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# SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

## BUILDING DIGITAL ECONOMIES



**World Childhood Foundation: For the Sake of Children and Business ...** 10



**Mobily: Regulatory Frameworks for IoT: Opportunities and Challenges ...** 72



### Featured

**Bob De Haven**

General Manager of Microsoft's  
Worldwide Media & Communications Industry



THIS MONTH  
**REGULATORY FRAMEWORKS FOR IoT: OPPORTUNITIES AND CHALLENGES**



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## Regulatory Frameworks for IoT: Opportunities and Challenges

In this data-driven digital environment, where doing business isn't just more challenging but more rewarding as well, many transitions are underway. Such transitions reflect how the digital communications industry is redefining itself and how all market players conduct business in it. Indeed, all of these requirements and challenges— and many more— are just a few among a multitude that demand attention. In part this is so, because our world has only just started to embrace the onslaught of many dozens of billions of devices that are on their way to adding a whole new meaning to the term complexity. Internet of Things (IoT) has only started to enter the business scene, and what technology providers and telecom operators will do with it, more or less, will be determined by various strategic priorities, visions and readiness for future, real-life applications, and regulatory frameworks that can enable rather than hinder greater innovation in the expansion of the IoT ecosystem.

IoT will make the vision for smart cities, connected cars, supply chain and logistics, connected healthcare, smart manufacturing, smart homes, smart agriculture, etc. — all of which promise to save money and time, improve lives, assist in smart governance, and allocate resources efficiently, to name a few benefits — a reality. Billions of IoT devices, predicted a long ago, to emerge by 2020 and make an impact on digital systems and the pace of digitization clearly point to the fact that this vision is on its way to fulfillment.

However, IoT does face several social, legal, policy challenges, technical (including spectrum availability and interoperability), and security challenges. A recent report by Gemalto indicates that a very high number of consumers currently lack confidence in the security of Internet of Things devices, and thus both consumers and business organizations support governments getting involved in

setting IoT security. This is primarily linked to the need for protecting the integrity and privacy of the data created from and via these devices.

Because among the policy-makers' and regulators' great challenges is the challenge to foster innovation and remove barriers, this requires balanced and well-coordinated regulatory frameworks. Moreover, regulation should be driven by light-touch approaches and evidence-based restrictions, while the regulators adopt the approach of acting as partners with the private sector, to help develop the new ecosystem.

Whatever we want to achieve from IoT first requires us to ensure we address spectrum requirements and needs, accelerate investment in 5G and new digital infrastructure, promote the adoption of IPv6, encourage development of international standards, promote the security of IoT systems, address data privacy issues, promote right to information by making public sector data freely accessible, address free data flow across borders, drive demand in IoT through public sector adoption first, increase the effective and IoT-specific utilization of national ICT funds (where they do exist) as well as encourage investment in innovation, education, and training.

To be able to achieve the above, we must foster international co-ordination, collaboration, and engagement, ensure inter-agency and inter-sector co-ordination, and promote public-private partnerships.

IoT has risen quickly on the agenda of policymakers across Europe and MEA, especially given the positive role it can play in addressing pressing societal and economical challenges; so much so that an analysis by the World Economic Forum has found that more than 80 percent of currently



**Bocar A. BA**  
Chief Executive Officer &  
Board Member  
SAMENA Telecommunications  
Council

active IoT deployments are directly contributing to or have the potential to advance the globally agreed UN's Sustainable Development Goals (SDGs).

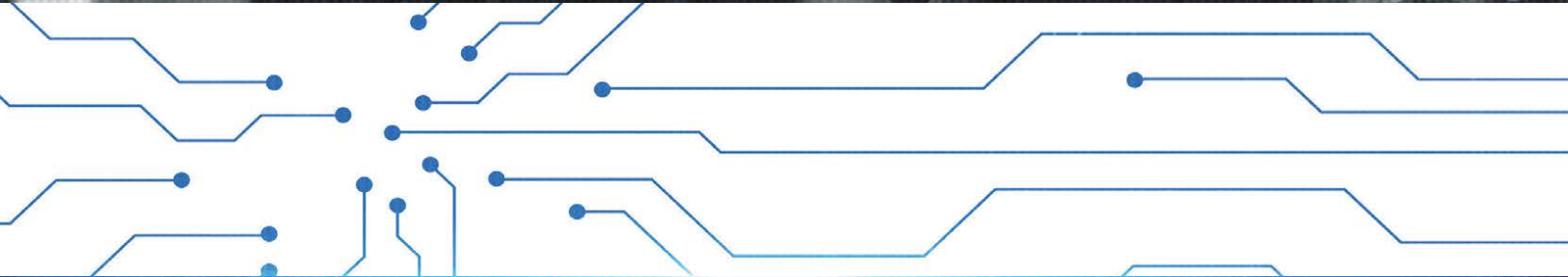
Thus given the impact that IoT could generate positively toward achieving numerous socio-economic and transformational benefits, we need to align ourselves to promptly address challenges that demand immediate attention, and define roadmaps for tackling those challenges that require a more combined global-level effort in the long run. Each market and Administration needs first to fine-tune its focus on what it desires from IoT and what aspect of IoT — for example, social IoT, industrial IoT, global IoT, etc — is of most immediate interest. 🌱



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## Microsoft Speaks to SAMENA Council

*The Middle East & Africa has entered a period of significant digitization across all industries. We see that governments and organizations are now embracing the cloud and tapping into its rich potential to achieve more. As such, Microsoft's role here is to empower our customers in this journey. We're doing this by focusing on core areas such as making critical infrastructure investments and addressing the skills gap.*

**Q. What are Microsoft's views on the pace and scope of digital transformation taking place globally that telecom operators in MEA should consider?**

**A.** The goal of digital transformation is to help organizations find new ways of generating value, and this is exactly what we are focused on in the telecommunications industry.

Microsoft is working closely on a global level with telecom operators to embrace Microsoft cloud solutions to accelerate their digital transformation journeys. The cloud can play a significant role in helping telcos deliver personalized experiences, support agile operations and drive growth and innovation.

One such recent example is AT&T Communications, which has embarked on a multiyear alliance with Microsoft to shift many of its own operations to the cloud as well as apply technologies – including cloud, AI and 5G – to create solutions that solve challenges and uncover opportunities for mutual customers. Microsoft will be the preferred cloud provider for non-network applications, as part of AT&T's broader public cloud first strategy, and will support AT&T as it consolidates its data center infrastructure and operations.



**Bob De Haven**  
General Manager of Microsoft's Worldwide  
Media & Communications Industry



**Q. What are the key areas through which Microsoft is helping Telecom Operators to transform into the new network transformation paradigm?**

**A.** Microsoft is focusing its work in the telco industry around three key business imperatives that companies must deliver on in order to differentiate and succeed.

- Deliver personalized experiences. We're working with the industry to develop seamless, intelligent telecommunications services and employee collaboration tools to help them earn customers for life.
- Provide agile operations. We're empowering telcos with technology to rapidly support new services while increasing network efficiency, scalability and reliability on an intelligent, digital telecom platform.
- Accelerate growth and innovation. Finally, we're supporting the industry by helping them uncover key insights to better understand their customers, create new and exciting services and go to market faster with what their customers really want.

*Microsoft helps telcos create customer loyalty by offering data and analytics solutions that allow them to proactively anticipate needs, drive a consistent experience and deliver the products and services customers want, when and where they want them.*

In addition, we're working hard to ensure that Azure remains the platform cloud for the communications industry. This means that our customers' data is their own, and we're not aggregating this data for our own benefit. We're differentiated in that we're empowering – not competing – with our customers.

**Q. How does Microsoft help Telecom Operators deliver better experiences to customers, creating long-lasting relationships.?**

**A.** Microsoft helps telcos create customer loyalty by offering data and analytics solutions that allow them to proactively anticipate needs, drive a consistent experience and deliver the products and services customers want, when and where they want them. Our secure, intelligent collaboration and productivity tools support this kind of innovation by ensuring efficient communications between employees, suppliers and partners.

**Q. What are the dimensions of agile operations that you suggest Operators to immediately pay attention to?**

**A.** We are working with telecom operators to create an environment where they can rapidly support new services while increasing network efficiency, scalability and reliability on an intelligent, digital platform. Specifically, we're helping our telco customers scale into the cloud to: more quickly replicate and extend products and services and capitalize on emerging opportunities; drive down costs, realize efficiencies and predict and avoid disruptions in services with advanced analytics; increase productivity while lowering operational costs by empowering field technicians with next-generation field services; and democratize technologies such as Network Edge Compute (NEC), Mobile Edge Computing (MEC) and Internet of Things (IoT) to deliver new innovation.

**Q. What are Microsoft's technology and ICT development plans for the region?**

**A.** The Middle East & Africa has entered a period of significant digitization across all industries. We see that governments and organizations are now embracing the cloud and tapping into its rich potential to achieve more. As such, Microsoft's role here is to empower our customers in this journey. We're doing this by focusing on core areas such as making critical infrastructure investments and addressing the skills gap. Some examples include:

- This year Microsoft has launched two

*We are working with telecom operators to create an environment where they can rapidly support new services while increasing network efficiency, scalability and reliability on an intelligent, digital platform.*

data centers in South Africa to serve the African continent, and two in UAE to serve our middle east customers. These facilities are providing enterprise-grade reliability, performance, security and the broadest compliance with access to cloud services.

- We also launched two Africa Development Centers (ADCs) in Kenya and Nigeria. This \$100 MN investment will enable the ADCs to become a premier centre of engineering for Microsoft, where world-class African talent can create solutions for local and global impact.
- In addition these investments, we have also recently partnered with Telecom Egypt to extend our global cloud network. This investment will increase capacity and use the latest in network optimization for the delivery of Microsoft services in Egypt, North Africa and the region.
- Moreover, our other investments in the region – such as policy innovation centers in Africa, an Advanced Technology Lab in Cairo, and Customer Support Centers in Jordan and Nigeria – are all aimed at gearing up the region's digital transformation capabilities and empowering its public and private sector organizations to achieve more.
- Our contribution toward job creation is also an effort worth noting. IDC research found that Microsoft and our cloud ecosystem is expected to generate over 520,000 jobs across MEA by 2022.
- We are also working very closely in the region to address the growing skills gap in the tech sector. For example, our Microsoft Cloud Society initiative has over 170,000 registrants from

the Middle East and Africa and is empowering participants to build their technical acumen in the cloud.

**Q. How is timely development of 5G in this region central to Microsoft's future business plans, especially in the context of "intelligent connectivity"?**

**A.** Microsoft Azure is bringing the intelligent cloud and intelligent edge together and becoming the world's computer. 5G is integral to that. The volume and velocity of data moving from the edge to the cloud and back again will only increase with 5G, and compute power and storage is critical to handle all this. 5G will bring operators and hyperscale providers closer together, and it will also unlock unprecedented opportunities for customers across every industry. For this reason, it's a major priority for us to partner with telcos to unlock 5G and edge opportunities for our mutual customers. This is foundational to the work we are doing with AT&T, for example.

*5G will bring operators and hyperscale providers closer together, and it will also unlock unprecedented opportunities for customers across every industry. For this reason, it's a major priority for us to partner with telcos to unlock 5G and edge opportunities for our mutual customers.*

**Q. What immediate use-cases of Microsoft's productivity and collaboration solutions do you foresee holding the greatest potential for telecom operators in MEA?**

**A.** From a productivity and collaboration perspective, Microsoft is enabling telecom operators to stay ahead of the competition by helping them empower employees with tools like Microsoft 365, which provides a telco's workforce with tools to work more creatively, collaboratively and securely from anywhere. Freeing employees to

work the way they want—and share ideas freely—fosters ingenuity and spurs better ideas for getting ahead in a fierce market.

Additionally, using apps such as Microsoft Teams, employees can come together instantly and easily to brainstorm new product and service ideas or resolve customer issues. The ability to work anytime, anywhere, on any device makes the workplace simpler and more productive for employees. Windows 10 on company devices will make the cloud-based work environment even safer.

**Q. How do you plan to promote ubiquitous computing through edge technologies in collaboration with Telecom Operators of the SA-ME-NA region, especially with SAMENA Council's Member Operators?**

**A.** With decades of Microsoft experience in hardware, software and cloud we have both created turnkey solutions for the region's telecom operators as well as created custom solutions to help solve their most pressing challenges. We are already working with many of the region's operators in various facets and look forward to growing these collaborations to accelerate the growth of the region. For example:

- **Etisalat.** Following the launch of our Middle East data centers, we have entered into a strategic partnership with Etisalat to support its goal of providing end-to-end digital solutions to its customers and breadth of expertise in managed services. By offering cloud-based solutions to the UAE government institutions, large enterprises, small-medium businesses, and start-ups, Etisalat is enabling them to drive digital transformation by migrating to the cloud faster. As one of the world's leading telecom groups in emerging markets, Etisalat continues to focus on digital innovation to 'Drive the digital future to empower societies,' leading to investments in superior and state-of-the-art technology solutions on the network.
- **Du Telecom.** UAE-based telecommunications service provider 'du', from Emirates Integrated Telecommunications Company, has formed a strategic partnership with

Microsoft for an artificial intelligence programme designed to empower employees, engage customers, optimize operations and streamline the delivery of products and services.

