise. 3 is a long-term critic of the division of spectrum in the UK and threatened action if Ofcom failed to address the market dominance of BT and Vodafone with its auction rules. In its subsequent announcement, the regulator said it would impose a spectrum

cap to limit the participation of the UK's largest operators in the 3.4GHz band – earmarked for 5G. Its new rules also effectively banned EE from bidding on 40MHz of 2.3GHz spectrum also set to be allocated. Following the announcement, 3 slammed Ofcom for not going far enough, with CEO Dave Dyson describing the rules as a "kick in the teeth" for consumers. Although Telefonica's O2 UK was also critical of Ofcom's new guidelines, it appeared to rule out legal action, highlighting the importance of pressing ahead with the auction quickly.

20% of Tajikistan's SIM Cards Deactivated in Registration Purge

More than two million unregistered pre-paid mobile SIM cards, or roughly 20% of the country's total SIMs, have been disconnected in Tajikistan following the completion of the national re-registration program which was launched last year, according to Eurasian ICT website Digital. Report, quoting an announcement from

the deputy head of the telecoms regulator, the Communication Service under the Government of the Republic of Tajikistan. TeleGeography's GlobalComms Database says that Tajikistan's main cellcos Babylon-M, MegaFon, Beeline and Tcell began the re-registration of all SIM owners' identities in Oct-Nov 2016, in accordance

with a government ruling of April that year, with a June 2017 deadline. The state ruling – aimed at improving national security – also provided for tighter regulation of sale of new SIM cards, which now require a buyer's identity to be confirmed, whilst imposing a maximum of two active SIM cards per individual customer.

Government to Create Two New Broadband Firms; TOT to Introduce IP Lines By 2025

Thailand's Ministry of Digital Economy and Society (MDES), and related units, are planning to establish two companies to boost the provision of broadband services to the public and governmental units, in accordance with the Cabinet's resolution on June 13. According to the National News Bureau of Thailand, the new state enterprises will be named the National Broadband Network Company (NBN) and the Neutral Gateway and Data Center Company (NGDC). Both companies will provide and manage internet access and related equipment to satisfy the nation's growing demand. The companies will be registered later this month, and are expected to be operational by November. In other news, state-backed telco TOT has stated that it plans to upgrade its existing basic fixed lines to the IP standard by 2025, in a bid to offset the downturn in demand for fixed line services. Anurut Uthairat, TOT's senior executive vice-president for

fixed line services, told the Bangkok Post that the upgrade will enable TOT to double its fixed line ARPU, to THB400 (USD12) per subscriber. The network transformation plan will form part of TOT's strategic roadmap after the end of True Corporation's fixed line concession in the Bangkok Metropolitan Area (BMA) on Oct 29 this year. Finally, the Bangkok Post has reported that the BMA will take over TOT's job of pipeline construction for moving overhead telecom and broadcasting cables underground in Bangkok. The government seeks to relocate all overhead electricity wires and telecom broadcasting cables on 39 roads in Bangkok, Samut Prakan and Nonthaburi underground by 2020, but TOT has proven ill-suited to the task. The BMA will charge telecom and broadcasting operators a rental pipeline fee of THB18,000 per kilometre per month – the same rate previously set by TOT.

South African Telecom Regulator Eyes New Regulations



South Africa could impose a new plan to lower mobile call termination rates when the current three-year regulations end on September 30, the telecom regulator's acting chairman said. The Independent Communications Authority of South Africa (ICASA) in 2014 implemented a three-year "glide path", the timetable for bringing down rates

gradually, for telecoms companies, including Vodacom and MTN. "As to whether we will determine a new glide path or will then regulate certain aspects of the voice market, it's a decision that we will make and that will be in effect from October 1," Rubben Mohlaloga, an ICASA councillor and acting chairman told reporters in parliament.

FCC Approves Apple's Application to Test Millimeter Wireless Tech for 5G Applications

According to a report by DSL Reports, the Federal Communications Commission (FCC) has granted Apple a license to test #5G #wireless #broadbandtechnologies. The FCC approved Apple's application

for an experimental license to test #millimeter wave technology in two locations near the company's offices in Milpitas, California. The application makes particular reference to using the

28 and 39 GHz bands, which the FCC approved for commercial use for 5G services last year.

DoT Introduces New Hurdle for RCOM/Aircel Merger

India's Department of Telecommunications (DoT) has announced that it will only grant its approval for the planned merger of wireless providers Reliance Communications (RCOM) and Aircel once the deal has been greenlit by the Supreme Court. The Economic Times writes that the DoT is wary of clearing the deal whilst there remains a risk that the apex court may order the withdrawal of Aircel's licenses.

Earlier this year, the Supreme Court had threatened to take such action if the senior executives of Aircel's parent, Maxis

Berhad, continued to refuse to appear in court in India in relation to accusations of bribing politicians and officials.



BTRC to Adjust Mobile Voice Call Rates

Bangladesh Telecommunication Regulatory Commission (BTRC) has made a surprise move to adjust mobile call rates which, if implemented, will increase consumers' call expenditure by about 10 percent. At a Commission meeting on July 24, the regulator decided to propose a 40 percent hike in the minimum voice call rate within the same operator (on-net) and a 25 percent cut in the minimum call rate for other network (off-net), according to meeting documents. The BTRC, which sent the proposal to the posts and telecommunications ministry last week, says the move will reduce the gap between on-net and off-net call charges like in other developed countries. Private mobile phone operators welcomed the move though they did not place any proposal before the telecom regulator or the government in this regard. The adjustment will fetch the three private operators -- Grameenphone, Robi and Banglalink -- Tk 121 crore in additional monthly revenue, but state-owned Teletalk will lose Tk 4 crore a month, business insiders said. Last month, the telecom regulator sent a separate proposal to the posts and telecommunications division for increasing the tariff of broadband internet, which is yet to be approved. In the current budget, the government also imposed an additional 5 percent import tariff on mobile sets. In the July 24 meeting, the BTRC decided to propose that the ministry increase the minimum on-net call rate to Tk 0.35 per minute from existing Tk 0.25, and cut the off-net rate down to Tk 0.45 per minute from Tk 0.60. "We sent the proposal to the government last week, but there are other realities. So we may discuss

the issue again and revise it. We may bring some changes," BTRC Chairman Shajahan Mahmood told The Daily Star last night. "This is not an unaffordable increase," said TIM Nurul Kabir, secretary general of the Association of Mobile Telecom Operators of Bangladesh. "We are offering one of the lowest tariffs in the world and revenue per users in every month is also one of the lowest in this market, though per-capita income has increased significantly," said Kabir. The move will also increase government's revenue earning, as the government gets 45 to 50 percent of mobile operators' revenue. "It will be a win-win situation," he said. Telephone operators' expenditure has increased in the last few years but their earning from voice call have not. The earning from voice call has rather remained static at a minimum level amid extreme competitions in the market, the official said. The BTRC also proposed slashing the maximum voice call rate to Tk 1.5/minute from Tk 2 now, said another official. However, insiders say the change in ceiling rate won't have much of an impact because this level of call rate is now very rare. In 2010, after a cost modeling study, the telecom regulator with assistance from the International Telecommunication Union (ITU) fixed the floor and ceiling rate of the present voice call rate. Before that there was no official study from the regulator and call rates used to be set arbitrarily. Back then, the call rate ranged between Tk 7 and Tk 10 per minute for long. This time the telecommunication regulator has conducted a study of its own, which shows top operators will gain from this changes while the smallest operator,

Teletalk, will lose. Currently the country's total on-net call volume is around 1,865 crore minutes a month which has a value of Tk 446.24 crore, according to the study, which was done based on information of April-June this year. The report says that if the government increases the minimum on-net call rate to Tk 0.35 and if the operators can maintain the same call volume, then the value will increase by Tk 186 crore to Tk 653 crore a month. In the off-net segment, average call volume was 463.38 crore minutes worth Tk 278 crore a month. If the government slashes the rate, earnings will come down to Tk 209 crore. The rate hike will increase Grameenphone's income from on-net calls by Tk 112 crore a month. However, it will lose Tk 19 crore from the off-net segment. At present, the company's monthly earnings from these two segments stand at Tk 280 crore and Tk 754 crore respectively. The newly merged operator Robi's on-net income will increase by Tk 45 crore a month, which is now Tk 104 crore. In the off-net segment, the company will lose Tk 26 crore from its current monthly revenue of Tk 112 crore. Banglalink's on-net earnings will increase by Tk 29 crore, while its off-net section will lose Tk 20 crore a month, according to BTRC's study. Its current on-net call earning is Tk 71 crore and that from off-net Tk 78 crore. State-run Teletalk now earns Tk 2.32 crore in on-net revenue a month and Tk 20 crore from off-net segment. If the BTRC proposals are approved, it will earn Tk 1 crore more per month from the on-net calls and lose Tk 5 crore from off-net calls.

No Plans for MTNL/BSNL Merger, Says Minister

Indian Telecom Minister Manoj Sinha has denied reports that the government intends to merge state-owned telecom providers Bharat Sanchar Nigam Limited (BSNL) and Mahanagar Telephone Nigam Limited (MTNL). The Economic Times quotes the official as saying in a speech to parliament yesterday that there are, at present, no proposals to merge the two entities, but given MTNL's recent financial performance the operator has been classified as an 'Incipient Sick Central Public Sector Enterprise (CPSE)'. As such, and in line with the Department of Public Enterprise (DPE) guidelines, 'the Department of Telecommunications (DoT) has to formulate revival/restructuring/closure road map for MTNL,

the process of which has been initiated.' MTNL's net loss for the period 2016/2017 financial year widened to INR29.63 billion (USD465 million) from INR19.46 billion



in the preceding year. The prospect of merger of the two operations has wavered in popularity since it was first proposed around a decade ago, with proponents arguing that by removing the geographical

separation – MTNL operates in the Delhi and Mumbai circles whilst BSNL serves the other 20 areas – the enlarged company could compete more effectively with its privately-owned rivals, whilst opponents have dismissed the plans as too complicated. As previously reported by TeleGeography's CommsUpdate, the Mr. Sinha's predecessor rejected the idea of a merger in early 2015 but the proposal has since regained momentum, with a senior MTNL official noting in April 2016 that a merger was expected within the subsequent three to four years. Most recently, in March 2017 a parliamentary committee recommended combining the two firms as a means to ensure their 'long term survival and success.'

Plans for Broadband USO Could Be Reconsidered as BT Offers to Ensure Coverage

British fixed line incumbent BT has offered to ensure that 99% of the UK's premises are able to access broadband at downlink speeds of at least 10Mbps by 2020, the BBC reports. The telco plans to spend up to GBP600 million (USD788 million) to achieve this goal – with universal coverage targeted by 2022 – which, if realized, could mean that the broadband universal service obligation (USO) which is currently under consultation by the government would no longer be required. BT has suggested it will achieve the 99% coverage level using a range of technologies, including fiber

and fixed-wireless, while it noted that by 2022 it expects less than 1% of customers to be receiving broadband via satellite, as opposed to 'built infrastructure'. Moreover, BT has said it is already well on the way to achieving the target, claiming that 95% of British premises will be able to access speeds of 24Mbps or faster by the end of this year. With regards to the plans, BT Group chief executive Gavin Patterson was cited as saying: 'Our latest initiative aims to ensure that all UK premises can get faster broadband, even in the hardest to reach parts of the UK.' For the government's part, it is now expected to

consider whether to abandon the USO in light of BT's offer. The Department for Digital, Culture, Media and Sport (DDCMS) has reportedly said it will consult on BT's proposal, with it understood that, if the offer is accepted, it would become legally binding. Culture Secretary Karen Bradley noted: 'We warmly welcome BT's offer and now will look at whether this or a regulatory approach works better for homes and businesses ... Whichever of the two approaches we go with in the end, the driving force behind our decision-making will be making sure we get the best deal for consumers.'

Samsung Adds Data Monetization to IoT Platform

Samsung announced a new addition to its Artik Internet of Things (IoT) platform that enables OEMs to charge for IoT data. Device makers can use Cloud Monetization for the Internet of Things as a brokering, metering and payments system to create service plans that measure and bill for interactions between devices and services. It also helps them to make their products interoperable with third-party devices and applications. "This is part of our long-term strategy to facilitate the development of secure

IoT products and services, promote wide-scale interoperability, and create a platform and business model for an entire IoT ecosystem to thrive," said James Stansberry, SVP and global head of Artik at Samsung. Cloud Monetization aims to help OEMs move away from the old operating model of absorbing the data costs of devices in the field or factoring in anticipated data costs into the retail price of their products. "The problem with IoT is that many hardware companies are selling products without a clear view on

sustainable business models. There's a lot of pressure now to monetize data," said Dilip Sarangen, global research director, IoT and digital transformation at Frost & Sullivan. "Samsung Artik Cloud Monetization is out in front in addressing a crucial need in the market. It can help hardware developers monetize solutions without necessarily putting in all the effort themselves. "This is a huge value proposition, especially on the consumer side, which has an untapped potential, but also on the enterprise side."