- **Saudi Telecom Company (STC).** Saudi-based STC Solutions signed a partnership agreement with Microsoft to support its growth strategy, which focuses on digital services, cybersecurity and cloud computing solutions, in an effort to align with Saudi Vision 2030.
- **Zain.** Zain, the leading digital service provider in Kuwait, has announced a partnership with Microsoft to accelerate digital transformation among its SME customers through the provisioning of trusted cloud services.
- **MBC Group (Media)** The Dubai-based media company Middle East Broadcasting Center (MBC Group) has leveraged the capabilities of Microsoft products to embrace the advantages of digital transformation and to build a smarter workplace for its employees. MBC Group replaced tools from multiple vendors with a single Microsoft Office 365 ecosystem, consolidating internal operations and building a simpler user experience that allows flexibility, mobility, and security for its workforce. 📺

*With decades of Microsoft experience in hardware, software and cloud we have both created turnkey solutions for the region's telecom operators as well as created custom solutions to help solve their most pressing challenges. We are already working with many of the region's operators in various facets and look forward to growing these collaborations to accelerate the growth of the region.*



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Together Matters



# FULFILLING NATIONAL ICT VISIONS BY BUILDING TRUST IN THE INTERNET AND PROTECTING THE CONNECTED

## For the Sake of Children and Business



**Dr. Joanna Rubinstein**  
President & CEO  
World Childhood Foundation USA

**CHILDHOOD**  
WORLD CHILDHOOD FOUNDATION

*We need meaningful connectivity that can help us to achieve the UN Sustainable Development Goals by 2030 of which SDG 16.2 calls for ending abuse, exploitation and all forms of violence against children.*

The ITU-UNESCO Broadband Commission for Sustainable Development, on October 1st this year, launched a new report on Child Online Safety: Minimizing the Risk of Violence, Abuse and Exploitation Online. In the launch at the United Nations headquarters in New York participated HM Queen Silvia of Sweden and the Executive Director of UNICEF, Henrietta Fore. The report was developed by the Commission's Working Group, co-chaired by CEO-Operations of the Zain Group and SAMENA Telecommunications Council's board member, Scott Gegenheimer, and Joanna Rubinstein, President and CEO of World Childhood Foundation USA; two of the 60 Broadband Commissioners. The report is accompanied by a Child Online Safety Universal Declaration, which we hope will serve as an instrument for growing the army of child protectors.

### **Why did the Broadband Commission decide that child online safety deserves attention?**

There are several reasons. First, today one third of all Internet users are children who spend endless hours online and it is our responsibility to do no harm to them. Second, the expansion of broadband to the developing countries will connect hundreds of millions more children. While we want them to benefit from access to information, education, skilling, entertainment, and markets, we know that they will also be exposed to many risks, among them: bullying, abuse, exploitation, sextortion, trafficking, gaming addiction, radicalization and so much more. Third, we need connectivity to fuel economic growth and sustainable development but also social inclusion. In sum, we need meaningful connectivity that can help us to achieve the UN Sustainable Development Goals by 2030 of which SDG 16.2 calls for ending abuse, exploitation and all forms of violence against children.

Photo credit: World Childhood Foundation USA



Her Majesty Queen Silvia of Sweden

*The complex problem of online violence against children requires a multi-stakeholder interdisciplinary approach. Recognizing that we all have different roles and mandates and need to work together on the development and implementation of impactful solutions we made sure to include all the key players.*

And yet we see more and more reports in the media of how the Internet is misused to violate children's rights. We read that some of the major social media platforms are deployed to propagate child sexual abuse material, live stream videos of child abuse and more.

It is all these reports plus the alarming statistics from studies that cause major concerns and are a wake-up call compelling us to respond. This is how our WG was established.

**What was the core objective of the WG?**

It was a pretty straight forward objective: to prioritize children and their safety in the digital world by developing a set of actionable recommendations. Comprised of 20 commissioners, including Commissioner Bocar Ba, and 20 subject matter experts coming from governments, UN agencies, the private sector, law enforcement, NGOs and academia, the WG included all the major stakeholder groups. The complex problem of online violence against children requires a multi-stakeholder interdisciplinary approach. Recognizing that we all have different roles and mandates and need to work together on the development and implementation of impactful solutions we made sure to include all the key players.

*Comprised of 20 commissioners, including Commissioner Bocar Ba, and 20 subject matter experts coming from governments, UN agencies, the private sector, law enforcement, NGOs and academia, the WG included all the major stakeholder groups.*



Photo credit: World Childhood Foundation USA

From left to right: Executive Director of UNICEF, Henrietta Fore; HE Ambassador Olof Skoog (Permanent Representative of Sweden to the United Nations) and HM Queen Silvia

*Founded in 1999 by Her Majesty Queen Silvia of Sweden, a UN accredited organization, World Childhood Foundation has funded over the last 20 years more than 1,000 projects in 25 countries. We are a funder, advocate, convener and a thought leader. As early as 2003, we realized that the Internet was an enabler of child sexual abuse and helped to fund NetClean, the first company that developed a tool to identify CSAM (child sexual abuse material) on computers.*

**What is the World Childhood Foundation doing and how did it get involved in this process?**

We fight for children's right to a carefree childhood. Our vision is a world where all children are free from violence, sexual



From left to right: Niklas Heuvel Dop, CEO of Ericsson for North America; Julie Inman Grant, e-Safety Commissioner, Gov of Australia; Shekar Ayyar, EVP and GM, VMware

abuse and exploitation. Founded in 1999 by Her Majesty Queen Silvia of Sweden, a UN accredited organization, we have funded over the last 20 years more than 1,000 projects in 25 countries. We are a funder, advocate, convener and a thought leader. As early as 2003, we realized that the Internet was an enabler of child sexual abuse and helped to fund NetClean, the first company that developed a tool to identify CSAM (child sexual abuse material) on

computers. Since then, NetClean has developed several tools, operates in many markets and supports the work of law enforcement in more than 90 countries. We also co-developed with Ericsson the first of its kind mobile app that teaches adults how to prevent child sexual abuse, detect signs of abuse and respond to disclosure. On our board in the US serves the CEO of Verizon and on the Swedish board the CEO of Telia. So yes, we are well positioned to look at online sexual violence as part of a global eco-system. After all, the child victims and the perpetrators are not virtual, they are real and we have to find more effective ways of rescuing the children and stopping the abusers. According to the recent data, there were 45 million images of CSAM online reported just in 2018, and the numbers are growing every year.

*The child victims and the perpetrators are not virtual, they are real and we have to find more effective ways of rescuing the children and stopping the abusers.*



Dr. Najat Maalla M'jid, Special Representative of UN Secretary General for Violence Against Children

**Countries in the SA-ME-NA Region where Child Safety has become a Priority:**



Algeria



Bahrain



Bangladesh



Egypt



Jordan



Kuwait



Morocco



Oman



Pakistan



Saudi Arabia



UAE

*I was deeply inspired by the Commissioners and the companies that actively participated in the preparation of this report. It was a collaborative and participatory process. The recommendations of the report were endorsed by the whole commission.*

**What is the hope that the Broadband Commission report can help to accomplish?**

I was deeply inspired by the Commissioners and the companies that actively participated in the preparation of this report. It was a collaborative and participatory process. The recommendations of the report were endorsed by the whole commission. Many of the participants are decision-makers with access to their peers whom I hope will join this movement. Their recognition of the urgency to act on safeguarding children online, especially when we will be connecting children in the developing countries – and that we all have a role to play – is already a major

step forward.

I believe that where there is a will and a way forward (the recommendations of the report) we will succeed. This is not just for the sake of children, or because it is our moral imperative, but also because it is good business. Knowing that children soon will be half, if not the majority, of all Internet users, we want them to benefit from and be empowered by connectivity rather than being put at risk. I cannot imagine that anybody would disagree with that.

There is no culture, religion, nation, or community that doesn't want to protect its most vulnerable; its children. 🌍



Photo credit: World Childhood Foundation USA

## Broadband Commission Report on Child Safety Online Launched at the UN

On October 1 2019, the co-chairs of the Broadband Commission Working Group on Child Online Safety, Childhood USA and Zain Group, the leading mobile telecom innovator in eight markets across the Middle East and North Africa, announced the publication of a new report on Child Online Safety: Minimizing the Risk of Violence, Abuse and Exploitation Online. The report is a collective effort and draws upon the expertise of the Broadband Commissioners and experts from around the world. The report was presented at a high-level meeting at the UN, "Children & the Digital World: Threats and Opportunities". Queen Silvia of Sweden, who founded Childhood twenty years ago, delivered a keynote address.

### Actionable recommendations for how to prioritize children's online safety

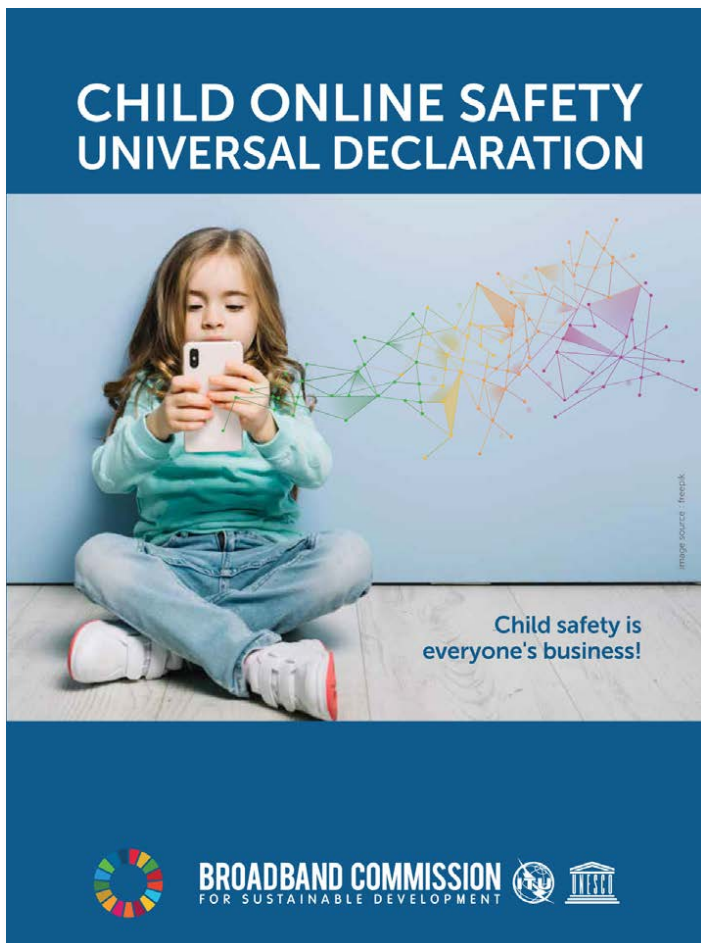
Broadband connectivity brings many benefits to children, including access to education and entertainment, it also has a dark side to it as it exposes children to major risks and threats online as well as different forms of violence and exploitation, such as child sexual exploitation and abuse, bullying and radicalization, among other critical vulnerabilities. The new Child Online Safety report gathers the available evidence on the scale and nature of the risks and harms children face online and provides actionable recommendations for how to prioritize children's online safety. The report was developed under the leadership of Dr. Joanna Rubin-

stein, President & CEO of Childhood USA, and Zain Group CEO of Operations, Scott Gegenheimer who co-chair the working group.

A key point made in the report is that we need to prioritize child online safety, especially in anticipation of the expansion of the broadband in the developing world where most children live today. All the stakeholders, governments, regulators, operators, internet service providers, NGOs and civil society and academia have to join forces in implementing common strategies to make the internet safer for children in order to help prepare future generations to thrive in the digital space. These steps include incorporating measures addressing child online protection in the national broadband plans, ensuring that applications and services are age-appropriate and safe per design, and that we deploy technology-driven solutions to improve child online safety.