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



Bahrain

Average LTE mobile data performance in Bahrain rose to 23.4 megabytes per second (Mbps) during the second quarter (Q2) of the year, up from 16.6 Mbps averages recorded in Q1, said the kingdom's Telecommunications Regulatory Authority (TRA). "We noticed an overall performance drop of nearly 26 per cent between Q4 of 2016 and the first quarter of this year and are glad to see that data performance has bounced back in the second quarter," said Sheikh Ahmed Bin Isa bin Duaij Al Khalifa, TRA's Manager of ICT, commenting on the Authority's Broadband Quality of Service Report for the first half of 2017. "This report is published regularly to keep consumers informed of the most current performance conditions in their areas. Consumers can also expect that we are in the process of publishing an updated regulation on the quality of service to ensure users enjoy the best service possible," he added. The broadband report includes several technical indicators for the use of wireless and wired broadband services that will provide consumers in residential consumers and businesses with information which can be used to determine which service provider is best suited to each consumer. All of the indicators have maintained similar high performance levels when compared to the first quarter. For instance, the average HTTP download speed for regular, fixed-line residential packages performed at an average of 6.5 Mbps, remaining unchanged between Q1 and Q2 of 2017. High-Speed residential packages on the other hand have had varied results. Eight Mbps packages rose to 13 Mbps on average in Q2, compared to 7.7 Mbps in Q1, while 25 Mbps packages slightly dropped to 22.3 Mbps on average compared to 24.3 Mbps in Q1, and 100 Mbps packages dropped to an average of 88.2 Mbps in Q2, compared to 94.1 Mbps in Q1. (August 15, 2017) trade Arabia.com

The Telecommunications Regulatory Authority (TRA) has clarified that it has not issued any directions with regard to mobile package pricing in the kingdom. "Due to the volume of enquiries regarding mobile packages, the Telecommunications Regulatory Authority would like to clarify that any changes in retail services in the mobile market are purely a commercial decision made by mobile providers due to competition among them and that TRA has not issued any directions with regards to pricing," a statement from TRA said. "TRA would also like to outline that the mobile market in the Kingdom of Bahrain is highly competitive and that ex ante regulation of retail services in this market has been removed according to TRA's Determination on Significant Market Power Designation which was published in 2008. The removal of ex ante regulation for this sector came following TRA's announcement of introducing a third mobile operator in the same year. "The mobile market in Bahrain has seen a significant development since the introduction of the third mobile operator and the removal of

the ex-ante regulation of mobile retail services," said TRA's manager of consumer affairs Mariam Almannai. "The latest market indicators issued by TRA show that telecoms service prices have fallen by 73 per cent between 2008 and 2016 and the number of mobile subscriptions has doubled to 3 million subscriptions by the end of 2016. Mobile penetration has reached 213 per cent at the end of the same year. The indicators show how the decisions taken by TRA are effective in enhancing competition and meeting the needs of subscribers and users in this market," she added. Almannai also stated: "As part of its mission to maintain the interests of subscribers and promote competition, TRA continuously monitors the ongoing developments in the kingdom's telecommunications market and takes the necessary measures to protect the interests of subscribers and users and promote and ensure continued fair and effective competition between telecommunications providers." Meanwhile, TRA, in implementing the objectives of the Fourth National Telecommunications Plan (NTP4), is in the process of conducting a comprehensive strategic study of the mobile market. The study will help identify future developments, including technologies, market trends and business models, it said. The study will also recommend a set of regulatory measures to ensure further strengthening of this vital and important sector in line with the objectives of the NTP4. TRA is also in the process of issuing new regulations aimed at protecting the interests of subscribers in general and establishing standard procedures for resolving disputes relating to telecommunications services emerging between subscribers and telecoms providers, it added. (August 1, 2017) trade Arabia.com

The Telecommunications Regulatory Authority's (TRA) call center received a total of 5,280 calls in 2016 compared to 3,407 in the previous year; a 35 per cent leap attributed to higher awareness levels. Ninety-nine per cent of calls were resolved on the spot, improving by a 4 per cent margin compared to 2015. Response success rate were 98 per cent improving by 2 per cent from the previous year despite higher call volume. An exceptional service level was also achieved, maintaining at 94 per cent between 2015 and 2016 despite a larger volume of callers. The number of complaints jumped to 796 in 2016, compared to 401 in 2015, a rise of 50 per cent. Ninety-three per cent of complaints were closed in 2016 compared to (92 per cent) in 2015. It reduced from an average of 18 days in 2015 to 15 days in 2016 to close complaints. The highest, most frequent categories among complaints were network service performance (31 per cent), billing and invoicing (23 per cent) by the end of last year. Roaming, number portability, and contractual issues were also among the complaints received during 2016. "We undertake a number of consumer-centric

operations and activities in favor of the consumer, taking into account the most immediate needs as the situation demands, year round," said deputy general director of TRA, Sheikh Nasser Bin Mohamed Al Khalifa. "We achieve this with a multi-tiered approach ranging from consistent communication channels, to awareness programs, following the Authority's efforts to enhance the general public with consumer concerns topics in

the telecom sector." Various steps have been put into place by the TRA on how consumers can be approached to help them resolve telecommunication issues. Consumers are asked to call TRA's Consumer Call Centre on 81188, log-on to the consumer portal on consumer.tra.org.bh, or send an email via the site.

(July 31, 2017) trade Arabia.com



Bangladesh

The Bangladesh Telecommunication Regulatory Commission (BTRC) is slashing 4G licensing fees by a third on government advice, ahead of the 4G spectrum auction expected this September. The license acquisition fee is dropping to BDT100 million (USD1.22 million) whilst the annual license fee falls to BDT50 million following a meeting with the Prime Minister's ICT Affairs Adviser. A decision was also taken to lift restrictions on the source of funding for the license auction: the BTRC had earlier recommended making it mandatory to ensure all investment was in foreign currency. The report adds that the spectrum conversion fee for technology neutrality in the existing 900MHz and 1800MHz allocated bands will also be brought down to USD7.5 million per MHz from USD10 million, whilst the BTRC had earlier amended another of its recommendations following Joy's advice, reducing 4G licensees' revenue sharing portion with the regulator to 5.5% from 15%. The latest amended guidelines have been forwarded to PM, who also heads the Telecom Ministry. State Minister for Telecom was quoted as saying: 'Hopefully, we will be able to award the license by mid-September.' (August 4, 2017) The Daily Star

Robi has received the final approval from the telecom regulator on its merger with Airtel – a development that has made the new entity the second largest mobile phone operator in Bangladesh. Bangladesh Telecommunication Regulatory Commission (BTRC) issued the 'Order of Merger of License' after completing all formalities and receiving fees and charges for the merger. The merged entity, to be known as Robi Axiata Ltd, served 3.87 crore customers together as of May this year,

giving it a market share of 28.7 percent. The new entity paid Tk 100 crore as merger fees in addition to several hundred more for merging the spectrum of Airtel with Robi. Robi also has deposited a bank guarantee for some disputed sums related to unresolved value added tax issues. The telecom regulator has issued a single license for the new entity as Robi and Airtel were issued separate licenses for 2G and 3G services, said a senior official of the BTRC. Earlier in November last year Robi started taking control of all the business processes of Airtel soon after the Registrar of Joint Stock Companies and Firms gave them the go-ahead. The management of Robi has welcomed the regulator's move, saying since the completion of the merger in November they have been offering competitive products for both 018 and 016 series customers. The management said Robi's network has now become the largest in the country, which, it says, will allow it to serve its customers better. Both the parent companies of Robi and Airtel opened talks on the merger in August 2015, and a deal between the two parties was signed in January last year. In the merged entity, Malaysia-based Axiata, the parent company of Robi, holds a 68.7 percent controlling stake. India's Bharti Airtel holds 25 percent share in the company while Axiata's old partner NTT DOCOMO of Japan owns 6.3 percent share. Robi started operations in 1997 under the brand name of Aktel. The operator renewed its license in 2011 after completing its first 15-year tenure. Airtel entered Bangladesh in 2010 by acquiring a 70 percent stake of Warid Telecom. In 2013, it bought the remaining 30 percent.

(August 2, 2017) nationmultimedia.com



Egypt

The number of land line subscriptions increased in April by 7.5% compared to the same period in 2016. According to a report by the Ministry of Communication and Information Technology, the number of land line subscriptions has reached 6.1 million up from 6.5 million, with an increase of 400,000 new subscriptions. Additionally, the number of subscriptions increased by 5.3% in April compared to March 2017, where they reached 6.23 million in March. According to the report, the land line subscriptions rate to population recorded 7.1% in April compared to 7% during the same period of 2016. The land line subscriptions from home accounted for 89% of the total land line subscriptions, followed

by commercial subscriptions with 9%, while the government sector reached 3%. (August 23, 2017) dailynewsegyp.com

The number of mobile subscribers in Egypt reached 99.1 million in April, up from 95.2 million in April 2016, an increase of 4.1%, according to a latest report. The report revealed a decline of 0.17% in the number of mobile subscriptions to reach 99.91 million in April down from 99.9 million subscriptions in March. Mobile phone subscriptions reached 111.4% of Egypt's population. On the other hand, the Internet market lost about 2.5 million subscribers in April compared to the same period in

2016. According to the ministry's report, the number of Internet subscribers fell from 43.66 million in April 2016 to 41.1 million in April 2017. According to the report, the number of mobile Internet users fell from 36.08 million in April 2016 to 33.19 million in April 2017, while the number of users rose from 30.45 million in March 2017 compared to 33.19 million in April 2016. The report pointed to a decline in the number of Internet users via USB modem devices from 3.5 million subscribers in April 2016 to 3.2 million in April 2017, a decrease of 6.94%. The report also showed that the number of ADSL subscribers increased by 12.7% in April compared to the same period in 2016, where the number of users increased from 4.05 million in April 2016 to 4.5 million users in April 2017. Vodafone grabbed the largest share of new customers in January, adding more than 356,800 clients that month, boosting its client base from 40.2 million in December 2016 to 40.6 million in January, according to data from the Ministry of Communication and Information Technology. On the other hand, the number of subscribers of Orange dropped from 33.8 million in December to 33.7 million in January, losing some 89,400 clients in one month. Etisalat obtained more clients, rising from 23.6 million clients in December to 23.8 million by the end of January 2017, with 175,000 new subscribers. According to the indicators, the sheer number of mobile service subscribers increased by 442,500 clients in January. The total number of mobile services reached 98.2 million in January, up from 97.7 million in December 2016. (August 22, 2017) menafn.com

The Minister of Communications and Information Technology Yasser Elkady has received the Regional Director of the Arab Regional Office at the International Telecom Union (ITU) Ebrahim Al-Haddad, where he discussed Egypt's participation in the Financial Inclusion Global Initiative (FIGI), launched by the World Bank Group (WBG), the ITU, the Committee on Payments and Market Infrastructures (CPMI) and Bill & Melinda Gates Foundation (BMGF). The Initiative aims to disseminate digital financial services in developing countries and accelerate the access of citizens to these services through official institutions. The three model countries –selected to participate in implementing the initiative– are Egypt, China and Mexico. The selection of Egypt to participate in the Initiative was based on the State's digital transformation strategy– which aims to

disseminate the concept of financial inclusion– the cooperation of various government agencies to provide better services to citizens, and the government's ability to integrate more than 44 million citizens into the formal financial sector. This is in addition to the availability of laws, regulations and technological infrastructure, and the state's support to the dissemination of the innovation and digital technology culture. Elkady ascertained that Egypt has made great progress in providing financial inclusion services, whether through modernizing the infrastructure or applying regulatory frameworks in the sector. He underlined the role played by the Ministry of Communications and Information Technology (MCIT) to provide all categories of society with financial, community and government services. He also highlighted the need to develop calibers' technical and technological skills to enable them to provide modern non-banking financial services professionally and contribute to the dissemination of financial inclusion services nationwide. The Initiative would fund specialized training programs provided for Egypt Post (EP) calibers nationwide, and an Arab regional center for digital financial inclusion is set to be established in Egypt. The center aims to prepare periodic studies and reports to assess the current state of digital financial inclusion, identify national and regional needs and measure the success of its projects. This is in addition to coordinating between regulators and providers of telecommunications services and financial services; providing advisory and technical support and training programs to achieve integration in the ICT and financial sectors. It also aims to develop regulatory and legal frameworks that promote financial inclusion, encouraging Public-Private Partnerships (PPP) to ensure the protection of users' privacy and data and enhance confidence in digital financial services. Al-Haddad hailed the ICT Minister's proposals on mainstreaming the concept of financial inclusion. He also underlined the effective role played by Egypt in the framework of the ITU activities. He talked about the existing projects between MCIT and the ITU such as the Smart Water Management Project, and People with Disabilities projects. The Arab countries, led by Egypt, are currently adopting an initiative for digital financial inclusion to be approved during the ITU World Telecommunication Development Conference (WTDC) that will be held in October in the Argentine capital. (August 9, 2017) mcit.gov.eg



Deputy Director of Communication Regulatory Authority (CRA), Sadeq Abbasi Shahkough, has announced that three Mobile Virtual Network Operators (MVNO) are to offer SIM cards in the next few days. An MVNO is a wireless communications services provider that does not own the mobile network infrastructure over which it provides services to customers, but pays a fee to the network operators. Shahkough said the three unnamed businesses will begin sales of SIM cards in the next week as a part of a series of events to promote their new services, ICTNA reported. "Two other MVNO permits have been issued by CRA. Moreover, 20 other firms have signed agreements with the ombudsman to offer their services. However, they are yet to receive permits." The CRA issued a call for registration last winter, following which

the applications from 51 firms were processed and they were to submit documents by an August 21, 2017 deadline. So far 52 applicants have registered for the MVNO license, including 32 foreign operators, 13 investment companies, and seven banks. In the next 10 years, it has been predicted that MVNOs will have 13 million subscribers and account for 15% of the domestic cell phone market. Three of the companies which have unveiled their MVNO SIM cards are Shatel – one of the largest landline Internet service providers – SamanTel of Iran's privately-owned Saman Bank as well as NeginTel which released SIM cards to Tractor Sazi football club supporters in the north of the country. In a recent talk with the press Telecoms Minister Mahmoud Vaezi said: "MVNOs presence will complement the

Iran

work of local mobile operators." According to the minister "the MVNOs' main purpose will be to offer value added services." VAS is a popular telecommunications industry term for non-core services, or, in short, all services beyond standard voice calls and text messaging services. In telecom jargon, VAS adds value to the standard service and lures subscribers to use their phone more and drive profits. Some of the services offered under the category are news and entertainment, location-based services and advertisement. Vaezi also said that each MVNO will cater to the needs of a specific market. "For instance [one firm] Amin

MVNO is set to cater to the needs of the youth offering locally produced content tailored to the age group." Once the domain of adults, mobile phones have also become a necessity for school children. In an earlier interview with Financial Tribune, independent telecoms expert David Whitefoot said that the main operators have rendered the MVNO market economically unfeasible. He said due to main operators' refusal to lower the wholesale price the MVNOs are struggling to attract investors and the fact remains that "they can make profit only via VAS."