### Necessity of taking action now

Commenting on the publication of the report, Dr. Joanna Rubinstein said "Millions of children are online every day using digital devices. They benefit from getting access to information, education and entertainment. However, they are also exposed to abuse and exploitation including sexual abuse, bullying and even radicalization. It is our duty to prevent this from happening and requires collective action. This report demonstrates the necessity of taking action now and sheds light on how we can take practical



steps to address the UN's Sustainable Development Goal 16.2 calling on ending all forms of violence against children by 2030."

The Sustainable Development Goals (SDGs) adopted in 2015 and the UN Convention on the Rights of the Child – which this year celebrates its 30th anniversary – represent the global commitment to a better future for all, especially to children.

2018, the Broadband Commission Working Group on Child Online Safety 2018, established the Working Group for Child Online Safety with the primary objective to raise awareness of the online risks and threats to children.

**Global need to work together**

"There is a clear and urgent global need to work together to ensure that connectivity embellishes our children's experience of the world, rather than impairs it," said Doreen Bogdan-Martin, Director, Telecommunication Development Bureau, ITU. "Today's new report and Declaration by the Broadband Commission Working



From Left to Right : UN Broadband Commissioners, Mr. Scott Gegenheimer (CEO Operations - Zain Group) and Mr. Bocar A BA (CEO - SAMENA Telecommunications Council)

Photo credit: SAMENA Telecommunications Council / Leaders' Summit 2019

Group on Child Online Safety are welcome and valuable contributions to the global store of best practice, as well as serving as important new inputs to ITU's Child Online Protection framework."

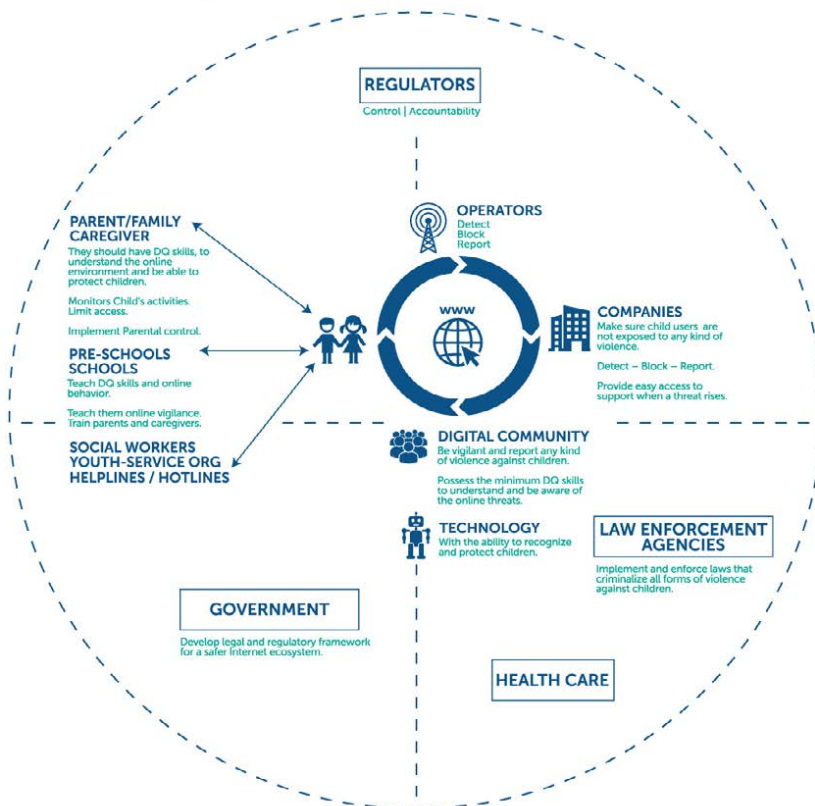
Scott Gegenheimer said, "Child Online

Safety is a topic that is of great importance for Zain and we are committed to playing our key role in addressing this on a global level. Our region has conflicts and challenges that are quite unique compared to other places in the world as well as the highest share of youth in the world, coupled with a rising broadband connectivity rate. It is imperative for organizations which are based in the region, to be at the forefront of the effort to protect the most vulnerable victims both in the physical world as well as in cyberspace."

The Internet has already transformed our lives at an unprecedented pace and scale. For children in developed countries, the digital world is the one they are born into and live within every single day. The internet and its associated technologies are completely integrated into the way they live their lives across a very broad spectrum of activities. Governments, academia, civil society and the private sector must invest in and accelerate the development of scalable solutions to address abuse and exploitation of children online. Achieving the SDGs for children by 2030 requires innovation and collective action.

Broadband connectivity is a key enabler for children's future, as it ensures that all children have an equal opportunity to thrive, so that no child is left behind. It also plays a critical role as an enabling component as well as helping fuel the achievement of all the Sustainable Development Goals.

**Safer Internet Ecosystem**



Source: Lina Fernandez del Portillo.

To fully protect children from online harm or exposure to unacceptable online risk, all relevant stakeholders must be informed, empowered and engaged.

# UAE's Child Digital Safety Initiative Ensures Protection of Children

The UAE protects children by enforcing laws to protect them and empowers them by providing education, good health and other facilities.

Ministry of Interior (MoI) established the Higher Committee for Child Protection in 2009 and the MoI's Child Protection Centre in 2011 to undertake the role of developing, implementing and customizing the initiatives and processes aiming at providing safety, security and protection for all children living in the UAE or even those coming as visitors. The committee plays a key role in maintaining the safety of



## Digital Life in the UAE

**98%** The UAE leads the world in terms of internet user penetration at a staggering rate of 98%

**8 HOURS**  
average daily time spent online per person

**3 HOURS**  
per day on average spent on social media

**82%**  
smartphone penetration

**83%**  
of population are user of Facebook

**83%**  
of population are frequent users of Whatsapp

**53%**  
of population has Instagram account

children, because achieving justice and protection for children is a shared responsibility.

In March 2019, the UAE launched its "Child Digital Safety" initiative to help protect children from online threats; an aim deemed to be an essential part of the UAE government's efforts to raise awareness among children of the dangers of the Internet.

In 2018, a study by Norton Cybersecurity revealed that parents in the UAE lacked the experience to deal with their children's online activities.

Nearly 90 percent of the parents said their children excessively use the Internet, while 31 percent said their children were bullied online.

The study also revealed that 66 percent of families said they put no controls in place to limit children's online access.

The average time spent online per person each day in the UAE is eight hours, with three of those spent on social media.

The new initiative is familiarizing parents and educators with solutions they can use to address various child-safety challenges. It consists of four main sub-initiatives: Interactive Children's Camp; Digital Wellbeing Portal; Training Workshops; and a Support Platform to answer urgent queries from parents regarding digital safety. The initiative is a joint program of the UAE Ministry of Interior and the National Programme for Happiness and Well-being.

This child-safety initiative has affirmed the UAE government's commitment to maintaining family stability and social cohesion, and to keeping children at the top of its socio-economic development agenda – which, not only in the UAE but in any society and sustainable economy requires maintaining social stability, empowering positive and active citizens, and raising the future generation, fully prepared to handle challenges of the new digital world.

## Child Digital Safety

**34%**  
of parents leave their children surf the internet without supervision

**66%**  
of parents do not set parental control options on their children devices

**31%**  
of parents suffer from their children being bullied online

**87%**  
of the children spend too much time online

**87%**  
of parents acknowledge the risk of leaving the children surf the internet without supervision



## The UAE Chairs the Annual Meeting of the ITU Council Working Group on Child Online Protection

The United Arab Emirates (UAE), represented by the Telecommunications Regulatory Authority (TRA), chaired the annual meeting of the ITU Council Working Group on Child Online Protection (COP), at the ITU headquarters in Geneva.

The meeting, chaired by Engineer Abdelaziz Al Zarooni of the Telecommunications Regulatory Authority (TRA), discussed the development of global COP guidelines and the exchange of experiences among Member States on the best ways to build efficient and effective programs to raise parents and children's awareness about technology risks and safe use.

The UAE also participated in a number of meetings on the sidelines of the meeting, such as meeting with The Council Working Group on Financial and Human Resources, The Council Working Group on international Internet-related public policy issues, The Council Working Group on World Telecommunication/ICT Policy Forum (WTPF), the Council Working Group on WSIS & SDGs, and The Council Working Group on COP.

On chairing the annual meeting of the ITU Council Working Group on COP by the UAE, H.E. Hamad Obaid Al Mansoori, TRA Director General, said: "Chairing this meeting reflects the UAE's strong position in international forums and the confidence it enjoys in the global arena. It also highlights the UAE's leading role in achieving the safety of individuals and communities on the internet, thus enhancing happiness, prosperity and security all over the world. Today, the UAE is ranked as one of the safest countries in the world, and by chairing the Council's Working Group on COP, it contributes to the dissemination of its successful experience in this field, leading to a safer digital space that allows children and adolescents to develop their skills and abilities in a safe environment."



H.E. Al Mansoori added: "TRA active participation in the ITU meetings is part of the country's openness to issues of concern to people globally, and reflects positively on the country's efforts to achieve leadership in various fields, especially the telecommunications sector as one of the most important sectors nowadays. Through our participation in ITU events, we accelerate decisions that serve the interest of the UAE and the countries of the region, and contribute to the promotion of the United Nations sustainable development goals at the global level. These meetings are highly important as they contribute to developing relevant laws and strategies as well as sharing our views with the world on key issues, such as the protection of children on the Internet. "

The meetings of the Council deal with a number of important topics that define the ITU standards and the international protocols and conventions underpinning the global telecommunications system. These meetings also identify emerging technologies of future networks and services in support of the Fourth Industrial Revolution and the process of digital transformation. These meetings develop

technical standards and policy frameworks that make mobile and broadband accessible to all communities, and ensure that ICT services are affordable, equitable and global.

In addition, ITU meetings empower all countries in the field of telecommunications through technology education and training, and make Internet connection possible everywhere, thus, helping to achieve the sustainable development goals and dignified life for different peoples of the world.

The UAE has been elected as member of the ITU Council for the fourth consecutive time for Asia and Australia, receiving 164 votes. The UAE's election took place at the 2018 Plenipotentiary Conference, hosted by the UAE in Dubai from October 29 to November 16, 2018.

The election of the UAE for the fourth time as a member of the ITU Council reflects the UAE's leading position in the global ICT sector, where the country has a reputation for excellence in this field and has always been a key supporter of all sustainable development efforts. 🇦🇪

## SAMENA COUNCIL ACTIVITY

# Microsoft Joins SAMENA Council to Advance Digital Transformation Efforts in the Region in Collaboration with Industry Stakeholders



SAMENA Telecommunications Council has announced that Microsoft, a global leader in technological innovation, has joined its membership as an enabler of digital transformation, innovation, and accessibility, in the wake of fifth-generation technology. Expressing his warm welcome to Microsoft on having joined SAMENA Council's community of global ICT players, operators from and within the SA-ME-NA (South Asia - Middle East - North Africa) region, Mr. Bocar BA, CEO & Board Member stated, "SAMENA Council's community of stakeholders in the digital space would not be complete without Microsoft. Like SAMENA Council, Microsoft believes in open dialogue and active participation on a wide array of critical issues and challenges, understanding which is not only important for our industry's future but also for the ultimate stakeholders - the consumers and our future generations. We are truly delighted by this pledge of industry involvement from Microsoft, and strongly feel that this association between SAMENA Council and Microsoft would serve to further both organization's missions." "UAE's telecom sector is setting an example to lead the country's digital transformation agenda and technology will act as a significant enabler in this

journey." said Khaleelo Khan, MEA Industry Director - Telecoms and Media at Microsoft. "In line with this, Microsoft has recently announced two cloud regions in the country to provide the Middle East governments and businesses with enterprise-grade reliability and performance, combined with data residency and the broadest compliance. With our participation in the SAMENA Council, we look forward to working closely with all the stakeholders and advance the region's digitization journey, empowering everyone to achieve more. "As a major player in the global digital space, Microsoft will be able to leverage the Council's regional and international reach, as well as stakeholder relationship-building platforms and activities in its mission to empower humans and organizations, to its strategic advantage within the SAMENA region. As an important part of SAMENA Council's membership, Microsoft is well placed to help SAMENA create new synergies among local, regional, and international stakeholders on tackling multiple challenge areas, including digital transformation, cross-border data flows, development of digital economy, and digital content, while also fostering AI and IoT-driven approaches in the region. SAMENA Council believes policies and co-operative approaches can help develop new methods and models of engagement, help frame future-friendly regulations and policies, and cross-stakeholder involvement should be fostered to incentivize and influence more investment in digital development. The digital ecosystem's sustainability challenges and the need for making better use of digital technologies, therefore, demand that all stakeholders collectively communicate on common issues and needs, while providing SAMENA Council the opportunity to provide advocacy support and build communication bridges with regional governments. 🌱

## MEMBERS NEWS



## Bureau of Experts at the Council of Ministers Signs Strategic Agreement with STC to Achieve Digital Transformation

The Bureau of Experts at the Council of Ministers and STC signed a strategic agreement aimed at enabling digital transformation and providing digital solutions and services in line with Saudi Vision 2030. The agreement was signed by the Vice-President of the Bureau of Experts at Council of Minister Dr. Amr Bin Ibrahim Rajab, and the CEO of STC Group Mr. Nasser Sulaiman Al Nasser, in the presence of the Chairman of STC Group HRH Prince Mohammed bin Khalid Al Abdullah Al Faisal, HE Chairman of the Bureau of Experts at the Council of Ministers Mr. Mohammed Bin Sulaiman Al Ajaji, VP of the e-government program Yesser Mr. Hesham Al-AIshaikh, and a number of advisors at the Bureau of Experts at the Council of Ministers. According to the agreement, STC will provide the Bureau of Experts at the Council of Ministers with services pertaining to networking,



Internet, smartphones, vehicle control, support, and training through specialized workshops covering topics such as the latest Cybersecurity solutions.