(July 31, 2017) financialtribune.com



Jordan

The board of commissioners has adopted through its session held on July 25, 2017 the draft instructions for regulating licensing; accreditation, auditing, monitoring and organizing the certificate authorities and legally authorized bodies who wish to

provide electronic authentication services in the Kingdom. TRC has launched the draft instructions for public consultation and has been published on TRC's website.

(August 15, 2017) trc.gov.jo.



Lebanon

The state-owned telco Ogero and private sector fixed ISPs including IDM, Cyberia and Sotel have reduced some ADSL monthly internet tariffs by between 20% and 50% following a recent government directive, whilst their connection speeds and/or data volume quotas have been upgraded for other packages. For instance, a USD12 package provided by both IDM and Cyberia previously offering 2Mbps with 10GB data now offers 4Mbps/15GB, whilst other packages capped at 2Mbps with unlimited data usage were reduced in price from USD50 to USD40 per month. Gabriel Deek, Chairman of the Internet Society, Lebanon Chapter, confirmed that the directive to reduce tariffs was restricted to ADSL, not wireless broadband – although ISPs have upgraded certain wireless services to remain competitive, e.g. IDM doubled the data volume of a 1Mbps wireless access package to 60GB (remaining at USD40 per month). The ADSL price reductions were prompted by a decrease in the monthly fee for international E1 lines (high speed digital links connecting private automatic branch exchange

[PABX] switches to the Ministry of Telecommunications [MoT]/Ogero central office switches), from USD240 to USD110. The MoT/Ogero also recently announced new 50Mbps fiber-optic broadband connection prices for offices and homes (USD50 for 300GB data per month, and USD160 for 1TB), although these direct fiber connections are not yet available via the private sector ISPs. Minister of Telecommunications Jamal Jarrah also recently announced new prices for activating certain mobile SIMs/phone numbers. A basic pre-paid SIM card on either Touch Lebanon or Alfa networks can now be bought for USD3 (USD3.30 including VAT) – which includes USD3 initial phone credit – compared to the previous start-up cost of USD25. Contrary to some reports, monthly post-paid subscription tariffs were not reduced, although one-off prices for selected 'premium' post-paid mobile number activations were halved. A regular Touch/Alfa post-paid mobile line costs a one-off USD50 (USD55 including VAT) to set up, with a basic monthly plan starting at USD15 per month (prices unchanged).

(August 15, 2017) businessnews.com.lb



Morocco

Mobile subscribers in Morocco stood at 42.05 million by the end of June 2017, rising 0.64% compared to the first quarter of 2017, the National Telecommunications Regulation Agency (ANRT) announced. The mobile phone network grew by posting slight increases, quarterly of 0.64% and yearly of 1.48%. By the end of June 2017, mobile subscriptions totaled 42.05 million, ANRT said in a statement on the figures of the telecom sector for the second quarter of 2017. The second quarter of 2017 also confirms the evolution observed during the last quarters

for the postpaid mobile network, which reached almost 3.2 million subscribers, posting an annual growth of around 11%, the Agency said, noting a gradual change in the consumption mode of Moroccan customers, mainly due to the new low-price postpaid offers launched by the three mobile operators. Prepaid mobile subscribers' network reached 38.86 million and posted increases which are annual of 0.77% and quarterly of 0.44%, according to ANRT.

(August 1, 2017) northafricapost.com



Nepal

Smart Telecom has got a contract to lay optic fiber cables along the Mid Hill Highway in Province 6 and 7. Nepal Telecommunications Authority (NTA) had two applicants for this contract; WorldLink and Smart Telecom. WorldLink had made a bid for Rs. 3.34 billion and Smart Telecom for Rs. 3 billion. Min Prasad Aryal, the spokesperson for NTA, informed of an agreement that was signed between Smart Telecom and NTA to complete this project. According to the agreement, Smart Telecom will lay optical fiber of 96-core along the Mid-Hill Highway in the two provinces. Out of which 48 core optical

fiber will be laid in the routes connecting Mid-Hill Highway with district headquarters in both provinces. And the remaining 24, will be laid along routes connecting district headquarters and rural municipalities of the districts in Provinces 6 and 7. The agreement also says that NTA can terminate the contract in case Smart Telecom fails to implement the project as scheduled. Previously, NTA had awarded a contract to United Telecom to lay optical fiber in Provinces 4 and 5 in April of this year. NTA had also awarded Nepal Telecom a contract for optical fiber in Provinces 1, 2 and 3 in September last year.

(July 30, 2017) The Himalayan Times



Oman

The Telecommunications Regulatory Authority (TRA) has accredited the sixth registrar for the country's code, top-level domain of Sultanate of Oman (.om), and its Arabic domain. TRA by launching this project is aiming to reflect the Omani identity and promote Arabic content. It also aims to provide better security for domain names information as registration is carried out by accredited registrars in Oman. Interactive Solutions is joining the previously accredited registrars - Omantel, Ooredoo, Gulf CyberTech, Oman Data Park and Abu-Ghazaleh Intellectual Property (AGIP). Abdullah Awadh al Shanfari, chief executive officer, Interactive Solutions & Services, said, "The service of our company was mainly web hosting, domain registries, programming, social media work and managing online marketing for various companies in Oman. In 2015 and 2016 we did a comprehensive research study of the Omani market and went to the US to compare prices. We found out that we

offer a better pricing strategy. We became the sixth accredited registrar as we were competing with the other five registrars. "We resolved issues in the market based on pricing. As we look at the European markets, the prices are fixed there. This was a highlight that we gave to the market and to the people. He said the company will offer some incentives for the users, who are willing to register through the company. For domain names registration, applicants are advised to refer to the registration terms and conditions described in the Domain Names Regulation and the rules and guidelines issued by the Domain Names Administration of TRA. Interactive Solutions & Services is a professional Information Technology company based in Muscat, catering to a clientele of individuals, small and medium sized businesses, big businesses and corporations. "We are proud to be an Omani company that achieves its success and growth with an Omani talent staff," Shanfari said.

(August 9, 2017) muscatdaily.com



Pakistan

Pakistan Telecommunication Authority (PTA) in collaboration with Asia Pacific Telecommunity (APT) organized a three days South Asian Telecommunication Regulator's Council (SATRC) from August 16 to August 18, 2017. The inaugural ceremony was held at local hotel Islamabad. Secretary General APT Ms. Areewan Haorangsi, Chairman PTA, Dr. Syed Ismail, Member Telecom, MoIT, Mr. Mudasaar Hussain, senior officers from PTA, Frequency Allocation Board (FAB), Telecom Operators and Ministry of Information Technology & Telecom (MoIT) were present in the inaugural ceremony. Representatives from 9 member countries of Asia Pacific Region including Afghanistan, Bangladesh, Bhutan, Iran, Nepal, Maldives, Indonesia and Sri Lanka are participating in this international event. Some of the key topics that will be taken up in Workshop

are developing spectrum roadmap for mobile broadband, spectrum management for the deployment of Internet of Things (IoT), Wireless Backhaul – spectrum, technology and policy considerations and proliferation of Wi-Fi networks. On this occasion, Secretary General APT Ms. Areewan Haorangsi said that SATRC Workshop will assist the regulatory bodies of member countries in acquiring knowledge and skills in regulatory matters relating to spectrum in the present multi-operator, multi-service, multi-technology environment. She said that this workshop will take another large step forward towards the implementation of the SATRC Action Plan and will further progress the work within the region. She appreciated the arrangements made by the host PTA and Pakistan. Earlier, Dr. Syed Ismail Shah, Chairman PTA in his welcome address

said that: "Despite the diversities within the region, Asia-Pacific is leading the world in broadband and ICTs development. It has tremendous potential and technological resources which can be properly harnessed only with joint efforts and cooperation of Asia Pacific Telecommunity (APT) member countries." Chairman also said that: "This event is to facilitate the exchange of views on policy & regulatory issues and to further accelerate the work towards a harmonized regulatory environment and share the experiences for taking benefit of the new technologies." He added that, during the last few years we have seen rapid telecommunication growth in the world which also brought several challenges in the region such as equitable distribution of telecom services, spectrum management and introduction of new technologies in wireless broadband. On this occasion Member Telecom Mr. Mudasaar Hussain said that: "Deliberations through such events are helpful in providing international experiences with a focus on current issues and challenges in ICT sector." Later, Secretary General APT visited PTA Headquarters. Chairman PTA briefed Secretary General about the functions of PTA, regulatory initiatives taken by it and overall performance of the telecom sector. Secretary General APT expressed her great satisfaction on telecom development capacities of Pakistan and acknowledged the achievements of Pakistan in telecom sector. During her visit to PTA Secretary General planted a tree at PTA premises.

(August 17, 2017) phoneworld.com.pk

The Ministry of Information Technology and Telecommunication has finalized the first ever "Digital Pakistan Policy 2017" sans any exports target, implementation cost as well as revival plan for the sick Telephone Industry of Pakistan (TIP). The draft of the Digital Pakistan Policy 2017 was earlier shared with all stakeholders for taking their input. The draft policy has been finalized and would be presented before the Economic Coordination Committee of the Cabinet (ECC) for final approval soon. The draft policy envisaged to become a strategic enabler for an accelerated digitization ecosystem to expand knowledge-based economy and spur socio-economic growth. The policy states that all measures including legislative, policy, administrative and international marketing measures would be pursued to augment software exports, create jobs and contribute towards the government's efforts to increase overall IT exports and remittances. However, official sources revealed the policy lacks any specific framework and exports target of IT&T enabled services to be achieved in next three or five years. According to the policy key goal, a digital ecosystem with infrastructure and institutional frameworks would be created for the rapid delivery of innovative digital services, applications and content. Further state-of-the-art software technology parks (STPs) would be established in the federal and provincial capitals and devise a framework for development of STPs in secondary cities that provide relevant world class data and network facilities to SMEs and MNCs. The STPs will have built-in facilities for women and persons with disabilities (PWDs) as per international standards. Further national technology incubation centers across the country would be established. Software technology parks will also house an 'accelerator' and 'incubation center' with attached Investment fund to help entrepreneurs and emerging technology startups find stable support and access to the resources they need. It would promote an open digitization infrastructure for shared services including cloud technologies to achieve

synergies and economies of scale in both the public and private sectors. Sources said that all these measures involve huge financing but there is no mention of from where the Ministry would arrange finances for these projects. The policy states that local manufacturing of IT hardware (Desktop PCs, Laptops, Mobile Handsets, Network equipment, LEDs, Microprocessors, etc.) would be promoted to augment measures already in place to incentivize local manufacturing of handsets, if so required. Management control of existing manufacturing concerns in the public sector may be transferred to the private sector through equity participation or long-term lease, or any other public-private partnership modes. However, the policy has not mentioned the revival of Telephone Industry of Pakistan (TIP). TIP has become non-functional as its annual revenue has gone down drastically to about Rs 20 million from Rs 700 million in the recent past, officials sources revealed. TIP is a State Owned Enterprise (SOE) currently running in losses and draining an average Rs 500 million a year for salary support. TIP has adequate land of 432 kanal and infrastructure besides a skilled manpower, but the government has failed to come up with any revitalization plan. It is currently on the privatization agenda of the federal government, sources added. The MoITT said that it will develop an action plan along with relevant ministries and departments detailing the timeframe and outputs of the Digital Policy. The Ministry said that it plays the role of an enabler and facilitator to provide necessary guidance where required, while other federal ministries, divisions and departments will take the lead role for the implementation of policy strategy falling within their domain. (August 15, 2017) propakistani.pk

PTA Invites Consultations for New LDI Licensing in Pakistan. As per Telecom Policy 2015, Pakistan Telecommunication Authority has undertaken the assessment of market absorption capacity for new licensing in LDI sector. PTA is of the view that the LDI sector offers a number of opportunities for new investors that can be channelized for further development of the sector. In this regard, the consultation paper intends to seek feedback of all stakeholders for further LDI licensing in Pakistan.

(August 8, 2017) propakistani.pk

The telecom sector of Pakistan has undergone through huge transformations after the arrival of 3G and 4G services in the country. From the increase in mobile phone penetration to the launch of various m-Services; Pakistan's telecom sector has become a success story for some regional countries who are left behind in technological race. This is also evident from the recent stats announced by the PTA. Now as per June, 2017 report of Pakistan Telecommunication Authority (PTA), the number of mobile internet subscribers reached a record figure of around 42,084,032 million. Mobile Broadband Users Reach 42 Million in Pakistan. The number of 3G/4G users by the end of June have reached more than 42 Mn mark in Pakistan. Before this, the figure of MBB users in the country was 41.728 million, according to the report published by PTA. The stats revealed that the MBB leader in the market is Jazz with 13,380,549 million subscribers as after its merger with Warid it got 937,209 users of LTE. After Jazz, Zong has 12,682,099 million together 3G and 4G users. Whereas, Telenor Pakistan has 11,060,898 million MBB users across the country. Ufone, with 4,960,486 million is the fourth mobile operator in Pakistan with decreasing subscriber's base. Also the annual cellular subscribers of Ufone

are decreasing on 100,000 basis year wise. Also an interesting thing revealed from June report of PTA is that the 3G users are now decreasing whereas 4G subscribers are getting a boom. Like 3G users of Zong have reduced to 8.64 Mln by the end of last month as compared to 8.674 Mln reviewed by the end of May 2017. Whereas, there is an increase in the 4G users of Zong as the numbers jumped have from 3823877 by end May to 4041766 by the end of June, 2017. Same is the case of Telenor 3G users as its 3G subscribers goes down from 10.473 Mln by the end of May, 2017 to 10.453 by the end of June, 2017 and the number of 4G users jumped from 519788 by the end the May, 2017 to 607013 by the end of June, 2017. The overall cellular tele-density has reached to 72.41% in Pakistan. We expect that these figures will further witness a boom in coming years.

(August 4, 2017) propakistani.pk

According to the PTA statistics, the number of 3G and 4G combined users have surpassed the 42 million benchmark. The users reached 41.72 million in May 2017 and 42.084 million by the end of June 2017. The number of mobile users is way more than 3G and 4G users, Pakistan had 139.76 million mobile users



Palestine Telecommunications Company (Paltel) has signed a strategic agreement with GENBAND under which the latter will deploy a 'state of the art next generation all-IP fixed voice network' for the telco. In a press release outlining details of the deal it was noted that the GENBAND platform will include the C20 Call Session Controller, G9 Converged Media Gateway and Q21 Session Border Controller, with the new network expected to allow Paltel to develop new voice and unified communications services for residential and business customers. Commenting



A broadband project aiming to provide high-speed internet access to households in sparsely-populated areas across the Saudi Kingdom is 50% complete ahead of schedule, according to telecoms regulator the Communications and Information Technology Commission (CITC). A total of 70,000 people across 13 governorates in Riyadh, the eastern region, Al-Jouf and the Northern borders region have benefited from the improved connections, following the broadband rollouts. In March 2017 the CITC awarded Phase I of the broadband coverage expansion project to Zain Saudi Arabia. Under the contract, the operator is set to increase high-speed broadband coverage in the Kingdom's underserved areas to 70% by 2020.

(August 10, 2017) telegeography.com

The Communications and Information Technology Commission (CITC) has submitted a request to the Saudi Cabinet to approve the licensing fees ahead of the award of a unified telecoms license to Saudi Arabian operator Etihad Atheeb

in June 2017 however, the mobile usage was decreased in June as compared to May which was 140.52 million. Largest 3G and 4G providers in Pakistan including Jazz and Zong witnessed fall in 3G subscribers, but in 4G subscriptions, there was a sharp increase. Zong registered 4,041,766 4G users in June 2017 up from 3,823,877 in May 2017. The number of 4G users at Jazz jumped to 937,209 in June 2017 as compared to 895,483 in May 2017. Similarly, 3G users were decreased on Telenor network but there was a significant increase in 4G users from 519,788 in May to 607013 in June 2017. The only 3G network which saw an increase during this period is Ufone, they added 124,0012 new 3G users to their network in the month of June. This is because they do not currently offer 4G services and the users who wish to continue with Ufone because of their user-friendly monthly packages do not want to switch to other networks for 3G services. Sooner or later the Ufone subscribers may switch to 4G services due to increasing demand for fast speed internet or Ufone must consider starting offering 4G services to its user base in order to retain their subscribers for long term business growth.

(August 2, 2017) researchsnipers.com

Palestine

on the matter, Paltel General Manager Maen Melhem was cited as saying: 'Paltel has always been seeking to offer state-of-the-art voice and internet services and deploy the latest technologies which enable us to deliver higher Internet speeds ... In addition, Paltel is steadily moving towards IoT and offering smart home and home automation solutions, thus we believe GENBAND's solution fits our needs perfectly, and enables us to fulfil our promise to our subscribers in delivering more advanced services in highest quality.' (July 28, 2017) telegeography.com

Saudi Arabia

Telecommunication (GO Telecom), domestic news source Argaam writes. GO Telecom said it cannot currently evaluate the related financial impact, though the country's telecoms market regulator halted trading in GO Telecom's shares last week upon the telco's request, ahead of the planned announcement of 'a material development.' In October 2016 the CITC confirmed that it planned to award a quartet of mobile network operators and ISPs – namely Saudi Telecom Company (STC), Etihad Etisalat (Mobily), Zain Saudi and GO Telecom – with unified telecoms licenses, thus allowing them to provide mobile, fixed telephony and data services. The new licensing system will allow increased competition and subscriber options through enhancing network efficiency and cutting costs, the CITC said in a press release.

(August 8, 2017) telegeography.com

The Integrated Telecom Company (ITC) and the Ministry of Communications and Information Technology (MCIT) have signed a SR3.5bn agreement to roll out high-speed fiber optic

in Saudi Arabia. Under the broadband initiative, which is in accordance with the pre-approved Broadband Implementation Agreement, financial support will be provided to ITC where DR1.344bn will be paid in regular instalments. This will be dependent on the work carried out, as well as providing financial and regulatory exemptions. The share of ITC from the broadband implementation project is 30%, equivalent to 640,000 residential units in various cities of the Kingdom, at a cost of about SR 3.5bn. ITC's CEO and president, Eng. Ghassan Itani, said: "This agreement comes within the framework of the continuous support and participation of ITC to the directives of the MCIT and CITC, and continuing on the company commitment to utilize all its financial, technical and human capabilities to achieve all the strategic objectives of the National Transition Program 2020 initiatives, within Saudi Vision 2030." Eng. Itani added: "The company great expertise will contribute to the development of this vital sector and enhance the digital infrastructure as well as help in providing high-speed fiber optic broadband services to the urban areas of the Kingdom, government offices and residential units." In May, the ITC signed an agreement on the implementation of Broadband Initiatives with the MCIT and Communications and Information Technology Commission

(CITC) to deploy high-speed broadband services throughout the Kingdom. (August 7, 2017) www.itp.net

The Ministry of Communications and Information Technology (MCIT) and Saudi Telecom Company (STC) have inked an Implementation Agreement for the deployment of fiber-optic services in urban areas, effective August 1, 2017. The agreement includes state financial support amounting to SAR2.7 billion (USD720 million), which will be paid in regular instalments according to the scope of work carried out. The MCIT will also provide STC with 'financial and regulatory exemptions'. Ownership, operation and management of the fiber-optic network and the provision of services to end-users will be carried out by the STC. The agreement will contribute to achieving the targets outlined by the 'Kingdom 2030' project and is in line with the objectives of the National Transition 2020 Program. In May 2017 STC signed an agreement with the MCIT and telecoms regulator the Communications and IT Commission (CITC) for the deployment of fiber-optics in the Kingdom of Saudi Arabia. The government-led project is aiming to link 1.3 million households with high speed services by 2020.

(August 2, 2017) telegeography.com



Sri Lanka

The government has intervened to resolve a long-running acrimonious dispute between two of the country's biggest operators, Sri Lanka Telecom (SLT) and Dialog Axiata subsidiary Dialog Broadband Network (DBN), over the renewal of DBN's integrated transmission network license. Local press reports say that, following a meeting with all sides, the Cabinet Committee on Economic Management (CCEM) has directed SLT and the Telecommunications Regulatory Commission (TRC) to end the dispute amicably, with an out-of-court settlement. In 2016 SLT filed a 'fundamental rights case' with the Supreme Court against TRC and DBN concerning the renewal of the latter's operator license. Under Section 17 (3) (a) of the Sri

Lanka Telecommunications Act, No 25 of 1991, the regulator recommended that the President should renew DBN's license for a further period of ten years with effect from November 10, 2015. In a filing, however, SLT alleged that its rights to equality had been violated by the recommendation and the Supreme Court granted it leave to proceed. In a possible tit-for-tat move, Dialog subsequently filed a case at the Colombo High Court against SLT for 'acquiring its confidential information containing the company's planned future services including comprehensive network architecture and service delivery architecture design specifications'. (July 31, 2017) telegeography.com



United Arab Emirates

The Telecommunications Regulatory Authority (TRA) has signed a memorandum of understanding (MoU) with 'Creative 971' to support e-Commerce with a focus on small and medium businesses wishing to operate in the country. The issues covered in this MoU include mainly the exchange of consultations and experiences through participation in joint meetings and workshops, sharing information and data, and coordination on the results and the ways to use them. According to the agreement, 'Creative 971' will enhance and develop the e-Commerce Sector in the UAE through awareness program for start-ups, small and medium businesses, with 'Creative 971', which aims to support the establishment of small and medium businesses

as well as companies that use e-Commerce in the UAE and to take advantage of the great potential of this sector. Additionally, it aims to raising awareness on the great opportunities provided by e-Commerce, and supporting businesses to continue their activity by providing a comprehensive range of advisory services and advanced electronic payment solutions. Hamad Obaid Al Mansoori, TRA Director General, said: "This agreement is a step towards adopting non-traditional forms of incorporating businesses, by providing advanced solutions for business processes management and payment mechanisms. The e-Payment is an important approach to enhancing market vitality and opening new avenues for commercial exchanges."

"The UAE is distinguished by a highly developed infrastructure in the banking sector, in addition to the availability of several electronic and smart services as well as the wide spread of mobile phones and smart devices of all types. These factors as a whole attract the leading international companies to operate and manage operations from the UAE, which is a key source of diversification of national sources of income," he added. Julia Jackle, the CEO of Creative971 stated: This new established strategic collaboration with the TRA is a milestone that we are proud of. We are encouraging Entrepreneurs, established SME's as well as Enterprises to utilize the benefit of this strategic collaboration, which marks the forefront of the E-Commerce education and ecosystem enabling within the UAE. (August 14, 2017) tradearamia.com

Telecommunications Regulatory Authority (TRA) has achieved three certificates from the International Standardization Organization (ISO) in the areas of business continuity, quality management system and environmental management system. Hamad Obaid Al Mansoori, TRA director general, received the certificates during a special meeting with Ahmad AlKhatib, director general of the British Standards Institute in the Middle East, in TRA's office. The TRA's ISO certification in Business Continuity (ISO 22301:2013) confirms the readiness of the ICT sector to respond to all emergencies, crises and natural disasters that may occur, as well as the ability of the sector to ensure appropriate coverage for all customers in such circumstances. TRA has also been able to obtain the new version of the Quality Management System (ISO 9001: 2015),

which confirms the compatibility of all procedures, plans and strategic projects implemented by TRA with the International standards in this field. Additionally, it has obtained the certificate of the Environmental Management System (ISO 14001: 2015) on global standards for the preservation of the environment in the buildings and facilities of TRA as well as its internal environment, in addition to the best use of available resources. Al Mansoori said: "ISO Certification is an expression of all the joint efforts of all department and teams at TRA level to implement best practices and international standards adopted by the International Standardization Organization. I would like to emphasize that we are working within a clear national strategy that affirms the achievement of leading positions in all the global competitiveness indicators, which enhances the UAE's attractive position in the sector of business and investment." "In terms of certification of telecom sector business continuity in disasters, it is extremely important to have an advanced infrastructure that is capable of meeting the needs of customers in different circumstances. This is in line with the smart cities strategy, of which the ICT sector is a main pillar," he added. Al Khatib said: "At BSI, we are committed to helping an organization adopt excellent practices. By implementing multiple standards, TRA has demonstrated and embedded a process-based approach into their organization, helping them to increase their resilience. Achieving these certifications is a proud moment for TRA management and team and provides evidence of the outstanding level of effort and work that went into attaining these certifications."

(August 8, 2017) tradearamia.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



Angola

The Angolan Institute of Communications (Instituto Angolano das Comunicacoes, INACOM) has announced on its website that it is accepting applications for an auction of 791MHz-862MHz band ('first digital dividend' or 'Dividendo Digital 1') mobile broadband frequency licenses, inviting prospective bidders to register between July 24 to August 4, with

bid applications to be accepted August 16-18. The spectrum auction – offering frequencies freed up by the process of analogue-to-digital TV broadcasting migration – represents the first of its kind to be held in Angola, where to date mobile spectrum licenses have been allocated behind closed doors to the two existing cellcos Unitel and Movicel.