## Batelco Provides Connectivity to New AWS Direct Connect Location in Bahrain

Batelco, the Kingdom's leading digital solutions provider, today announced that it is now providing network connectivity to the newly launched AWS Direct Connect location in Bahrain. The AWS Direct Connect location in Bahrain is the first to be operated by Amazon Web Services (AWS), and provides an easy way for customers to establish a dedicated private network connection between AWS and their datacenter, office, or colocation environment. With AWS Direct Connect, customers can connect to all their AWS resources in any global AWS Region, including the new AWS Middle East (Bahrain) Region,

and transfer their business critical data directly between their premises and AWS. Benefits include reduced network costs, increased bandwidth throughput, and a more consistent network experience than Internet-based connections. Batelco Chief Global Business Officer Adel Al-Daylami, explained that as organizations look to move more of their business critical applications to the cloud, network security and performance become critical success factors. "We are proud to continue to offer services that support customers in their cloud adoption, as we understand and value the needs of our customers and wish to satisfy their demands

for both secure and high performing connections." added Mr. Al-Daylami. By providing network connectivity, Batelco is providing customers the ability to leverage AWS Direct Connect as part of its Cloud Connect Solutions, which are designed to enable enterprises to rapidly scale their global digital business operations and easily extend their reach to a wider global audience. Batelco's efforts and plans are focused on the expansion of its global network and development of strong partnerships with technology giants, with strong emphasis on digital solutions.

## Batelco Wins The Innovation Award - Operator at Telecoms World Middle East 2019

Batelco, the leading digital solutions provider in the Kingdom of Bahrain is delighted to have been presented with The Innovation Award – Operator at the Telecoms World Middle East 2019 Awards, held on 24 September at The Conrad Hotel, Dubai. Batelco received the award for Global Zone as they have set a new benchmark in the telecommunications industry for the carrier neutral digital business platform based on a highly secured Tier III Data Centre, which helps customers to operate their digital business in a secured environment. Commenting on the occasion Batelco CEO Mikkel Vinter said, "We are honored to receive this award which reflects Batelco's efforts in the field of innovation and recognizes the Company's continuous enhancement of the experience provided to our customer. Batelco will continue to provide the best services and enhance its leading position in the ICT sector both locally and regionally in order to contribute towards the development of the digital economy in line with the Kingdom's Economic Vision 2030." Telecoms World Middle East is a prestigious event held annually in which



an esteemed panel of industry judges recognize the performance of telecoms industry operators that have demonstrated outstanding performance, major achievement and innovation during the year. Batelco recognizes that the success of any telecom operator is measured by

ensuring users are provided with innovative products and superior customer service, which comes as a result of the Company's commitment and continued investment in the latest technologies.

## Manama-IX Internet Traffic Exchange Platform Now Welcomes Global Networks



Batelco has announced that Manama-IX (mn-ix), the carrier neutral internet traffic exchange platform, located in the Kingdom of Bahrain, is ready to welcome businesses who wish to avail of the opportunity to interconnect with local, regional and global networks through its integrated platform. The launch plan of Manama-IX (mn-ix) was announced earlier this year, following the signing of a partnership agreement between Batelco and AMS-IX, the world's leading Internet Exchange. Manama-IX, located in Global Zone, the neutral transit zone, serves as a neutral internet traffic exchange platform interconnecting global carriers, local and international operators and both content and cloud providers. The new platform will contribute toward the development and enhancement of internet services across the region localizing and retaining regional traffic and ultimately enhancing user experience. Batelco Chief Global Business Officer Adel Al-Daylami said: "The introduction of Manama-IX is in line with Batelco's strategy to support Bahrain's vision for the Kingdom as a key digital hub in the region." "The platform is now open for business and we have been delighted with the response so far with a number of leading industry players already on board. Our goal is to develop Manama-IX into a leading internet hub in the MENA region and ultimately into a global digital gateway," Mr. Al-Daylami added.



## du and Network International Join Forces to Launch Advanced Payment Solution

As a one-stop-shop for empowering the UAE's enterprise sector, du, from Emirates Integrated Telecommunications Company (EITC), is enabling small-to-medium businesses to flourish through the launch of an efficient, affordable POS solution. As the UAE transitions to becoming a cashless society by 2020 in line with the Smart Government initiative, merchants are increasingly on the lookout for innovative offerings to digitize their services. With zero upfront payments, free setup, and a state-of-the-art POS machine, du's Business POS offering – supported by Network International's N-Genius™ payment technology platform – eases many of the pain points associated

with today's payment solutions. Hany Aly, Executive Vice President for Enterprise Business, du, said: "In the UAE, the SME sector represents a large segment of the overall business landscape. As the nation becomes more digitally enhanced with the onset of the digital transformation agenda, these enterprise ecosystems will need to adequately evolve with the technological transformations of tomorrow. The launch of du's advanced digital Business POS solution will empower SMEs to experience business growth and continuity, as well as achieve new capabilities that will enable them to thrive and contribute to the digital transformation agenda of the UAE." Samer Soliman- Managing Director,

Middle East at Network International, said: "As we continue to facilitate the rapid shift from cash to digital payments, Network International is proud to partner with du to launch the Business POS solution for SMEs, which plays a vital role in powering the UAE's economy. As a market leader in payment solutions, we are committed to revolutionizing how businesses manage and accept payments, and our N-Genius™ payment platform offers merchants a flexible, scalable solution that can help them quickly adapt to a rapidly changing environment." Business POS is a payment solution device that enables merchants to accept card payments and digitize their payment transactions to maximise efficiency. By offering zero upfront cost, free setup, and reduced transaction fees across a 24-month instalment plan, Business POS enables customers to kick-start their business with an Advanced Digital POS on the N-Genius™ payment platform. N-Genius™ is enabled with a touch screen, accepts contactless payments, runs on the Android operating system, and allows customer receipts to be sent via email to reduce paper use. It provides customers with a digital payment interface that accommodates new payment methods including Apple Pay, Samsung Pay, Alipay and WeChat pay. The portability of the device means it can be used safely and securely as a fixed or mobile device anywhere in the UAE.



## du Names New Chief Executive to Replace Osman Sultan

Emirates Integrated Telecommunications Company, also known as du, appointed industry veteran Johan Dannelind as Chief executive, replacing Osman Sultan after almost 14 years at the helm of the company. The new chief executive will take charge of the telecom operator in early 2020, du said in a statement to the Dubai Financial Market, where its shares trade. The appointment follows a rigorous international search to find a candidate who could steer the company through the "changing nature of the

telecommunications industry", it said. "I am delighted that this has resulted in the selection of Johan, who has earned a reputation for delivering results in challenging situations," said Mohamed Al Hussaini, EITC Chairman. "We are confident that his extensive international exposure and experience of managing public companies will add great value to EITC." Mr. Dannelind brings 25 years of experience in the telecoms and internet industry. He is currently group chief executive of Telia, the largest Nordic operator and one of the

biggest global internet carriers, with €8 billion (Dh32.8bn) of revenues operating across seven countries. Mr. Dannelind has earlier held roles for Telia in the Nordics, Brazil and Sri Lanka, amongst others, after which he was appointed as the deputy chief executive of Telenor in his native Sweden. He later took on roles as the chief financial officer and chief executive of Digi in Malaysia, which was also part of the Telenor Group. Mr. Dannelind also oversaw Vodafone and Vodacom's seven businesses across continental

Africa. Du's outgoing Chief Executive, Mr. Sultan, was instrumental in establishing the company as a strong competitor to incumbent Etisalat in the UAE. "We thank him for his tireless contributions, vision and unmistakable passion," du said. The operator is ramping up its fifth-generation

connectivity in the UAE and will have almost 800 5G mobile infrastructure sites by the end of the year to boost network coverage, Mr. Sultan said in July. The 5G connectivity will be up to 100 times faster than the 4G network used by more than 3.6 billion mobile internet users around the

world. Du's capital expenditure for the year will be between Dh1.6bn and Dh1.8bn, but Mr. Sultan at the time did not disclose how much of that amount would be spent on the development of a 5G network.



## Etisalat Named 'Best Regional Wholesale Carrier' at 13th Annual Telecoms World ME Awards

Following its global milestones achieved in 5G network this year and the live 5G video calls made across various locations in UAE, Etisalat announced the availability of 5G coverage in the world's tallest and iconic tower 'Burj Khalifa' showcasing readiness of the state-of-the-art 5G network and compatibility with industry leading 5G smartphones. Today's 5G call is a major step for Etisalat as it proves the network readiness and availability of the 5G network and services in the country. Etisalat's landmark announcement earlier in the year also gave subscribers an opportunity to be the first in the MENA region to

experience the new super-fast 5G network on 5G ready smartphones. Etisalat aims to provide customers a unique experience by enjoying blazing speeds and faster response time on the 5G network upto 1Gbps and lower latency to 1 millisecond. At around 20 times faster than 4G and with ultra-low latency, 5G technology will allow users to stream live 4K resolution video anywhere at any time, with virtually no lag. With 5G technology consumers will witness unprecedented network speed allowing users to enjoy uninterrupted 4K & HD videos, AR/VR services, cloud gaming from anywhere in UAE, advanced

robotics, autonomous transport, 3D printing and wearable technologies. This breakthrough achievement was possible due to the continuous efforts in building and investing in the network to enable connectivity, innovation and bring digital transformation. Etisalat aims to build 1,000 5G towers across the UAE during 2019 to enable 5G coverage. Etisalat embarked on its 5G journey in 2014 when it started constructing the network with a dedicated team of engineers and specialists dedicated to build one of the most advanced networks in the region. The major milestone for Etisalat and the telecom industry was the launch of the first commercial 5G wireless network on 14th May 2018 in the UAE becoming the first telecom operator in the MENA region to achieve this technological breakthrough and set an industry benchmark. Expo 2020 was also the first major commercial customer in MEASA to partner with Etisalat on 5G in July 2018 delivering a unique and memorable experience for the millions of visitors. Through its network rollout and the pioneering launch of the first 5G handset in the MENA, Etisalat managed to provide UAE customers with an opportunity to experience the power of 5G technology. Etisalat also empowered visitors at Abu Dhabi international airport with indoor ultra-high speed 5G connectivity, making it the first airport in the region with 5G coverage.



## Telcos Today Play a Key Role in Enabling a Digital Economy, Says Etisalat Chief

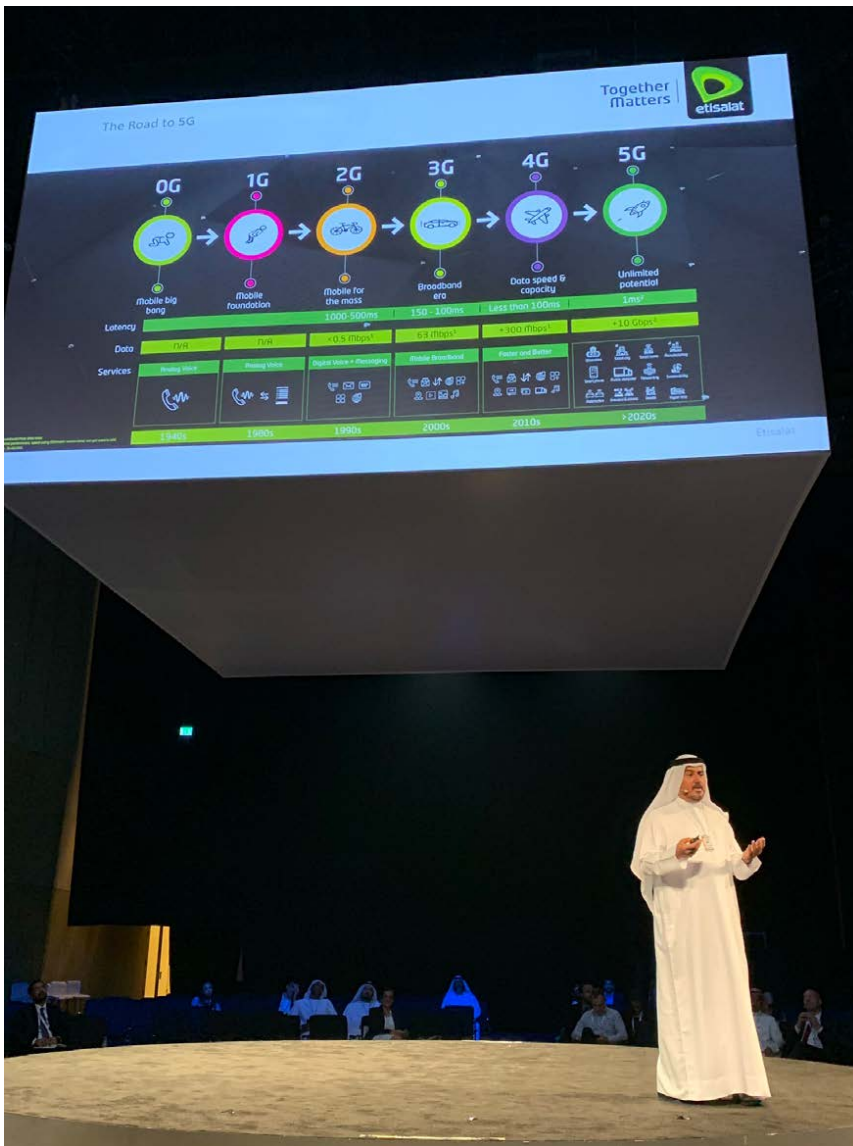
Today digital proliferates the telecom industry with digital services deeply embedded in our business models. We are also enablers for other industries providing connectivity solutions to grow in the digital economy, said Hatem Dowidar, CEO International, Etisalat, in his opening remarks at Telecoms World Middle East and Carriers World Middle East 2019. "Etisalat pioneered the 5G launch in the MENA region through its commitment and focused efforts on key strategic priorities that has enabled smarter digital offerings and transformed the ecosystem. This has opened up opportunities to engage with business and customers in new ways." The 15th Telecoms World Middle East and Carriers World Middle East is ongoing at Conrad Hotel in Dubai on 24-25 September. The event is among the biggest and most influential telecom events in the region focusing on the latest developments transforming the telecoms industry, such as 5G networks, AI and automation. Discussions covered strategy, innovation and partnerships for the telecoms ecosystem. Etisalat chief executives were part of panel discussions and roundtables moderated by global and regional experts in the region. Hatem Bamatraf, CTO, Etisalat International, was a key panelist in the opening CEO keynote panel on 'Driving digital transformation in TMT: a 2030

vision'. Key topics were reinventing the current telco to thrive in the future, offering a multi-service player with a wide range of digital services; developing the most efficient business models and strategies to grow in the digital era. These discussion topics are in line with Etisalat's overall strategy of 'Driving the Digital Future to Empower Societies'. Dr. Kamal Shehadi, Chief Legal and Regulatory Affairs Officer, Etisalat International, participated in a keynote panel on '5G rollout: will the Gulf win the race?'. Panelists deliberated on a wide range of issues, including tapping into the 360 million mobile subscribers in the region; examining the need for private sector investment to deliver 5G goals; explaining the economic benefits and social benefits of next generation network deployment; and evaluating the necessary regulations to enable deployment and causes for concern. Ali Amiri, Group Chief Carrier and Wholesale Officer, Etisalat, took part in a panel discussion on 'Breaking boundaries in the ME: what opportunities lie ahead?' A multitude of topics were discussed such as accessing emerging markets in the Middle East (ME) for global and regional carriers, capitalizing on the geographical advantage of the UAE and neighboring countries, and driving the ME to become the subsea terminal hub between Europe and the Far East.

The panel also looked into highlighting best practice to avoid cable congestion; improving connectivity between existing subsea cables; and boosting capacity to meet the massive growth in data, IP and content demands between Asia and West Africa via the Middle East. Other Etisalat senior executives who participated in panel discussions were Omar Al Zaabi, Vice President – Product & Capacity Management, Etisalat; and José L. López-Villén, Director of Open Innovation & IoT Partnerships, Etisalat. On the event's second day, Gonçalo Fernandes, Senior Director Emerging Technologies and Design, Etisalat Digital, will take part in a 'fireside chat' on 'Blockchain for telecoms: a new digital transformation tool'. Robert Middlehurst, Vice President/Regulatory Affairs, Etisalat International, will share his insights into 'Regulating AI: a matter of urgency?' Abid Mustafa, Director Strategy and Customer Experience PMO, Etisalat, will present a case study on 'Documenting Etisalat's Robotic Process Automation (RPA) journey'. He will cite the benefits of effectively automating human interaction with computer software to carry out tasks autonomously; increasing responsiveness to disruption by streamlining tasks; and keeping the end user in mind by overcoming major challenges.



## “5G and Digital Transformation in the Energy Sector will Bring Immense Opportunities for Innovation and Value Creation,” Says Etisalat Group's Chief Strategy and Governance Officer



5G and digital transformation in the energy sector will bring plenty of opportunities for value creation and innovation. Collaboration and open innovation among telecom operators, industries and governments will bring joint 5G success, creating new eco-systems and business models, said Khalifa Al Shamsi, Chief Strategy and Governance Officer, Etisalat Group. Al Shamsi explained the advantages of 5G technology compared to previous wireless generations and shared the various features it brings to industries during his keynote titled 'Leveraging 5G to Drive Sustainability & Enable innovation in the Energy Sector' during the 24th World Energy Congress (WEC) held from 9–12 September 2019 at the Abu Dhabi National Exhibition Centre. His keynote stressed on the important role of Etisalat as a telco and digital solutions provider to innovate in tailoring specific vertical solutions by working closely with partners. The mass connectivity of sensors and IoT devices is extremely relevant as up to 1 million devices can be connected in a square km, increasing the potential of remotely covering and monitoring a huge location like an oil field or a refinery with more

than hundreds of thousands of sensors with a single 5G station. Al Shamsi said: "Today there are immense opportunities with 5G for industrial verticals looking for new ways to enable innovation with futuristic technologies such as IoT, AI and robotics improving efficiency and productivity, supporting the development of new products and services. 5G is the cornerstone for Industry 4.0 and key for digital enablement, industry stakeholders must collaborate to pilot, trial and experiment with advanced technologies that are critical to capture the full potential of the energy sector." "With Etisalat's focus on 'Driving the Digital Future to Empower Societies' we work closely with the energy and utilities sector in supporting them leverage the benefits from the 5G network and technology, innovate jointly, optimize their business processes and provide more efficient and profitable business. Etisalat also participated in panel sessions aimed at sharing best practice and identifying solutions for the key issues facing the sector. Alberto Araque, Vice President, IoT & Digital Payments, Etisalat Digital, joined global energy leaders and experts in a panel discussion on "The age of digitalization: a new vision for energy systems". Kamran Ahsan, Senior Director, Security Solutions, Etisalat Digital, participated in a panel discussion titled "Cybersecurity, 3 clicks from collapse" that highlighted the importance of increasing resilience to cyber risk to current and future energy security. Etisalat's stand featured live demos and presentations on IoT and security, namely Smart Service Station, Connected Worker, Smart Utilities, Device Security, Industrial Control Systems (ICS) Security Infrastructure, and ICS Security Operations. The World Energy Congress is the world's largest and most influential energy event covering all aspects of the energy agenda. High profile attendees included ministers, energy leaders, and prominent experts. Running since 1924, the Congress enables dialogue among Ministers, CEOs, policy-makers and industry practitioners on important developments in the energy sector. Under the theme 'Energy for Prosperity', the 24th World Energy Congress defines the strategy for a collaborative, sustainable and innovative energy future that enables societal, commercial and community prosperity. It marked the first time the Congress has been hosted in a Middle Eastern city, and by an OPEC member country, in the event's 95-year history.



## Etisalat's 5G Experience Bus Showcases Real Life Use Cases

Etisalat and Ericsson are embarking on an exclusive roadshow – The 5G Experience Bus – showcasing 5G capabilities through innovative use cases. The roadshow will demonstrate how 5G will enhance digital transformation to all UAE consumers and businesses. Saeed Zarouni, Senior Vice President, Mobile Network, Etisalat says: "Etisalat has set a benchmark with the launch of the first commercial wireless network in MENA, a testimony to our continuous efforts in building a network that will enable innovation and accelerate digital transformation. The

5G roadshow with Ericsson is in line with the UAE leadership's vision and further signifies our overall strategy of 'Driving the digital future to empower societies'. This is an opportunity to experience the immense potential of 5G and new generation technologies for all customers." Etisalat reached a major milestone in May 2018 with its launch of the region's first commercial 5G network, and all its customers experienced 5G in UAE for this year – a first in the Middle East & North Africa (MENA). Etisalat was also the first telco in the region to enable

indoor 5G coverage in an international airport- namely Abu Dhabi Airport. The leading telco made another significant achievement by enabling 5G in Burj Khalifa, the world's tallest building, which adds to Etisalat's long list of 5G landmark successes, including having Dubai Expo 2020 as the first major commercial entity to get 5G coverage in MEASA region. Fadi Pharaon, President of Ericsson Middle East and Africa, says: "With Etisalat's successful 5G launch, 5G is now a reality in the UAE, enabling high speeds, low latency and massive connections to people and businesses. Building on our long-standing partnership with Etisalat we are thrilled to launch our joint 5G Experience Bus to showcase new use cases. Our partner Etisalat is capable of unlocking the potential of 5G for UAE consumers and businesses." The '5G Experience Bus' will have multiple stopovers at strategic locations in UAE. Companies will witness various real-life IoT use cases enabled by 5G, such as transport, energy, public safety, logistics and entertainment focusing on enhancing operational efficiencies and user experiences.



## Etisalat Launches UAE's First End to End Cloud-Based Video Surveillance and Analytics Solution for SMBs

Etisalat has announced the launch of its Video Surveillance (VSAAS), providing small and medium businesses (SMBs) with a value-added service that addresses their security and regulatory compliance needs. Etisalat VSAAS is a state-of-the-art onsite video surveillance technology that enables business owners to focus on growing their businesses, while allowing Etisalat to proactively deploy, manage, troubleshoot and support the solution. Esam Mahmoud, Senior Vice President, Small and Medium Businesses, Etisalat: "We are delighted to launch a first-of-its-kind Video Surveillance solution in the UAE that offers round-the-clock security, real-time data access, remote surveillance, and flexible scalability in data storage for small and medium businesses. Etisalat's mantra 'Your business grows with us' reflects our commitment to the country's SMB sector.

In addition to helping SMBs manage their business, increase their business productivity and importantly, profitability, we are offering them enhanced security and enabling them to benefit from the power of video and video analytics." Etisalat is offering customers a one-stop solution for all video surveillance needs: end-to-end managed services, security surveillance with analytics, web and mobile access, business intelligence, upgradeable cloud storage, and a monthly subscription model. Other features include end to end managed services, heat maps, people counting, a security system, and a queuing management solution. Etisalat Video Surveillance covers all CCTV requirements, ranging from supply to installation, testing, commissioning, and maintenance support. It will provide the required cameras, network video recorders with local storage,

cloud-based video management system with analytics, web-based access, a mobile app, and basic seven days cloud backup as default for continuous streaming. The service ensures safety and security of customers' premises, resources and assets. Customers are now able to view live and play back recordings remotely, getting alerts on critical transactions, and store data over a secured cloud. Etisalat VSAAS video analytics technology allows customers and retailers to optimize operations by responding quickly to their needs and market trends. Instead of paying upfront, customers can select from four packages that suit their business needs, starting from AED99 per month. They can customize their VSaaS package by choosing a range of add-ons with their base packages.