(July 28, 2017) telegeography.com



Australia

Prices for 'scientific licenses' (i.e. a license issued to authorize research into and testing of radiocommunications, including trials of new technology) could be reduced by up to 90%, as the Australian Communications and Media Authority (ACMA) has launched a review of the charges. Outlining the matter, the regulator said: 'Over time, it has become apparent that the structure of the current apparatus license tax formula with scientific licenses less attractive for innovators to seek licenses for testing of new technologies.' As a result, the ACMA has proposed it will reduce taxes associated with scientific licenses in two ways: firstly, by applying a reduction of 90% to the current fee structure, and secondly, by applying tax on a license basis, rather than on a site basis. The decision to examine the charges for scientific licenses has reportedly been prompted by complaints from operators that the existing system would make the costs of 5G tests too expensive. As such, a consultation on the matter will now run until September 14, 2017. (August 9, 2017)

telegeography.com

The Australian Communications and Media Authority (ACMA) has announced that it is preparing to allocate a range of frequencies by auction, and has launched a consultation on its plans. In terms of the spectrum that is being considered for sale, the regulator confirmed this includes: lots in the 1800MHz band that were unallocated after the most recent auction of such frequencies; and frequencies in the 2GHz, 2.3GHz and 3.4GHz bands that either were not allocated in earlier auctions or have become available following spectrum license re-issue processes, as well as some 2GHz spectrum lots in the Canberra region that have been made available for the first time. With the ACMA collectively referring to the aforementioned spectrum as the 'multi-band residual lots', it has said that licenses issued to successful bidders will allow for the operation of 'radiocommunications devices for a fixed period, within a particular frequency range, within a particular geographic area'. With a view to conducting an 'efficient and effective auction', meanwhile, the ACMA is consulting on a number of matters including: the procedures to be followed for

issuing spectrum licenses; how the spectrum is to be apportioned among the spectrum licenses to be issued; and the conditions, or types of conditions, that may be included in spectrum licenses to be issued. In addition, it has also invited comments on its proposal to conduct the sale process using a simple clock auction (SCA) format to allocate the multi-band residual lots over three stages, with each stage offering multiple lots simultaneously.

(August 4, 2017) telegeography.com

A consultation paper has been published by the Australian Competition and Consumer Commission (ACCC) inviting submissions on a revised variation to nbn's Special Access Undertaking (SAU). The company, which is overseeing the construction of the National Broadband Network (NBN), submitted its most recent revised SAU variation proposal in June 2017, with the regulator noting that its main purpose is to incorporate fiber-to-the-node (FTTN), fiber-to-the-basement (FTTB) and HFC technologies into the undertaking, so as to reflect the current NBN model and extend the existing pricing structure to these technologies. The current SAU only covers fiber-to-the-premises (FTTP), fixed wireless, and satellite technologies. In launching the consultation, the ACCC noted that nbn's most recent variation proposal includes 'amended terms that respond to non-price matters raised by stakeholders in the consultation on the previous variation and set out in the [regulator's] draft decision'. Further, nbn is also said to have provided a new submission in support of its variation, which deals more directly with some of the statements made during the previous consultation regarding pricing. With a closing date of August 25, 2017 set for submissions to the consultation, ACCC Commissioner Cristina Cifuentes said of the matter: 'Many aspects of [nbn's] variation are unchanged, so we'll continue to take the feedback we've already received from stakeholders into account when considering these provisions ... We are aware that [nbn] is also currently consulting with its customers on aspects of its wholesale pricing. We welcome this development.' (August 3, 2017) telegeography.com



Belgium

The Belgian Institute for Post and Telecommunications (BIPT) has launched a consultation relating to spectrum in the 1400MHz band. An earlier consultation from May this year yielded little interest from operators for the 1400MHz band and as a result the BIPT is postponing the auction of this spectrum,

which has been earmarked for mobile broadband services. In the future, the regulator is proposing to offer 18 lots of 5MHz spectrum under a 20-year license period, with companies restricted to buying a maximum of 45MHz. The consultation is open for feedback and comments until 8 September this year. (August 18, 2017) telegeography.com



Bolivia

The Authority for the Regulation and Oversight of Telecommunication and Transport (ATT) has re-commenced its search for an administrator to oversee the country's introduction of mobile number portability (MNP). As per administrative resolution ATT-DJ-RAR-TL LP 583/2017 dated July 19, 2017, the process was re-started earlier this month. The successful applicant will be charged with the implementation, administration, operation, maintenance and security of the new 'Central Number Portability System'. Proposals are expected to be

evaluated this month. The introduction of MNP has been under consideration since 2012, and despite four candidates being shortlisted in April 2016 (Systor International, Comtec, Ictec-Mediafon Datapro and Porting Access) the process seemingly ground to a halt. Bolivia is currently home to three mobile network operators: state-backed Entel Movil, Telecel, which operates under the Tigo banner, and NuevaTel PCS, which trades as Viva. As at March 31, 2017 Entel claimed 47.7% of the country's 9.952 million mobile subscribers. (August 16, 2017) telegeography.com



Canada

The Telecoms Ministry – Innovation, Science & Economic Development Canada (ISED) – has launched a consultation on a licensing framework for the auction of mobile spectrum licenses in the 614MHz-698MHz (600MHz) band, aiming to boost competition, investment and business opportunities in all regions of the country. Interested parties – including telecoms providers, consumer groups and the general public – have until October 2, 2017 to comment on the proposals outlined in the government consultation paper (see link). Minister of ISED Navdeep Bains highlighted that the 600MHz auction will improve mobile services in both rural communities and urban centers, stressing that 'Canadians need improved wireless service to participate in the digital economy, expand their businesses and learn new skills, which create new opportunities and build stronger communities'. Low band spectrum such as the 600MHz band is well suited to carrying signals over long distances, and is also less affected by building structures than higher frequency bands, making it ideal for urban and rural next-generation mobile services. ISED is now seeking comments on the technical, policy and licensing considerations including auction format, rules,

processes and license conditions for spectrum in the 614MHz-698MHz band. The band plan includes seven paired blocks of 5+5MHz totaling 70MHz, a duplex gap from 652MHz to 663MHz, and a guard band from 614MHz to 617MHz. ISED believes that demand is likely to exceed supply for these licenses, and has proposed to adopt competitive measures in the form of a 30MHz 'set-aside', reserved for active mobile network operators with less than 10% of national wireless subscriber market share (a category which would include Freedom Mobile, Videotron and SaskTel, whilst excluding Rogers, Telus and Bell). ISED states that the set-aside would provide the smaller operators with an opportunity to increase their low-band spectrum holdings to a level closer to that of the national incumbent service providers. The remaining 40MHz would be open for all bidders. Existing over-the-air television (OTA TV) broadcasting service providers in the 600MHz band are permitted to continue using their current channels and modes of operation (analogue or digital) until the spectrum is needed for the deployment of mobile broadband services, ISED's consultation document states. Earlier, ISED indicated that an auction of 600MHz mobile licenses would not be completed until 2019. (August 8, 2017) telegeography.com



Chile

The country has attracted four bidders in its new tender for the submarine section of its southern fiber project. The bidders are Telefonica Empresas Chile, Comunicaciones y Telefonía Rural (CTR), VUpoint System and Austral Telco, the Ministry of Transport and Telecoms announced. The USD 100 million 'Fibra Optica Austral' project, to roll out nearly 4,000 km of

fiber-optic infrastructure in the Patagonia region, was relaunched in May to allow consortia to participate, after previously attracting just one bidder. The winner of the submarine contract will be announced on October 3. The submarine section of the network will run from Puerto Montt to Puerto Williams, with links to Caleta Tortel and Punta Arenas. (August 4, 2017) telecompaper.com



Colombia

The Ministry of Information and Communication Technologies (MinTIC) has announced that an arbitration court has ordered Claro and Telefonica (Movistar) to pay a combined COP4.81 trillion (USD1.6 billion) for failing to meet the conditions of their respective mobile operating concessions. Under the terms of their original 1994 licenses, the pair were required to return wireless network infrastructure to the state after a ten-year period, which was subsequently extended for a further ten years. The new contracts were later drawn up eliminating the return of the networks, but these were overruled by

another legal authority that argued that the original contract could not be modified. The tribunal has now ruled that mobile market leader Claro is required to pay COP3.16 trillion, while its smaller rival Movistar has been fined COP1.65 trillion. The MinTIC states that the fines are equivalent to the value of all 'goods, elements, equipment and infrastructure necessary for the provision of the service commissioned to the date of contract completion in November 2013'. Claro's Mexican parent America Movil (AM) issued a statement saying it is 'currently reviewing the legal alternatives with respect to the arbitration award'.

(July 28, 2017) reuters.com



Comoros

Comores Telecom (Comtel) and privately-owned rival Telma Comoros have finally put in place an interconnection agreement after months of wrangling, allowing subscribers of the two mobile network providers to call each other directly. Madagascan firm Telma launched in Comoros in December 2016, but failed to sign an interconnect deal with the incumbent,

despite the government intervening to help seal an agreement. Telma had previously accused Comtel of blocking access to the EASSy submarine cable to allow it international connectivity, and it was only after the EASSy consortium threatened Comtel with sanctions that it permitted Telma to access its landing site. (August 4, 2017) Agence Ecofin



Costa Rica

The telecoms watchdog the Superintendency of Telecommunications (Sutel) has opened to public consultation a proposal to declare the nation's mobile market as competitive. If greenlit, the move will remove certain restrictions on cellcos, allowing providers greater flexibility to introduce new tariffs, offers and services. Sutel notes that its studies have provided sufficient evidence to determine that none of the country's mobile operators have any special

technological advantages or other conditions which influence the price of services. The regulator added that not only are prices already far beneath its tariff cap, but prices are steadily falling, citing a 19% reduction in the average price paid by customers for mobile data between 2014 and 2016 and a 17% decrease in the price of calls between 2010 and 2016. The consultation is open for 15 working days.

(August 17, 2017) telegeography.com



Czech Republic

The Czech Telecommunication Office (Cesky telekomunikacni urad, CTU) has published its analysis on the market for mobile data services, concluding that competitive market conditions do not exist in that segment. The analysis, published on 17 August, found that prices of mobile data services are being kept high due to a lack of competition, adding that it will now implement measures to redress the problem. A number of options are open to the CTU, including a direct intervention on the prices offered by the country's mobile network operators (MNOs) Vodafone, O2 and T-Mobile. The government's coordinator for the digital economy and former member of the telecommunications office council, said that the watchdog must send a clear message that things need to change in the mobile data segment.

Prices for internet access are, on average, around three times those in neighboring Poland and much higher even than comparative services in Austria – a much 'richer' country than the Republic. The CTU analysis pointed to problems in the reseller/MVNO space due to the fact that the big three are able to dictate rates offered to MVNOs for access, providing an environment that is unduly strict and uninviting for the roughly 100 or so virtual operators in the mobile market. The situation makes it extremely difficult for them to undercut the MNOs' mobile data prices, much less make a sustainable profit, they argue. In the past, the CTU has been hopeful that Vodafone, O2 and T-Mobile would act without it needing to get tough, but as yet MNOs have failed to react and start cutting wholesale access prices.

(August 22, 2017) Daily Hospodarske Noviny



France

Telecoms regulator ARCEP is reportedly mulling an option to allow mobile operators to renew certain mobile spectrum licenses early, in exchange for commitments to increase coverage in underserved areas, Reuters writes. The watchdog is said to be in discussion with the government over the potential extension of the rights for utilizing 900MHz, 1800MHz and 2100MHz frequencies ahead of their expiry in 2021. Arcep head Sebastien Soriano said discussions are also underway with operators over a 'very significant' increase in 4G coverage requirements for rural zones, in return for early spectrum renewal.

(August 3, 2017) [telegeography.com](#)

ARCEP has published an updated scorecard measuring the progress made in the white-spots program (called 'zones blanches - centres-bourgs'), which aims to bring voice, SMS and 3G data coverage to rural communities still lacking these services. For the municipalities participating in the program (accounting for approximately 1 percent of the national population), the proportion covered by 3G mobile broadband has continued to progress steadily, improving to 92 percent in July from 82 percent in April, but still short of the target of 100 percent set for the end of June. Bouygues Telecom, Orange and SFR have reported to ARCEP that this objective has

been met for the municipalities originally included in the program, before the list of locations was extended in 2016 and 2017. Network operators also aimed to provide at least basic voice and SMS services to all participating municipalities by the end of 2016, but coverage remained broadly unchanged at 92 percent in July. As noted by the regulator in previous reports, most of the municipalities without any coverage are still waiting for public authorities to install a tower and operators will have six months to provide the services from the time the tower is built. ARCEP also measures progress with the deployment of LTE services in sparsely populated areas, set as part of the coverage obligations attached to the 800 MHz mobile licenses held by Orange, Bouygues Telecom and SFR. These areas contain 22,500 rural municipalities representing 18 percent of the country's population and 63 percent of its land mass. Orange, Bouygues Telecom and SFR were each required to reach 40 percent of the population in these areas by January 17 and all three exceeded their target by this date. Since then, SFR overtook its rivals and maintained the lead in July with 74 percent population coverage, ahead of Bouygues and Orange with 69 and 67 percent respectively. The 800 MHz mobile licenses include a 90 percent coverage target to be reached by January 17, 2022. (July 27, 2017) [telecompaper.com](#)



Greece

The telecoms regulator, the Hellenic Telecommunications & Post Commission (EETT), has opened a tender for spectrum in the 1800MHz band. The sale includes six packets of 2x5MHz spectrum in the ranges 1830MHz-1845MHz/ 1735MHz-1750MHz and 1805MHz-1820MHz/ 1710MHz-1725MHz, as well as five packets of 2x5MHz in the range 1855MHz-

1880MHz/1760MHz-1785MHz. Applications for the tender are due to be submitted by October 2. The spectrum is currently held by the country's three active cellcos, Cosmote, Vodafone and Wind Hellas, but their existing licenses are due to expire between 2018 and 2020. The new concessions will run until December 2035. (August 16, 2017) [telegeography.com](#)