## Omantel Collaborates with STARZPLAY to Provide the Leading Entertainment Platform

In line with its efforts to provide innovative digital services, Omantel, the Sultanate's first and pioneer provider of integrated telecom services, announced the launch of the Direct Carrier Billing with STARZPLAY, the region's leading SVOD entertainment and largest Arabic content platform. The new service enables Omantel's postpaid and prepaid customers to purchase movies and TV shows with no credit card required. Instead, all purchases will be charged directly to customers' monthly bills or prepaid accounts, driving customer value through easier payment options. Commenting on the partnership, Andrew Hanna, Chief Commercial Officer at Omantel said: "Our initiatives are always centered on providing state-of-the-art technologies and latest services to our customers. This new service comes as we seek to enhance our customers' experience and stimulate procedures by providing them with alternative payment options for their purchases of online content". 'STARZPLAY platform is made available to our customers through weekly packages for R.O 1.2 and monthly package for R.O 4 only. As an introductory offer, we are pleased to announce that customers can avail free seven days trial of the service and enjoy a wide range of Hollywood & Bollywood movies, TV and documentary films as well as entertainment programs for kids. Customers can subscribe to the weekly package by sending '1' or '2' for the monthly package to 90202" Andrew concluded. Danny Bates, Chief Commercial Officer and Co-Founder at STARZPLAY, added: "This tie-up with Omantel underpins our commitment to the Omani market, our unwavering focus

on the customer and the importance of partnerships for STARZPLAY as a business as we continue to expand across the MENA region and beyond. "We look forward to working closely with Omantel to ensure we are providing its customers with exactly what they are looking for – unrivalled content with flexible payment options, making their lives easier." STARZPLAY is a subscription video on demand (SVOD) service that streams thousands of blockbuster Hollywood movies, TV shows, documentaries, kid's entertainment and same-day-as-the-US series – plus dedicated Arabic and Bollywood content – to 20 countries across the Middle East and North Africa. According to the IHS Markit Pay TV & Online Video Report MENA 2019, STARZPLAY is the MENA region's leading platform in terms of subscriptions for the second consecutive year, with 29% market share. In addition to securing its position as a joint market leader in terms of revenue with a 32% market share. STARZPLAY utilizes advanced technology to provide a premium viewing experience with full HD and 4K content sourced from

some of the most important studios in the entertainment business, such as 20th Century Fox, CBS, Disney, Lionsgate, Paramount, Showtime, Sony, Starz, Universal and Warner Bros. STARZPLAY also delivers amazing value – for a low monthly fee subscribers can enjoy unlimited ad-free access to a wide choice of entertainment. Developed exclusively for the MENA region, STARZPLAY features one-click Arabic subtitling plus Arabic and French audio options. Additionally, the service allows customers to watch anytime, anywhere on an iOS or Android device, supports Mac and Windows browsers, and streams via Apple TV, Chromecast, a PS4 console or directly to a Samsung smart TV. Available on regional IPTV services, STARZPLAY is continually adding support for numerous other gaming and smart devices, and allows downloads for offline playback. For the ultimate convenience STARZPLAY also offers new subscribers a free trial as well as a broad range of payment methods including credit card and mobile operator billing, with a 'no contracts – cancel anytime' proposition.



## Omantel Launches a Dedicated International Network Operation Centre to Enhance Global Wholesale Customer experience

Omantel, a wholesale world-leader in ultra-low latency networking, has launched a dedicated International Network Operation Centre (INOC) in Oman. INOC enables Omantel to meet Customer Experience Key Performance Indicators (KPIs) while troubleshooting network issues before they can impact service quality. The INOC has been deployed in response to accelerating growth in Omantel's wholesale international customer base and expanding global network footprint. INOC acts as a central point of contact for customers and partners and provides them with real-time information on end-to-end network availability and performance. It has full visibility into the 20 subsea cable systems in which Omantel has invested covering 120 locations around the world. It aims to ensure 100% uptime of the network and deliver operational and customer experience excellence. "Our wholesale business is growing around the world,

and we needed a central command center for both customer service and ensuring the overall operability of our network ecosystem. INOC has been developed in response to customer demand and has been specifically tailored to the needs of a Cloud and Content-centric market," said Salim Al Mazrui, General Manager – Wholesale Operations at Omantel. "Our international operations will only continue to grow, and we now have a foundation that is ready to scale to meet future demand and exceed the expectations of our valued wholesale customers." INOC will monitor international services offered by Omantel via either terrestrial or submarine cable systems to ensure smooth network operations. It has been purpose-built to resolve all network-related issues rapidly and in compliance with stipulated policies, procedures, and quality standards. Al Mazrui continues, "Oman is located at the nexus between Asia, Africa, Europe, and

Asia. With INOC, we have a dedicated team of networking experts that are perfectly positioned to solve networking challenges and expedite how issues are resolved across the globe. INOC is another step on the journey as we develop and deliver world-class infrastructure and use our geographic advantages to better serve our wholesale customers and partners. They can benefit from a single point of contact for resolving network-performance related issues when occurring." The INOC dedicated team proactively communicates with international customers and providers and coordinates with local and international teams to resolve any incidents, outages or degradation, which may affect international links or services. The INOC is set to be expanded in the near future into phases to further increase the scope and widen its role.



## Three Companies Win the Local Edition of the Orange Social Venture Prize (OSVP)

Three start-ups won in the third local edition and the ninth global edition of the Orange Social Venture Prize (OSVP). The jury of the prize evaluated the projects of seven companies that were qualified to the final stages, choosing winners of the first three places. This came after the participants presented their innovative projects in front of a special committee that evaluated these projects with high accuracy. The names of these companies will be announced next month. According to Orange Jordan, the three winning companies will receive a cash prize of JD 4,000 for the first winner, JD 3,000 for the winner coming in second place, and 2,000 JD for the winner of the third place. Winners will also have the opportunity to participate in the international version of the prize, which will be held in November, in South Africa, where this competition represents an opportunity for them to

compete for one of its prizes which amount to 25,000, 15,000, and 10,000 Euros for the three prizes. Orange Jordan opened the registration to participate in OSVP from

March to September, targeting projects that offer innovative solutions that respond to the needs of community in different areas such as health, agriculture, education,



energy, commerce and industry. Due to the importance of the prize a jury with expertise in entrepreneurship has been formed and consisted of: Chief Executive Officer of Abd Al Hamid Shoman Foundation, Valentina Kassisieh, Deputy Executive Director at The Jordanian Hashemite Fund for Human Development (JOHUD), Mohammad Al-Amoush, CEO at Information and Communications Technology Association

– Jordan (Int@j), Eng. Nidal Bitar, Director of Strategy & Partnerships at Crown Prince Foundation, Mais AlDaoud, pioneer Fida Taher and PR, CSR, and Corporate Communication Director at Orange Jordan, Rana Al Dababneh.. This prize falls in line with is in line with Orange Jordan's CSR plan, through which the company aims to capitalize on and invest in the talents of the local community, especially

young entrepreneurs, whom the company keen to support through providing training programs, financial support and professional expertise, in order to help them turn their ideas into real projects on ground, contributing to the development of the local community and advancing the overall development of the Kingdom.

## Orange Data Center Receives the Tier III International Certification



Under the patronage of HRH Princess Sumaya bint El Hassan, President of the Royal Scientific Society (RSS) and Chairman of the Board of Trustees at Princess Sumaya University for Technology (PSUT), Orange Jordan held a press conference to announce that the Orange Data Center has received the Tier III Constructed Facility Certificate from the American Uptime Institute, specialized in studying and evaluating global data centers, after the center has passed the requirements for this certificate to become the first data center in the Kingdom to obtain this certificate. H.E., Marwan Juma, Vice Chairman of PSUT's Board of Trustees attended on behalf of HRH Princess Sumaya bint El Hassan. During the press conference held at the center in the attendance of CEO of Orange Jordan, Mr. Thierry Marigny, Chief Enterprise Officer, Mr. Sami Smeirat, Chief Wholesale Officer and Chief Information Technology and Networks Officer, Mr. Waleed Al

Doulat, Data Center Manager and Tier III Project Manager, Bahjat Al-Adwan and Eng. Mustapha Louni, Managing Director - Middle East, Africa & Greater India at Uptime Institute, Marigny said that: "Orange Jordan is the first company at a national level that obtains this certificate, which is given according to the international standards and specifications that must be held by information centers on an international level, affirming that the company is interested in serving all people benefiting from its services, whether on a business level or individually, pointing out to company keenness in offering all services that meet the expectations of the business sector and companies. For this reason, the company established this center six years ago, which is considered to be a realistic example of the digital development witnessed in the Kingdom. Marigny also pointed out that the Orange Data Center, and since its inception, has been providing services similar to those

offered at "Hashim Station", and that the center is considered a support for the Orange network in the Hashim Station Data Center to maintain the continuity of data flow efficiently and without interruption through high-speed internet. He added that the company has made significant investments to strengthen its infrastructure to stay up-to-date with the digital development in the world and achieve the desired prosperity in the business of its customers, as a proof of its outstanding expertise in data collection, transmission, archiving, processing, analysis, sharing and maintaining its security. From another side, the company has been an active contributor to the consolidation of the telecommunications infrastructure which has become possible for all other sectors with no exception. Eng. Smeirat talked about the importance of the center, saying that: "This center that we established in 2013 as a second data center to meet the needs of our business customers in the Kingdom, and place the latest technologies and innovations in their hands by providing a suitable environment for hosting web sites or big software that requires a 24-hour online presence without interruption or being affected by surrounding conditions. The first Orange Data Center was established 20 years ago to serve customers and that the company always seeks to adopt digital technology and offer integrated and the most advanced services to its businesses customers in the Kingdom. This will benefit many companies and institutions in various sectors, including; financial, healthcare, media, e-commerce, education and government". Eng. Doulat, said that: "Receiving the Tier III Certification affirms that the company has achieved the

highest standards and follows the best engineering specifications, which meet the requirements specified on a global level, pointing out that the center has previously obtained a number of prizes, including; the coveted Panduit Certificate, specialized in building data centers worldwide in 2017 and ISO: 14644-Class 8 certification for private data centers free of internal environmental pollution, and ranked first in the Middle East and Africa. From his side, Eng. Al-Adwan showcased the practical procedures on

which the certificate is granted on, where he said: "It includes live demonstrations of the system under realistic conditions, and validation of performance, according to the data center objective for this certificate. This certificate also depends on reviewing several electrical, mechanical and facility standards, as defined in Tier Design Standard and Topology, a globally recognized standard for data center reliability and effectiveness". He also pointed out that Orange Data Center offers a variety of outstanding services,

most notably its generators and air conditioners with large capacities and capabilities, capable of providing the required electrical loads for servicing the servers, applications and network of devices, in case of conducting operations maintenance or switching power devices and utilities without the need to stop the service permanently. In addition it contains electrical paths to connect the alternative network with the same capacity, capability and efficiency.



## Telecom Egypt and the Administrative Capital for Urban Development Sign Agreement for the Provisioning of Telecom and Smart Services Network

Telecom Egypt and the Administrative Capital for Urban Development (ACUD) signed an agreement to build and operate a telecom networks in the new administrative capital as well as to provide smart and security services networks. The agreement was signed by Major General Mohamed Abdel Latif, the General Manager of the ACUD, and Adel Hamed, the Chief Executive Officer of Telecom Egypt in the presence of Dr. Moustafa Madbouly, the Prime Minister of Egypt, Dr. Amr Talaat, the Minister of Communications and Information Technology and Major General Ahmed Zaki Abdeen, the Chairman of the ACUD . This project comes in line with ACUD's strategy to provide the new administrative capital with the latest technological solutions to manage smart integrated systems and support the national digital transformation initiative, especially the plan to digitize the Egyptian government. Under this agreement, Telecom Egypt will establish, operate, lease, manage and maintain the telecom network of the new administrative capital, in addition to deploy smart services and security systems. Telecom Egypt will provide the telecom infrastructure within the new capital and will connect it to the company's network. The company will also provide high quality wholesale services to other mobile network operators. Adel Hamed, Managing Director and Chief

Executive Officer, commented: "We are very proud to have signed this agreement with the ACUD and delighted to be involved in such an important project. Over the past year Telecom Egypt has consistently demonstrated its exceptional ability to complete digital transformation projects in record time and we are looking forward to build on our experience in this field. In addition, the project comes in line with our priorities in light of our commitment

to capitalize on and facilitate the national digital transformation. The agreement also comes conveniently at a time when Telecom Egypt has already been working to improve internet services in Egypt and we will therefore capitalize on our expertise in the field and exert all the effort to develop the best technological solutions to manage a complete system of smart solutions for this new city."





## VIVA Changes Its Network Name to 'SABAH AL INSANYA'

VIVA, Kuwait's fastest-growing and most developed telecom operator, changed its network name to 'SABAH AL INSANYA', in line with the fifth anniversary of the UN honoring of HH the Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah as a 'Humanitarian Leader' and of Kuwait as a 'Humanitarian Center'. This change came as a gesture from VIVA in recognition of the Amir's historical achievement, and runs along the lines of the celebration of the Kuwaiti people of this well-deserved international crowning of Kuwait's long history of humanitarian and charitable initiatives spanning throughout decades. The employees of VIVA engaged emotionally with great pride during this day with their customers to emphasize the patriotic spirit amid the Kuwaiti people and expressed full gratitude to HH the Amir of Kuwait who has spared no efforts and has played exemplary humanitarian role in different countries in the world. In addition, the employees of VIVA pray to Allah the Almighty to grant the Amir with good health.



## VIVA Kuwait Renews Multi-Year Contract for Revenue Assurance and Fraud Management with Subex

Subex, a leading telecom solutions provider announced that it has been awarded a three-year contract from VIVA, Kuwait's fastest-growing and most developed telecom operator, to provide its ROC Revenue Assurance and ROC Fraud Management solutions on a Managed Services model. This marks the renewal of the earlier contract that both companies had for the provision of Business Assurance and Fraud Management solutions. VIVA is part of the STC group, the world-class digital leader in the Middle East and South Africa, and has rapidly established itself in the market through its customer and employee-centric approach. The engagement is aimed at helping VIVA Kuwait accelerate their drive towards digitalization across different verticals, and to support them in various innovations including 5G and IoT. With VIVA Kuwait focusing heavily on 5G,

new revenue streams are expected to open up for the operator, which need advanced capabilities for Business Assurance, Fraud and Security. Subex being a leader in the space, and now pioneering the concept of Digital Trust, will continue to deliver value to VIVA Kuwait. "We have now been working with Subex for nearly a decade, and have seen sustained value in the relationship. We achieved a great degree of process automation and efficiency through our engagement with Subex, and we are keen to carry forward the collective momentum gathered. With their reinvigorated suite of solutions infused with AI/ML, we see great possibilities in the future with this partnership. Subex's vast experience in the Business Assurance and Fraud Management space coupled with their great track record with us led to us extending this contract. Also, their renewed focus on Digital Trust aligns

with our priorities of assuring business in a digital world, resulting in a perfect synergy. We look forward to the next phase of this partnership," said Sai Devata, Finance Controller, VIVA Kuwait. "VIVA Kuwait is seen as an innovator in a highly competitive market and is extremely good at leveraging technology to drive significant business value. To be awarded the contract extension is an endorsement of our ability to secure VIVA's business innovation initiatives using a combination of our Technology and domain expertise. With VIVA's plans for 5G roll out, the next phase of the journey is expected to be further exciting and will have us collaborate closely. We immensely value our partnership with VIVA and are confident of our ability to deliver value," said Shankar Roddam, Chief Operating Officer, Subex.



## Zain Teams Up with Microsoft to Drive Digital Transformation in Kuwait's SME Sector



Zain, the leading digital service provider in Kuwait, announced a partnership with Microsoft to accelerate digital transformation among its SME customers, through the provision of trusted cloud services. The partnership will allow existing Zain customers to benefit from launch offers and special promotions while connecting Kuwait's entrepreneurial community to the advanced tools and technology platforms needed to grow and thrive in the global digital economy. Small and medium-sized enterprises (SMEs) will gain access to solutions such as Office 365 and other Business Intelligence tools in order

better empower their employees, engage their customers, optimize operations and transform products and services. Eaman Al Roudhan, Zain Kuwait's Chief Executive Officer, commented: "Our collaboration with Microsoft comes under the umbrella of Zain's vision to expand our strategic partnerships ecosystem with global technology leaders around the world to offer the latest and most advanced business solutions to the Kuwaiti entrepreneurial community. It is of paramount importance to us that we support homegrown talents in their endeavors to create jobs and make their mark on the regional and global stages."

## Zain Announces Expanded Cloud Offerings with Oracle FastConnect

Zain Group, the leading mobile telecom innovator in eight markets across the Middle East and North Africa, and Gold level member of Oracle PartnerNetwork (OPN), has announced it will offer dedicated and private access to Oracle Cloud through Oracle Cloud Infrastructure FastConnect, becoming one of the first mobile operator in the region to receive this accreditation. The elevation of Zain to becoming a gold level member with Oracle means the telco can now connect customers directly with Oracle Cloud Infrastructure including to applications such as compute, storage and content delivery, databases and other services. The collaboration bolsters Zain's own Cloud-based activities that allow customers to connect their office/data centers to Oracle's Cloud over Zain's international MPLS network with dedicated bandwidth options ranging from 10Mbps up to 10Gbps. Zain Cloud Connect is an innovative platform that connects customers and different cloud service providers (CSP) in a simple and cost-effective way. It may enable customers to build flexible and scalable hybrid cloud-based solutions, providing customers with the most convenient way to connect to different CSPs. Commenting on the Oracle FastConnect relationship, Henri

Kassab, Zain Group's Managing Director, International, Wholesale & Roaming said, "We have identified the government and enterprise market as key strategic customers and we are dedicated to providing them with the latest and most robust tools and solutions for them to go about their businesses successfully." Kassab continued, "Zain has been a pioneering company since inception and so we are proud to introduce another first to the communications sector in the MENA region through the availability of Oracle FastConnect. We believe strongly that innovation is driven by the delivery of cutting-edge solutions, and Zain continues to seek out partnerships with market-leading technology providers to achieve this goal." "Customers require seamless connectivity from their data centers and networks to Oracle Cloud for their most demanding workloads and applications," said Vinay Kumar, vice president of product management, Oracle Cloud Infrastructure. "With the FastConnect service, customers can provision the dedicated and private connections they need today and easily scale with their growing business demands." Oracle Cloud Infrastructure FastConnect enables enterprise cloud connectivity to Oracle Cloud from trusted

enterprise data centers. Connecting directly to the Oracle Cloud through Oracle FastConnect may enable a fast, private connection to the industry's broadest and most integrated cloud platform, with a complete range of services across Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). Today, Oracle is the only company delivering a complete and integrated set of cloud services and building intelligence into every layer of the cloud. With Oracle Cloud Infrastructure, customers benefit from best-in-class security, consistent high performance, simple predictable pricing, and the tools and expertise needed to bring enterprise workloads to cloud quickly and efficiently.



## Zain Group Teams Up with GSMA to Disclose Climate Impacts

Zain announces it has teamed up with the GSMA and many of the world's largest mobile operator groups to start disclosing their climate impacts as part of a major new GSMA-led initiative to develop a mobile industry climate action roadmap in line with the Paris Agreement. Zain along with more than 50 mobile operators – which together account for more than two thirds of mobile connections globally – are now disclosing their climate impacts, energy and greenhouse gas (GHG) emissions via the internationally recognized CDP system (Global Disclosure Project). The move will enable full transparency for investors and customers involved in the mobile sector. Many of the companies are disclosing for the first time as part of the GSMA-led initiative. The disclosures form the first phase of an industry-wide, climate action roadmap. The next phase will see the development of a decarbonization pathway for the mobile industry aligned with the Science Based Targets initiative (SBTi), to be in place by February 2020. This will include the development of an industry-wide plan to achieve net-zero GHG emissions by 2050 in line with the Paris Agreement. Bader Al Kharafi, Zain Vice Chairman and Group CEO commented,

“Zain is taking an affirmative step to align with the UN global ambition to reduce carbon emissions by 50% by 2030, aiming to be carbon neutral by 2050. We recognize that climate change is a material risk that not only impacts humanity today, but also will impact the ability of future generations to thrive.” “Today's announcement marks the start of an unprecedented, collaborative action by the mobile industry to tackle the climate emergency, demonstrating how the private sector can show leadership and responsibility in addressing one of the gravest challenges facing our planet,” said Mats Granryd, Director General of the GSMA. “The mobile industry will form the backbone of the future economy and therefore has a unique opportunity to drive change across multiple sectors and in collaboration with our suppliers, investors and customers.” “We welcome this landmark move by the mobile sector to disclose its climate impacts via CDP, which demonstrates a clear step-up in commitment to providing transparency to its investors and customers as part of an industry-wide approach,” said Paul Simpson, CEO of CDP. “As a result of these disclosures, mobile operators will be able to measure and understand

their environmental impact, helping them to build sustainability into the heart of their businesses.” The new methodology designed specifically for the mobile sector in limiting global warming will provide parameters to accelerate the rate at which mobile operators set their own targets. The timescale at which individual companies reach the target will depend on several factors, including their geographic location and their ability to access renewable energy. It is expected that some companies will meet the net zero target significantly ahead of the 2050 deadline. Zain along with the mobile industry is also committed to advancing mobile technology innovations in areas such as big data and IoT that can enable energy efficient and environmental solutions across multiple sectors, including transport, manufacturing, agriculture, building, energy. This agreement between the Zain and other mobile operators with the GSMA forms part of the industry's journey to support the delivery of the UN's Sustainable Development Goals (SDGs), specifically SDG #13 on Climate Action, and its mission to intelligently connect everyone and everything to a #BetterFuture.



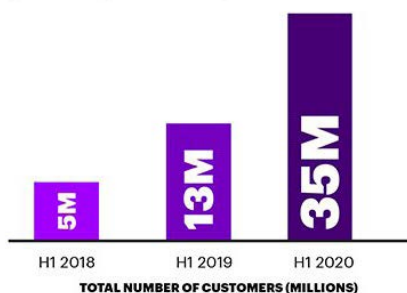




## U.K's Digital Only Banks on Track to Triple Customers to 35 Million in the Next 12 Months: Accenture

Digital-only banks operating in the U.K. could amass a total of 35 million customers globally within the next 12 months – up from 13 million today – based on current growth rates, according to new research from Accenture (NYSE: ACN) which tracks the performance of UK digital banks. In the first six months of 2019 alone, five million people opened an account with a digital-only bank. Digital-only banks are accelerating customer acquisition at a current growth rate of 170% as they launch new products, widen their customer base beyond millennial and expand into new markets. A number have cited that their average customer is aged around the mid-40s, and many reside outside of London. These players have also increased the average deposit balance

### CUSTOMER GROWTH OF UK DIGITAL-ONLY BANKS



fivefold from around £70 to £350 per customer in the first half of 2019. Digital-only banks are also reaping the rewards of improving the customer experience as they gain an average Net Promoter Score of 62 compared to just 19 for traditional banks. They also retain a significant cost advantage with the average operating cost per customer at £20 to £50, compared to over £170 for a traditional bank. Tom Merry, managing director at Accenture Strategy, said: "While digital-only banks are popular, they are not yet universally profitable and customer acquisition alone does not guarantee long-term success or competitive agility. These banks evidently show great promise. They have been a catalyst for positive change in banking, but there are deeper issues that need to be addressed as they scale." Challenges impacting digital-only banks include the reality that the majority are still not profitable and are on average losing £9 per customer. Account switching remains low across the industry and while digital-only banks are now gaining primary account customers and larger balances, the pace of growth is slow. Regulatory hurdles may grow in response to governance and control issues these banks face as they scale, which could impact consumer trust

at a time when trust in traditional banks is increasing. While digital-only banks gain momentum, traditional banks remain the preferred primary account holder for most consumers. Furthermore, incumbent banks are investing heavily in digital to provide a better experience for customers, with an initial focus on transforming their existing infrastructure, and several are launching their own new digital banks. "Core challenges in terms of balance sheet scale and funding, risk management and compliance cast some doubt over whether convenience, customer experience and the cost advantages of digital-only banks are enough to ensure long-term success. It remains to be seen whether there will be a radical overhaul of the banking industry as a result of these new entrants, or simply a continued evolution," concluded Merry.

#### Methodology

Accenture analyzed market data from a representative sample of 30 UK banks. All data has been sourced from publicly available information, including financial reports and media publications. Data is accurate at the time of publication. Growth rates for digital banks were calculated using a 12-month average between H1 2018 and H1 2019.

## Julie Sweet Assumes CEO Role at Accenture; David Rowland Becomes Executive Chairman

Julie Sweet has assumed the role of chief executive officer of Accenture and joined the Company's Board of Directors. She succeeds David Rowland, who has assumed the role of executive chairman after serving as Interim Chief executive Officer since January 10. Marge Magner, Non-Executive Chair of the Board since January 10, has resumed her previous role as Lead Independent Director. These appointments were first announced on July 11. Since 2015, Sweet has served as Chief Executive Officer of Accenture's business in North America, the company's largest geographic market. Previously, she was Accenture's General Counsel, Secretary and Chief Compliance Officer for five years. Outside of Accenture, Sweet is a leader on topics including innovation, technology's impact on business, and inclusion and diversity. As Executive Chairman, Rowland will chair the Board of Directors, continue to be actively involved in Accenture's long-term business strategy, and represent the company with clients



**JULIE SWEET**  
CEO, Accenture

around the world and with key external groups. Throughout his 36-year career with Accenture, Rowland has held significant leadership roles, including serving as CFO from July 2013 to Jan. 2019, and played a major role in shaping the company's growth strategy.