Guyana

The Ministry of Public Telecommunications (MoPT) has requested a USD17 million grant from the Guyana REDD+ (Reducing Emissions from Deforestation and Degradation) Investment Fund (GRIF) to bankroll its ICTAccess and eServices for Hinterland, Poor and Remote Communities project, which aims to provide connectivity to the nation's remote inland communities. The GRIF is a USD250 million fund provided by Norway to assist Guyana in transitioning towards a more green economy. Details of the MoPT project have not been made public, except that the program is expected to last five years and will feature an education/training aspect as well as the deployment of necessary infrastructure. In an interview with the Department of Public Information (DPI) Minister of Public Telecommunications Catherine Hughes was quoted as saying that 'special approaches' would be needed to provide services in many 'far flung parts of the hinterland, like Rupununi'. On the need to provide educational support in the more remote areas of the country, the official added: 'we will need to go into

these communities and provide training, so that they can [learn] how to use this internet they are getting to better themselves'. (August 13, 2017) [telegeography.com](#)

In a public press conference this week Guyanese Minister of Public Telecommunications Catherine Hughes urged the public to report any suspicious activity surround telecommunications infrastructure following a recent surge in vandalism of incumbent telco Guyana Telephone and Telegraph's (GTT's) fiber-optic cables. Over the preceding ten days the company's fiber cable had been cut four times, leaving more than 20,000 households and mobile customers without service. The minister described the damage as an issue of 'national security and personal security' and stressed that vandals could face custodial sentences of up to two years. Speaking at the press conference, GTT CEO Justin Nedd added that services have now been restored in the affected areas, which included Mahdia, Linden, Bartica, Mabura, Ituni and Kwakwani. (July 27, 2017) [telegeography.com](#)



Hong Kong

Hutchison Telecommunications Hong Kong Holdings (HTHKH) is to sell its domestic fixed line business Hutchison Global Communications (HGC) to infrastructure investment management firm I Squared Capital. The HKD14.5 billion (USD1.86 billion) acquisition of Hutchison's 100% interest in the

fixed line operator is being carried out via I Squared's unit Asia Cube Global Communications. The deal is expected to close in the fourth quarter of 2017. HTHKH says it will use the proceeds from the sale to continue growing its core mobile telephony business. (July 31, 2017) telegeography.com



India

India ended June with 1.210 billion telephone subscribers, up by 5.86 million from May. The total comprises 1.186 billion mobile subscribers, up by 6.02 million in the month, and 24 million fixed-line subscribers, down by 16,000 users in the month. In June, 5.88 million subscribers submitted requests for mobile number portability, according to figures from the Telecom Regulatory Authority of India (TRAI). India's mobile subscriber base increased by 0.51 percent month-on-month to 1.186 billion at end-June. Private operators held 90.92 percent of the mobile market share (based on subscriber base), while state-owned companies BSNL and MTNL held 9.08 percent market share. India's fixed-line subscriber base decreased to 24 million in June from 24.16 million in the previous month. The net decline in India's fixed-line subscriber base was 0.16 million at a monthly decline rate of 0.66 percent. BSNL and MTNL held a share of 69.36 percent of the fixed-line market. The Indian broadband subscriber base increased to 300.84 million at end-June, from 291.61 million a month earlier. Top five ISPs in terms of market share (based on subscriber base) are Reliance Jio Infocom (123.36 million), Bharti Airtel (55.34 million), Vodafone (41.14 million), Idea Cellular (26.37 million) and BSNL (21.76 million). (August 15, 2017) telecompaper.com

Sector watchdog the Telecom Regulatory Authority of India (TRAI) has published its recommendations on issues relating to the closure of access services. The document looks to provide clarity and address uncertainties regarding the switching-off of services, as the nation's wireless market undergoes a period

of consolidation. In its recommendations, the TRAI stated that Unified Access Service (UAS) licensees should be permitted to discontinue any service covered by their concession without surrendering the license. Further, licensees should be required to provide 60 days' notice to the TRAI and the Department of Telecommunications (DoT) whilst a minimum of 30 days' notice must be given to affected subscribers, with the telco also providing users with information on the options available to them, such as porting their number to another provider. Regarding spectrum, the regulator proposed that if an operator decides to shut down wireless services using administratively-allocated frequencies (i.e. spectrum that was directly issued rather than awarded via auction), the airwaves must be surrendered to the government upon the closure. The TRAI also suggested that certain timelines should be introduced for the deactivation of services as a result of spectrum trading to remove uncertainties and to allow providers to give their users sufficient notice. Finally, the TRAI noted that customers switching from one technology to another, but remaining with the same service provider, should not be subject to rules for mobile number portability (MNP). The closure of Loop Mobile in 2014 due to the expiry of its licenses was mired by confusion. Unable to afford to repurchase its concession for the Mumbai circle, Loop sought to minimize its losses by selling its business to another provider. Market leader Bharti Airtel agreed to purchase the cellco, but the deal was never granted regulatory approval amidst confusion on whether MNP rules should apply to customers being transferred to the purchasing company. (August 1, 2017) telegeography.com



Ireland

Irish telecoms regulator ComReg has launched a public consultation regarding the five existing classes of non-geographic numbers, citing a concern over the lack of transparency regarding the pricing for calls using these numbers. At present there are five classes of non-geographic numbers in Ireland, specifically: freephone (number range 1800), shared cost with a fixed charge per call (1850), shared cost which are charged per minute (1890), universal access (0818) and nomadic (076). ComReg claims that surveys it has carried out indicate that many consumers cannot differentiate between the five classes and do not know the costs of calling these

numbers. As such, the regulator's consultation paper on non-geographic numbers proposes 'two measures which seek to address the current perceived problems with the non-geographic number platform'. The first proposal is to link such calls to equivalent calls to geographic numbers for the purposes of pricing. The second proposal is to reduce the total number of non-geographic number ranges from five to two, by retaining the 1800 and 0818 ranges and removing the 1850, 1890, and 076 ranges over a transition period of between two and three years. The consultation will run until October 12, 2017. (August 18, 2017) telegeography.com



Kenya

The number of mobile phone subscriptions in Kenya increased by 0.5 percent to 39.1 million in the third quarter to March from 38.9 million in the previous quarter, the latest statistics from industry regulator CA show. The mobile penetration rate dropped by 2.0 percentage points to 86.2 percent from 88.2 percent in the previous quarter. Net mobile additions during the third quarter were registered at 163,876 compared with 385,260 in the previous quarter. Pre-paid mobile subscriptions rose to 37.9 million subscriptions from 37.5 million in the second quarter, marking a growth of 1.1 percent. Post-paid subscriptions declined from 1.4 million in the second quarter to 1.1 million in the third. The total number of subscriptions recorded by Safaricom was 28.1 million, up 1.4 percent from 27.7 million in the second quarter. Airtel Kenya registered a decline of 6.7 percent to 6.3 million from 6.8 million

subscriptions in the second quarter. Finserve Africa posted 1.7 million subscriptions, up 15.4 percent from 1.4 million in the preceding quarter. Telkom Kenya recorded a decline of 3.2 percent to 2.80 million from last quarter's 2.89 million. Mobile Pay reported 86,724 subscriptions during the third quarter and Sema Mobile Services had 295 subscriptions, up from 270 in the second quarter. Safaricom registered a growth of 0.7 percentage points in market share to stand 71.9 percent from last quarter's 71.2 percent. Airtel's market share declined by 1.3 percentage points to 16.3 percent from 17.6 percent posted. Telkom Kenya's share dropped by 0.2 percentage points to 7.2 percent from 7.4 percent. Finserve Africa's market share rose 0.6 percentage points to 4.4 percent in the third quarter from 3.8 percent in the second quarter. Mobile Pay recorded a market share of 0.2 percent. (August 15, 2017) telecompaper.com



Kyrgyzstan

The Fund for State Property Management under the Government of the Kyrgyz Republic (FGI) has invited applications for the purchase of 100% of the shares in state-owned mobile operator Alfa Telecom (trading as MegaCom), stipulating minimum bids of KGS13.5 billion (USD197 million). The announcement on

the FGI website says that proposals from would-be buyers must be submitted to the Fund no later than 25 September 2017, and notes that an additional 7% commission fee will be charged on top of the sale price. Three previous attempts to privatize MegaCom have failed. (August 24, 2017) telegeography.com



Luxembourg

Telecoms regulator the Luxembourg Institute of Regulation (ILR) has published a public consultation to gauge the interest of all potential operators regarding the 700MHz frequency band. The consultation has been put forward in order to determine how the

spectrum can be best used alongside the planned deployment of mobile broadband services. The ILR states that any interested parties must submit their opinions no later than September 29, 2017. (August 8, 2017) telegeography.com



Mexico

The regulator opened a public consultation into the rules for a delayed 2.5GHz band spectrum auction, with bids starting at MXN350 million (\$19.5 million) for each of the six 20MHz blocks available. The Instituto Federal de Telecomunicaciones (IFT) is offering licenses of 20 years, which can either be used immediately or deferred for up to two years for specific frequencies. Some 130MHz of clear spectrum will be divided into four 20MHz blocks in the FDD category and two in the TD category. The remaining segments will be allocated as "guard bands" to separate the two technologies. Time-Division Duplex (TD-LTE) is one of two variants of LTE technology alongside Frequency-

Division Duplex (FDD), which use unpaired and paired spectrum respectively. In a statement, the IFT said the allocation would: "Allow for better mobile service and much higher rates of data transfer." The consultation closes on 4 September, though no date for the start of the auction itself was revealed. Mexico's auction for the 2.5GHz band was originally scheduled for the second half of 2016, but was postponed to Q3 2017 by the IFT in a bid to drum up greater competition for the airwaves. At the time, the regulator said it wanted to wait until the completion of a tender for the country's wholesale network – a process completed during March. (August 8, 2017) mobileworldlive.com



Moldova

The National Regulatory Agency for Electronic Communications and Information Technology (Agentia Nationala pentru Reglementare in Comunicatii Electronice si Tehnologia Informatiei, ANRCETI) has enacted Telecoms Law No.135 from July 7, 2017, which amends and supplements the Electronic Communications Act No. 241-XVI of November 15, 2007. The new legislation updated and brought the country's telecoms laws in line

with the European framework directive of 2009. The watchdog disclosed that the amendments aim to create the conditions for effective competition, while also 'strengthening the internal market for electronic communications, improving the use of radio spectrum, enhancing the protection of end-users' rights and confidentiality in the electronic communications sector, and implementing access and interconnection mechanisms.' (August 22, 2017) telegeography.com



Netherlands

Ziggo (UPC Netherlands), which is majority owned by UK-headquartered Liberty Global via UPC Broadband, is discontinuing its mobile services offered under the Ziggo Mobile banner, domestic news source GSM Helpdesk writes. The MVNO – which stopped signing up new subscribers in April this year – will transfer all remaining users to network host Vodafone Netherlands in September-October. In January 2017 Liberty Global and Vodafone Group completed the previously agreed transaction to combine their Dutch

operations to form a new 50:50 joint venture. The JV, which was formalized on December 31, 2016, will operate under both the Vodafone and Ziggo brands, and will create a nationwide integrated communications provider with 7.1 million homes covered by the latter's fixed broadband network and the cellco's nationwide 4G mobile network. Going forward, neither Vodafone nor Liberty Global will consolidate VodafoneZiggo, which will be reported as an equity affiliate or associate by both companies. (July 31, 2017) [telegeography.com](#)



New Zealand

The Commerce Commission has written to four of the country's main telecoms service providers to warn them over possible breaches of the country's Fair Trading Act. The regulator has contacted Spark, Vodafone New Zealand, 2degrees and MyRepublic. The watchdog is looking at potential breaches of legislation which include incorrect billing, unfair contract terms, mobile add-ons, errors when calculating broadband usage, and false advertising of broadband internet services. Commissioner Anna Rawlings said in a statement: 'Almost every New Zealander uses a mobile or fixed line phone and broadband, so the telecommunications sector has the potential to have a significant impact on consumers,' while adding: '... the telco sector continues to generate a high volume of consumer complaints, despite previous compliance and enforcement work by the Commission'. (August 14, 2017) [telegeography.com](#)

The Communications Minister Simon Bridges has introduced the 'Telecommunications (New Regulatory Framework) Amendment Bill' to parliament, with the first reading of the proposed legislation expected in mid-August. In June 2017 the government formally unveiled the final details of a reform package

designed to improve the Telecommunications Act and modernize the communications sector. At that it was claimed that the final package would introduce a more predictable utility-style model for Ultra-Fast Broadband (UFB) fiber, deregulate copper lines where fiber is available, and improve the quality of service (QoS) for mobile customers by increasing regulatory oversight. (August 8, 2017) [telegeography.com](#)

The Commerce Commission has said it will launch a review of the state of competition in the country's mobile market in the next year. Communications Minister Simon Bridges has written to Stephen Gale, Telecommunications Commissioner at the watchdog, to say: 'I would encourage you to review the mobile market in the near future, to test whether competition is working effectively.' The Telecommunications Users Association of New Zealand (TUANZ) has also been pushing for a study of the cellular sector. One aspect of the market which will be under investigation is the relative lack of MVNOs; while several firms do offer mobile resale services, MVNOs have not taken off in New Zealand as they have in many other developed mobile markets. (August 1, 2017) [telegeography.com](#)



Nigeria

The Nigerian Communications Commission (NCC) has told all Mobile Network Operators (MNO) and Internet Service Providers (ISP) to fully integrate the industry's Code of Corporate Governance (CCG), particularly to protect the sector's several billion dollars of investments. The regulator emphasized its Eight-Point Agenda, particularly the eighth one on operational efficiency and regulatory excellence. The Code has become part of the extant regulatory instruments for telecommunications operation in Nigeria, said Umar Danbatta, the executive vice-chairman of NCC. Danbatta said direct and indirect investments in the telecom sector in the past sixteen years have amounted to over USD 68 billion, hence need for the Corporate Governance Code to guard against leadership mismanagement, unethical practices and unwholesome business structures. The code has been in existence for four years and was presented to relevant parties in 2016 at a forum.

(August 21, 2017) [telecompaper.com](#)

The Nigerian Telecommunications Commission (NCC) has urged mobile telecommunications firms to block pre-registered sim cards. The telecoms regulatory body spoke at its 87th consumer outreach in Port Harcourt, the Rivers State capital. NCC Deputy Director, Consumer Affairs Bureau, Alhaji Ismail Adedigba, who chaired the forum, frowned at some of the issues complained about, especially the existence of pre-registered sim cards, which are believed to be what criminals, especially kidnappers, armed robbers and fraudsters are using to perpetuate crime across the country. Adedigba said: "I expected to hear that all sim cards are registered. But I have issues with Service Providers here, how did we get these pre-registered Sims to start with? "I think your networks should have the total number of available lines and the total number of subscribers in your database, and as such you should be able to know which Sims are registered and those that are not registered and automatically deactivate those that are pre-

registered and those that are not properly registered. "But a situation where are still having pre-registered sim cards with the advancement in technology today, is a surprise to me, and note that a severe punishment awaits any provider whose network is still carrying pre-registered sim cards." The Deputy Director also urged the service providers to step up their services to save some of the frustrations their consumers are going through because of poor service delivery. In an interview with reporters, he reiterated that telecoms mast safe and constitute no health hazard to human beings. According to him, there is presently no known cancer case or any other health challenge traceable to telecommunication masts and asked the public to save them self the fear that the electro magnate radiation from the network equipment causes skin cancer or any other type of disease. He said: "As a today, there is no health implication, according to the World Health Organization (WHO). So there is no health research and well-known health implication of mast as at today. You should not prevent the

service provider from deploying masts. The more masts we have, the better quality service we have. "At the NCC, we believe consumer is the king in the palace market. Therefore, the consumer must accord basic rights such as rights to be heard, right to be educated, right to redress as well as right to safety." The Director, Consumer Affairs Bureau, Alhaji Abdullahi Maikano, said the program was meant to bring the consumers, telecom service providers and the NCC together to discuss ways they could assist the consumer have value for their money through effective service delivery. Maikano said: "The event is one of the initiatives of Nigerian Communications Commission to bring together Telecom Consumers in the urban areas with the Network Operators and the Regulator (NCC) to discuss, proffer solutions to consumer related issues and ensure they have value for money through effective service delivery. "With the theme: "information and education as a catalyst for consumer protection". (August 13, 2017) thenationonline.ng.net



Paraguay

The National Telecommunications Council (CONATEL) has unveiled formal plans to introduce 700MHz spectrum via a tender later this year. In the first instance, the watchdog is inviting comments and suggestions from interested parties until August 16, with a view to staging a 'simultaneous upward auction' before end-2017. Teresita Palacios, President of Conatel, noted that winning bidders will be expected to extend services to underserved rural areas, adding:

'We also open a window for those who want to invest in our country or enter as a new operator.' Palacios expects the auction to generate around USD100 million for state coffers. Conatel's last spectrum auction took place in December 2015. Tigo and Claro were formally awarded 1700MHz/2100MHz 4G licenses, with each company paying USD45 million for a 2x15MHz block of spectrum.

(August 4, 2017) telegeography.com



Peru

Sector watchdog the Supervisory Agency for Private Investment in Telecommunications (Organismo Supervisor de Inversion Privada en Telecomunicaciones, Osiptel) has overseen the blocking of 901,931 'blacklisted' mobile devices that had been reported stolen or lost. In July this year, the regulator had ordered cellcos to notify via SMS users whose devices had their International Mobile

Equipment Identity (IMEI) code on the blacklist, and block the equipment within the subsequent 24 hours. According to Osiptel, pre-paid specialist Bitel blocked the most devices by a substantial margin with 546,379 handsets being flagged on the blacklist. Claro, meanwhile, blocked 162,730, Movistar 143,174 and Entel 49,648.

(August 14, 2017) telegeography.com



Poland

Country's second largest mobile operator by subscribers, P4, which trades under the name Play, has agreed to acquire wireless spectrum in the 3.7GHz band, which it says it will utilise to increase the capacity of its 4G LTE systems. The frequencies, which will be transferred on 1 October, could also be suitable for future 5G services. A report from Telko. in says that P4 is buying two 14MHz blocks in the 3.7GHz band from Softnet Group, giving it spectrum between 3701MHz and 3729MHz, with the licences valid until December 2019. The financial details of the transaction have not been disclosed. P4's Play service had 14.3 million subscribers at the end of March 2017. (August 21, 2017) telegeography.com

The Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE) has issued a first-instance decision to annul the results of a 2007 tender for two nationwide 15-year 1800MHz mobile licences which were acquired by CenterNet and Mobyland (now both part of the Cyfrowy Polsat group), ostensibly ending ten years of dispute over the matter, although the decision published on the watchdog's website notes that parties to the proceedings are entitled to file requests for retrial of the case. UKE's statement says that the annulment took into account the legal assessment of the Supreme Administrative Court in its judgement of May 8, 2014 (II GSK 305/13) and the judgement of October 20, 2016 (II GSK 262/15);

the court had found the 2007 tender process to be in 'gross violation' of the law, failing to meet public interest objectives related to reliability of the tender procedure and failing to 'take account of the principle of proportionality arising from Article 2 of the Constitution'. Despite the annulment, the watchdog is reportedly unlikely to force current licensees in the spectrum band in question to surrender usage of the frequencies or shut down the associated 4G infrastructure, and is expected to seek an alternative form of settlement. The 1710MHz-1730MHz and 1805MHz-1825MHz frequency bands were won by CenterNet and Tolpis, joint venture between Italian

ISP Eutalia and Telekomunikacja Kolejowa which subsequently took on the name Mobyland before being bought by another domestic new entrant, Aero2. Both CenterNet and Aero2 are now part of the Cyfrowy Polsat group which also includes Poland's fourth largest mobile network operator Polkomtel (Plus). In August 2009 Mobyland and CenterNet agreed to share usage of their 1800MHz spectrum, before launching Poland's first 4G LTE service in September 2010 (whilst all Aero2/CenterNet/Mobyland services are now provided under the Aero2 and A2 Mobile brands).

(August 9, 2017) telegeography.com



Romania

Romania is among the countries with the fastest fixed broadband internet, according to the latest statistics published by Ookla, the company behind the Speedtest platform. According to the Speedtest Global Index, which ranks countries by mobile and fixed broadband internet speed, Romania was ranked fifth in July on fixed broadband with a speed of 91.48 Mbs on download and 67.60 on upload. On mobile, the country came was ranked 26th, with a download speed of 30.19 Mbs and upload of 11.70 Mbs. The Index is a publicly available resource that is updated at the beginning of every month with data from the millions of tests taken using Speedtest in the previous month.

(August 22, 2017) actmedia.eu

The average fixed broadband Internet download speed in Romania increased by almost 45% in the first half of the year compared to the same period in 2016, namely from 75 Mbps to 109 Mbps, according to Romania's telecom regulator ANCOM. The average mobile data download speed dropped by 28% during this period from 27.72 Mbps to 19.99 Mbps due to the increase in the number of user tests on this segment. ANCOM gathers data on the quality of the internet service access through the Netograf.ro speed test application. The application, developed by the communications authority, measures the quality of the internet service as it is experienced by the user, benchmarked against one unique reference point. Over 182,500 tests were made by the app's users in 2016. (August 1, 2017) romania-insider.com



Senegal

In the latest development in the ongoing Tigo Senegal sale dispute between Wari Group and Millicom International Cellular (MIC), Senegalese President Macky Sall has issued a decree approving the original deal made in February 2017 for MIC to sell its local Tigo unit to Wari. The decree blocks the decision taken on July 31 by MIC to cancel the sale of Tigo to Wari. MIC had decided to abandon its agreement

with Wari, and instead opted to sell its Senegalese subsidiary to a consortium of NJJ, Sofima (managed by Axian Group) and Teyliom Group. Wari denounced this decision by MIC to renege on their agreement and threatened legal action against the Luxembourgish Company. With the backing of the country's president, Wari hopes that the original deal to purchase Tigo Senegal will still go through. (August 4, 2017) Agence Eco



Somalia

The Federal Parliament last week unanimously approved the National Communications Act, which aims to establish the legal, regulatory and institutional frameworks for the country's thriving telecoms sector. The legislation had been submitted by the Ministry of Posts, Telecommunications and Technology last month, following consultations with various stakeholders, including regional states, telecoms operators and ISPs. The new law, which calls for the creation of a telecoms regulatory authority, aims to protect the rights of operators and consumers, tackle cybercrime and encourage more participation by private sectors in developing the sector. The National Communications Act still requires the approval of the Upper House, followed

by the President, before it is enacted into law. Commenting on the development, Minister for Posts, Telecommunications and Technology, Abdi Ashur Hassan, said: 'We recognize the tremendous and increasing impact that the telecoms sector has on the advancement of our economy and society. This Bill is a major breakthrough for the Somali people and the telecommunications sector in particular. It has been long promised, and we are indeed proud, to present the Bill for debate and passage by this honorable House.' Meanwhile, local news reports from Somaliland claim that the autonomous region has warned Somalia about the new National Communications Act. 'Somalia's telecoms minister recently announced that their telecoms law will have

authority over our telecoms sector. Somaliland is an independent country with its own constitution, legislature and laws,' The National cited Somaliland's

Telecoms Minister Mustafe Farah Abrar as saying at a press conference.

(August 18, 2017) Horn Observer



South Africa

The Competition Commission of South Africa has launched an investigation into suspected competition problems in the market for data services, leading to high prices. The terms of the investigation were published in the Government Gazette, and the Commission will call for submissions after 20 business days. Through the inquiry, the Commission aims to determine what may cause or lead to high data prices with a view to ultimately making recommendations that will result in lower prices for data services. The inquiry was initiated in response to a request by the Economic Development Minister, Ebrahim Patel, who also has expressed concerns over high data costs

and highlighted the importance of data affordability. The main objectives of the inquiry are to obtain a clear understanding of the data services value chain, including the interaction and commercial relationship between different levels of the value chain and the relationship with other parts of the ICT sector and the broader economy. The regulator aims to identify areas of market power where customers or consumers may be exploited or excluded by firms and to identify any other structural, behavioral or regulatory factors that may influence competition or pricing. The inquiry is due for completion by August 31, 2018.

(August 22, 2017) telecompaper.com



South Korea

All three of South Korea's mobile network operators (MNOs) – SK Telecom, KT Corp and LG Uplus – are said to be considering legal action in response to an order directing them to increase the discount they must provide to new subscribers, the Korea Herald reports. According to the local news source, the trio all received official documentation from the Ministry of Science and ICT (MSIT) over the past weekend which confirmed the regulator's intention to implement a 25% discount rate for new subscribers that take up a one-year or two-year contract from mid-September 2017; currently the discount rate for new subscribers is set at 20%. The nation's cellcos, however, have reportedly claimed that there has not been sufficient discussion about the plans, while one unnamed industry official was cited as saying: 'One of the major grounds [for] the possible legal action is the companies' constitutional right to protect their assets

in cases which the government may afflict harm to the companies ... In addition, if we fail to prevent such expected losses, there are possibilities that shareholders at home and abroad sue the company on breach of trust.' If implemented as planned, the new 25% selective discount rate is expected to benefit around 19 million consumers per annum, and would cut the country's mobile costs by around KRW1 trillion (USD880 million), according to estimates by the MSIT. Notably, existing subscribers would not benefit from the plans, though the ministry is said to be looking at ways to reduce costs for such users, with the Korea Times citing a statement by the MSIT in which it noted: 'Under the current legal system, we cannot mandate mobile carriers to push ahead with the new policy for their existing telecom users ... But we are going to hold additional negotiations with carriers to alleviate telecom burdens for existing subscribers.'

(August 22, 2017) telegeography.com



Taiwan

The National Communications Commission (NCC) has announced its timetable for the third round of Taiwan's 4G spectrum auction – between July 19, 2017 and September 1, 2017 potential bidders can submit applications and qualification for review. On October 18, 2017 the NCC will confirm the qualified bidders and the auction will kick off within one week. It is expected to be finalized within a month and no later than the end of November 2017. Taiwan has reached 20 million users subscribing to 4G long-term evolution (LTE) services since 2014, thanks to fierce competition among the five 4G operators and significant promotion of a flat rate on the all-you-can-eat model (even though it is clearly destructive to respective competitors' profit and loss accounts). Competition drives operators to a point of no return, but it makes them hungry for increased spectrum as soon as it becomes available. Via the upcoming

auction, the NCC will assign 120 megahertz (MHz) in the 2,100MHz band and 30MHz in the 1,800MHz band, totaling 150MHz in a two-phase approach. In the initial phase the bidders will compete in multiple rounds for the blocks: 5MHz each in the specified 2,100MHz and 1,800MHz bands, subject to a 20MHz cap in the 2,100MHz band; and 25MHz as a total in both of the specified 2,100MHz and 1,800MHz bands. In the second phase bidders further engage in bidding for specific assignments in accordance with the number of the blocks that they win. The base price of each 5MHz block in the 1,800MHz band is NT\$2.2 billion and NT\$1.9 billion in the 2,100MHz band. The winners will take mobile broadband universal services to rural areas with a guaranteed access speed of 100 megabytes per second. Further, from February 1, 2018, the 4G LTE operators will face more competition in the domestic market driven by the NCC's pro-

competition and pro-consumer policy to reduce the fee that subscribers pay for number portability from NT\$240 to NT\$112. The NCC has estimated that it will

significantly encourage number portability by at least 2 million per year among 4G operators.

(August 23, 2017) internationallawoffice.com



Uganda

The government says local cellcos are unable to account for at least 4.2 million 'ghost' subscribers prior to the country's SIM re-registration deadline on 31 August. Under new legislation authorities now require all mobile accounts to be linked to an individual's national ID card. A report from The Observer says that 2.5 million SIM card details submitted by market leader MTN cannot be matched to a user with an entry on the National Identification and Registration Authority (NIRA) database. Second-placed operator Airtel has 941,000 such records, while Africell has 542,111, UTL has 236,891 and Vodafone

has 1,435. The erroneous records may be due to a subscriber submitting incorrect details with their registration. There are also suspicions that many cards are linked to so-called 'SIM box' or interconnect bypass fraud, which illegally redirects traffic onto a mobile network to take advantage of on-net tariffs and avoid call termination fees. Uganda had hoped to complete the SIM re-registration process in May this year, but problems with issuing national ID cards meant that by the initial deadline only around half of the country's 23 million active mobile users had been registered. (August 24, 2017) The Observer



Ukraine

The Ukrainian State Centre for Radio Frequencies (UCRF) has announced a new open tender for providers to implement a mobile number portability (MNP) system in the country, having been forced to scrap the previous process following litigate disputes. The UCRF has published the new tender documentation under a 'simplified' procedure for conducting the process. Applicants must have experience of implementing an MNP database in another country. Applications will be accepted up to 17 September 2017. (August 21, 2017) telegeography.com

The National Commission for Communications Regulation (NCCR) in Q4 2017 will hold tenders to issue licenses for 1,800 MHz range and 2,600 MHz range to provide 4G mobile communications services with the starting price of around UAH 4 billion and near UAH 2.3 billion respectively. "We expect that the public and competitive sale would allow attracting money to the budget, but the main thing is that the new communications system will be created, which is important infrastructure for economic growth," Ukrainian Prime Minister Volodymyr Groysman said at a government meeting in Kyiv. NCCR Head Oleksandr Zhyvotovsky said that they managed to find a scheme that would guarantee continuity of provision of communications services by three key mobile operators and the Justice Ministry approved it. He recalled that the Cabinet of Ministers earlier approved all the documents for holding the 4G tender for 2,600 MHz, but it is inappropriate to hold it without solving the problem of the tender for 1,800 MHz where now the operators are providing 3G communications service and it is cheaper for them to switch to 4G standards in this range. Zhyvotovsky said that for providing continuity of provision of communications services by the operators that service 50 million subscribers in the 1,800 MHz range amendments to the radio frequency spectrum use plan are to

be made. This decision could be made at the next government meeting. He said that the two tenders to issue 4G licenses for 15 years will be held in Q1 2017, but if the funds for 2,600 MHz are received in Q4 2017, it is likely that the funds for 1,800 MHz will be received in Q1 2018. He also said that there is no military and special users in these frequency ranges. Zhyvotovsky said that when the starting price of the licenses was approved the position of Analysis Mason, a hired advisor, was taken into account, as well as the financial indicators of the sector, seeing UAH 34 billion of revenue in 2016 and UAH 12 billion of profit. The sector invested UAH 6 billion in development of 3G communications and paid UAH 2.5 billion for the use of radio frequency bands. (August 9, 2017) en.interfax.com.ua

(August 9, 2017) en.interfax.com.ua

The Ukrainian State Centre of Radio Frequencies (UCRF) has decided to restart the process of selecting providers for implementing mobile number portability (MNP), due to long-running legal proceedings between bidders causing 'long term uncertainty'. The unanimous decision was made on July 31, 2017 at a meeting of the committee on competitive bidding, effectively scrapping a process begun in 2015. Kiev-based IT security solutions specialist SI Center had been chosen by the UCRF as the lead implementer of MNP systems in a re-run tender in April 2016, backed up by a decision from the Antimonopoly Committee of Ukraine, which had nullified the previous winning bid of Ukrainian IT company Dialink, but subsequent rulings from the Supreme Economic Court of Ukraine (April 2017) and the Supreme Administrative Court reversed previous decisions of other courts (the latest being January 2017) which had enabled the UCRF to enter into an agreement with SI Center. Furthermore, several other lawsuits remain pending, including a claim from Dialink regarding its rights to conclude an agreement with the UCRF under the original MNP tender. (August 7, 2017) BizLiga



United Kingdom

Telecoms regulator OFCOM has announced the start of a consultation on price proposals for duct and pole access remedies, in the wake of a recent discussion of its plans for improving access to Openreach's infrastructure, published in April 2017, as part of its wholesale local access (WLA) review. In launching the latest consultation, Ofcom has set out detailed pricing proposals on the setting of rental charges, the financial limit for the recovery of network adjustment costs, and changes to regulatory financial reporting requirements. The regulator was cited as saying of the matter: 'Today, Ofcom has proposed to impose

caps on Openreach's rental charges for accessing its duct and pole network in order to increase certainty and predictability for investors. We are consulting on the methodology proposed to calculate maximum charges, based on Openreach's current price calculation methodology. We anticipate this would also result in material reductions for the majority of rental charges.' The consultation is scheduled to close on September 12, 2017 following which Ofcom expects to publish a final decision in early 2018, with the new measures to take effect on April 1 that year. (August 2, 2017) telegeography.com



United States

The Federal Communications Commission (FCC) has confirmed that it has allowed Pago Pago-based American Samoa Telecommunications Authority (ASTCA) extra time to deploy its 4G LTE network, after the state-backed firm failed to fulfil its rollout obligations. ASTCA was the winning bidder for 80MHz of 4G spectrum in FCC Auctions 71 and 78, and the FCC granted the licenses to ASTCA on January 24, 2011. Accordingly, ASTCA's initial five-year construction deadline for each of its licenses was January 24, 2016. The FCC acknowledged that the isolated location, lack of industry-specific suppliers and unpredictable mainland delivery options compound the challenges in meeting construction requirements, with American Samoa's topographic and environmental characteristics also posing problems for licensees. For its part, ASTCA noted that it was unable to provide 4G LTE service on its PCS spectrum by simply installing LTE equipment because the pre-existing copper infrastructure and circuit switching network limited backhaul speeds to 10Mbps – not enough throughput to make LTE deployment 'meaningful'. In order to provide advanced telecommunications service offerings, ASTCA reports that it has devoted its staff and resources over the last five years to the BLAST project, a USD95 million program to replace legacy copper infrastructure with a fiber-optic network linking the islands of American Samoa. ASTCA has now been granted seven months (from the date of reinstatement of its licenses) to fully deploy its 4G LTE network. By the end of this period, ASTCA has stated that it will provide coverage to 60.42% of American Samoa's population on the A and D block channels and to 34.34% of the population on the C and F block channels, with a combined LTE coverage of more than 80% of the population. The FCC will review the telco's progress in March 2018. American Samoa is a remote, unincorporated territory of the United States located approximately 2,300 miles southwest of Hawaii and 4,800 miles from the US mainland, consisting of seven islands separated by large stretches of water. (August 22, 2017) telegeography.com

Two years ago, the Federal Communications Commission defined broadband as connection speeds of at least 25 Mbps downstream and 3

Mbps upstream -- a significant increase from the prior definition of 4 Mbps downstream and 1 Mbps upstream. (August 10, 2017) mediapost.com

Various groups have urged the FCC to revisit the meaning of broadband. A coalition of Republican lawmakers argued that the FCC had no reason to make the change. On the other side, New America Foundation's Open Technology Institute said in a regulatory filing that broadband should be defined even faster; that group proposed a benchmark of at least 50 Mbps downstream and 20 Mbps upstream. This week, the Republican-led FCC proposed maintaining the current definition of 25 Mbps downstream and 3 Mbps upstream, but also sought comment about whether to incorporate other factors -- including service consistency -- into the definition. Commissioner Mignon Clyburn, one of two Democrats on the FCC, said in a concurring statement that the proposed standard isn't fast enough. "We sell consumers short by proposing a speed benchmark that is way too low," she stated. "The 25/3 Mbps standard we propose would not even allow for a single stream of 1080p video conferencing, much less 4K video conferencing. This does not even consider that multiple devices are likely utilizing a single fixed connection, or the multiple uses of a mobile device." The agency's plans came to light in a notice soliciting public opinion for an upcoming report about the state of broadband deployment. The FCC is asking a host of questions, including whether to consider consumers' behavior when setting benchmarks. "If consumers who have the choice of service offering speeds of 15 or 25 Mbps largely choose 15 Mbps service, should that influence our determination of what constitutes advanced telecommunications capability?" the FCC asks. The agency notes that 59% of home wireline connections meet or exceed the current benchmark. The notice of inquiry also asks for comment on whether to consider restrictions on service, including data caps, when evaluating broadband. Online video provider Netflix asked the FCC in March to rule that data caps on wireline networks may "unreasonably limit" online television viewing. The FCC also says it may, for the first time, set benchmarks for mobile broadband service. The report seeks comments on a

mobile broadband definition of 10 Mbps downstream and 1 Mbps upstream. The FCC said that it expects to conduct a reverse auction of up to \$1.98 billion in Connect America Fund (CAF) money in 2018, which will go toward the cost of bringing broadband to rural areas lacking broadband service. CAF auction funds are to be dispersed over a 10-year period. The commission proposed enabling various types of service providers to bid in the CAF auction and recommended that providers be allowed to bid at the census block level. Areas eligible for the CAF auction include rural areas where one of the nation's largest price cap carriers is the incumbent telecom services provider and where that carrier declined to provide broadband service at the level of support offered by the FCC. The FCC's CAF auction proposal came in the form of a public notice adopted at today's monthly commission meeting. Some initial details have been provided by the FCC. Winning bidders must offer at least one voice and one broadband service meeting the relevant service requirements to the required number of locations. Per end user rates, they must be reasonably comparable to similar offerings in urban areas. Deployment timelines must conform to the following (but actual timelines are determined by the individual winning bidder) broad schedule:

- 40 percent of the required number of locations in a state by the end of third year of support

- An additional 20 percent in each subsequent year
- 100 percent by the end of the sixth year of support

CAF Auction Proposal

The CAF auction proposal calls for a multi-round reverse auction that would use the support levels offered to the price cap carriers as the reserve price. The initial round would award funding to bidders that offer to provide service at a level equal to a certain percentage of the reserve price. In subsequent rounds the percentage would increase until all funds are awarded or no bids remain, officials explained in meeting.

CAF Auction Map

Today's public notice seeks comment on the proposed application and bidding procedures for the auction, including how interested parties can qualify to participate in the auction, how bidders will submit their bids, and how the FCC will process bids to determine the winners and support amounts, an FCC press release said. More details regarding the CAF auction are available here. FCC Chairman Ajit Pai said he anticipates the CAF auction drawing new types of service providers that never received Universal Service funding before such as electric cooperatives, fixed wireless providers and satellite providers.

(August 3, 2017) telecompetitor.com



Zimbabwe

The Postal and Telecommunications Regulatory Authority of Zimbabwe will build 250 base stations under a multi-operator radio network extension project with capacity for 2 million users. Potraz will engage contractors to design, supply, install and commission the multi operator radio access network (MORAN) comprising both passive infrastructure and active equipment. The MORAN will be shared by three operators who will initially offer 2G and 3G services. The authority plans to implement the project as a build and transfer public private partnership. The project seeks to cover existing gaps after a network coverage study conducted by Potraz in 2016 established that 314 wards, hosting 354 000 households and a total population of 2 million people, had no access to basic telecommunication services. "It is against this background that the Universal Services Fund has decided to roll-out the MORAN Project to provide telecommunication services to people living in under-served areas," Potraz said. Furthermore, a preliminary network planning exercise for coverage extension established that about 250 new rural sites were required, to achieve full population coverage. Potraz intends to use financial resources from the Universal Services Fund to construct the sites, and provide the requisite active equipment including microwave backhaul. The Universal Services Fund is a pool of

financial contributions made by all telecoms operators in Zimbabwe, which is collected and managed by the telecoms regulator, Potraz. Government increased the USF levy to 1,5 percent from 0,5 percent last year, as part of efforts to increased resources available to support its investment in telecoms infrastructure. Potraz has made calls for contractors to with the capacity to fund at least (10) sites to make expressions of interest for the provision of passive telecoms infrastructure. For the active equipment, suppliers should have the capacity to fund at least 20 base stations. Potraz recently invited suppliers to make proposals for either the passive component or the active component of the MORAN or submit proposals for both sets of the equipment. The MORAN will provide telecoms service coverage to remote and under-served areas where operators, including Econet, NetOne and Telecel have deliberately left out in their expansion plans, mainly because it does not make compelling business case to invest. While statistics show that Zimbabwe's mobile penetration rate has exceeded the 100 percent mark, a number of outlying areas remain without or with limited network coverage. Further, reluctance by mobile phone operators to share telecoms infrastructure has resulted in the companies duplicating investment where one would have already invested.

(August 14, 2017) herald.co.zw

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The Future of Telecom Operators in the SAMENA Region

As the telecommunications industry faces a mixed financial outlook and rapid change, telecom operators in South Asia, the Middle East, and North Africa are undergoing a transformative journey.

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