## AT&T Tees up 24 GHz for Drive Tests

AT&T is asking the Federal Communications Commission (FCC) for a Special Temporary Authority (STA) to conduct drive testing in the 24 GHz band in order to calibrate its propagation models for 5G deployments. AT&T Spectrum Frontiers, an affiliate of AT&T, was the high bidder in Auction 102 and walked away with 831 licenses covering 383 partial economic areas (PEAs). As part of its application, AT&T



said it plans to roll out 5G services on 24 GHz "as soon as practicable," and it's asking for the STA to facilitate a rapid planned deployment. "Although AT&T has developed network planning models for 24 GHz, the band is new and the propagation models will need to be tuned for specific combinations of terrain and clutter/land use," the operator explained. AT&T said the proposed operations, which would use spectrum that's already destined to be licensed to its affiliate, pose no tangible risk of interference to any licensed operations, and would promote the public interest by expediting the rollout of 5G services to the public. Keysight is listed on the application as the supplier of the RF signal generator and Sage Millimeter is to supply the power amplifier. The 24 GHz auction raised more than \$2 billion when it closed earlier this year, with 29 bidders winning a total of 2,904 licenses. AT&T bid over \$982 million for its licenses, while T-Mobile pledged over \$803 million for its 1,346 24 GHz licenses. Even though the FCC's rules for millimeter wave bands were coordinated

with federal partners and made public for a long time before the auction, officials from the National Oceanic and Atmospheric Administration (NOAA) were still telling members of Congress in May that 5G deployments using 24 GHz spectrum could negatively impact weather forecasting. The FCC, however, has said it is confident that it can protect passive weather sensors while facilitating widespread 5G deployments. Millimeter wave bands generally can only transmit signals relatively short distances whereas traditional mid-band or low-band spectrum can transmit signals several miles or more, depending on operators' technologies and spectrum configurations. However, the higher bands provide great capacity. New Street Research analysts in a report to investors last week said they believe AT&T's low frequency 700 MHz D Block spectrum from FirstNet provides excellent coverage, while its mid-band AWS-3 spectrum provides good capacity and coverage and its high frequency WCS provides great capacity.

## AT&T Extends LTE-M Roaming to Canada

Businesses will be able to operate Internet of Things devices and applications across Canada and the U.S. now that AT&T has signed separate reciprocal roaming agreements with Bell, Rogers and TELUS. Bell, Rogers and TELUS operate cellular networks that cover most of the 37 million people in Canada. Each have LTE-M up and running across their national 4G LTE networks. In addition to enabling AT&T customers to roam into each of their respective regions in Canada, these reciprocal agreements also enable Bell, Rogers and TELUS to expand their LTE-M footprint into the U.S. This will allow low-power IoT devices such as smart wearables, kitchen appliances, trackers, patient monitors and alarm panels to operate continent-wide in tandem with AT&T. LTE-M enables a host of IoT

applications with lower costs, compact modules, longer battery life and coverage extension. The network operates within licensed spectrum with carrier-grade security and can support firmware and software updates, mobility and voice-over LTE services. LTE-M will be compatible with 5G deployments. "More and more of our enterprise customers are launching IoT applications across international boundaries. Having access to the first North American footprint for LTE-M through these roaming agreements will help them simplify deployments, scale their IoT plans, and put them on the path to 5G," said Chris Penrose, President, Advanced Mobility and Enterprise Solutions, AT&T. "This is an important milestone toward a globalized IoT." AT&T launched LTE-M across the U.S. in 2017, followed by

Mexico. We also launched a nationwide NB-IoT network in the U.S. in the second quarter of 2019 and expect to begin deployment in Mexico by the end of 2019. NB-IoT is a complementary low-power IoT network. LTE-M network deployments have grown globally during the last several years to enable a new generation of IoT applications and services AT&T, KPN, Orange and Swisscom activated LTE-M roaming across their respective IoT networks in Europe and North America earlier this year. AT&T's LTE-M network and roaming agreements now cover the U.S., Canada and Mexico. Combined with existing roaming agreements covering parts of Europe, AT&T enterprise customers now have access to the largest LTE-M ecosystem in the world.

## AT&T Names John Stankey President & Chief Operating Officer and Jeff McElfresh CEO of AT&T Communications

AT&T announced that John Stankey has been appointed President and Chief Operating Officer of AT&T, effective October 1, a new position reporting to Randall Stephenson, AT&T Chairman and CEO. Stankey will also continue serving as CEO of WarnerMedia. The company named AT&T executive Jeff McElfresh CEO of AT&T Communications LLC effective October 1, replacing John Donovan, who earlier announced his retirement. McElfresh will lead AT&T's largest business unit, AT&T Communications, a global telecom leader serving 100 million mobile, broadband and pay-TV customers in the United States, and millions of business customers, including nearly all of the Fortune 1000. Reporting to Stankey in his expanded role will be: McElfresh; his current WarnerMedia executive team; and Brian Lesser, CEO of Xandr. "Now is the time to more tightly align our collection of world-class content, scaled consumer relationships, technical know-how and innovative advertising technology," said Stephenson. "It's the natural next step in bringing together the distinct and complimentary capabilities of AT&T Communications, WarnerMedia and Xandr to deliver for consumers the benefits of a modern media company. AT&T is alone in the industry in being able to bring together these three great businesses for the launch of innovative consumer offers, relevant advertising and new entertainment services like HBO Max. "John is an outstanding executive who has led nearly every area of our business, helped

shape our strategy and excelled at operations throughout his career. The Board and I look forward to John hitting the ground running in his new role as president and COO," Stephenson said. "And I'm excited to have Jeff leading our communications business into the future. He is an accomplished leader with experience across our business – from strategy, technology and network, to marketing, operations and customer experience. This past year, Jeff led the team that won AT&T recognition for having the best, fastest and most reliable wireless network in the country," Stephenson said. Stankey, 56, joined AT&T in 1985 and has served in a variety of leadership roles, including: corporate strategy and M&A; media and entertainment; operations, IT and technology; consumer mobility, broadband and TV; and enterprise business. McElfresh, 48, has nearly 25 years of experience with AT&T in a variety of strategic, operational and technology leadership roles. Before being named to lead AT&T Communications, McElfresh was president of AT&T Communications' Technology and Operations group where he was responsible for the company's network, technology, cybersecurity, data and labs operations. Prior to that, he served as: CEO of AT&T's Vrio and its DIRECTV Latin America and SKY Brasil businesses; and President of AT&T Mexico and a member of the board of directors and executive committee of Telmex and América Móvil, overseeing AT&T's since-divested minority interest in the two companies.



Jeff McElfresh, CEO of AT&T Communications



John Stankey, President and Chief Operating Officer, AT&T Inc.

## AT&T Declares Quarterly Dividend, on Track to Deliver Record Free Cash Flow and Strong Dividend Coverage for 2019



The board of directors of AT&T Inc declared a quarterly dividend of \$0.51 a share on the company's common shares. The dividend is payable on November 1, 2019, to stockholders of record at the close of business on October 10, 2019. Through 2018, AT&T has increased its quarterly dividend for 35 consecutive years, and the company's strong cash flows have allowed it to support a strong dividend policy. In the first half of 2019, AT&T generated \$14.7 billion in free cash flow with a free cash flow dividend payout ratio of 50.6%, down from 77.3% in the first half of 2018. The company expects full-year 2019 free cash flow in the \$28 billion range, with a full-year dividend payout ratio in the 50% range versus 60% in 2018.

## AT&T Reaches New Milestone in Unlocking RAN, Makes World's First eCPRI Call for Millimeter Wave

AT&T's millimeter wave (mmWave) introduction in 21 cities and counting is bringing ultra-fast connections to businesses across the country. And a connection we made last week in Redmond, WA will potentially enable us to expand those mmWave deployments faster and more efficiently. AT&T made the world's first enhanced Common Public Radio Interface (eCPRI) connection for mmWave at our 5G Labs in Redmond. The calls were made using systems from both Nokia and Samsung Electronics America. This opens the door for higher network throughput with less fiber, which will create more efficient mmWave deployments, among other benefits. This is also a significant

step in creating an open architecture within the Radio Access Network (RAN). Some cell phone users probably haven't heard of the Common Public Radio Interface (CPRI), but it's used by carriers today to provide the connection between the radio and the base station which is often referred to as "fronthaul." The CPRI interface today has proprietary aspects which can result in a slower or more costly network build as we increase the bandwidth served requiring more fibers per radio. eCPRI is an enhancement of that technology. It'll increase the efficiency to support higher bandwidth across fewer fibers. It is also what open interfaces are being built on, making it easier to use multiple vendors

in a build. The benefits of this expanded flexibility and capacity will make it easier to deploy mmWave in markets where laying fiber is difficult or impractical, and promote cost effective operations by giving carriers the flexibility to use a variety of vendors to help bring fastest deployments at the best cost. Reaching this milestone is a result of countless hours of work with our collaborators to develop and test the software and equipment needed to establish this eCPRI connection. The open RAN ecosystem we're driving helped enable this significant step today and will help spur future achievements that are good not only for AT&T and our customers, but for industry innovation.

## AT&T Enhances Safety in the Hospitality Industry

AT&T is deploying an integrated, wearable device that will help hotel employees to summon assistance in certain threatening situations. Various jurisdictions across the country are requiring safety buttons for the hospitality industry in an effort to prioritize employee safety. The American Hotel & Lodging Association (AHLA) along with major hotel brands, have pledged to provide hotel employees across the U.S. with employee safety devices. This is part of their program called the 5-Star Promise to help enhance the safety and security of hotel workers. We developed the AT&T Staff Alert Service to help address this need. It includes a compact, lightweight device that activates an alert when an employee presses the button. The employee's exact location is then transmitted to hotel security for immediate assistance. The AT&T Staff Alert Service operates through a combination of Bluetooth, ultrasound and 4G LTE connectivity to provide micro-location data. This reduces the risk of a congested Wi-Fi network and enables for alerts in near real time. The service can be customized and is also interoperable with other IoT applications in the hotel such as building management and asset tracking. "Employee safety solutions play a critical role in helping to prevent and respond to threatening situations," said Chris Penrose, President of AT&T's Advanced Mobility and Enterprise Solutions organization. "We're pleased to work with the hospitality industry to apply IoT technology to help keep their workers safe." "Hoteliers care deeply about the safety and security of their employees and guests," said Kevin Carey, COO and EVP of AHLA. "As we approach the one-year anniversary of the 5-Star Promise, AHLA is proud of not only the commitment of our member companies, but also the work of companies such as AT&T to incorporate new technologies

to market. Together, we will work to ensure hotels remain safe and welcoming places for all who work in and visit them." HTNG is an association that brings together hospitality professionals and technology providers to facilitate the development of next-generation solutions. "We fully support AHLA and the 5-Star Promise and have aligned our organization to build on these efforts," said HTNG's CEO Michael Blake. "I'm excited to be able to welcome AT&T to the community of providers who are helping us address and solve this very important issue." AT&T's IoT Professional Services organization is working with major hotel brands to deploy the solution across the U.S.



## AT&T and American Tower Sign New Agreement

AT&T and American Tower Corporation signed a new long-term agreement structured for mutual growth through a simplified leasing process and expanded site development services. The new agreement streamlines wireless network deployments on American Tower's U.S. sites, enhancing AT&T's deployment of 5G and other next generation technology across the U.S., including FirstNet, public safety's dedicated, nationwide communications platform. "This comprehensive agreement is expected to drive mutual value and growth through a simplified leasing process designed to drive efficiency and flexibility improvements directly benefitting our speed in deploying the latest technologies," said JR Wilson, Vice President of Tower Strategy and Roaming, AT&T. "This is essential for executing on both our 5G and FirstNet

network builds. It ultimately helps us better serve our customers and first responders nationwide." The new agreement aligns with AT&T's commitment to provide its customers, including FirstNet public safety subscribers, with better speeds, reliability and overall performance. This includes a focus on keeping up with booming mobile data usage while improving capacity and coverage across the entire country, especially in underserved rural areas.

"We look forward to this new phase of our long-standing relationship with AT&T," said Steve Vondran, President - U.S. Tower Division, American Tower Corporation. "This agreement provides for an extended mutually rewarding strategic relationship, and we're excited to help AT&T deliver the next generation of wireless technology to consumers, businesses and first responders quickly and efficiently."



## AT&T Says Virtualization Provides 'Stunning' Cost Savings

AT&T CEO Randall Stephenson said that the company's efforts to virtualize its network have provided "stunning" cost savings. Speaking at the Goldman Sachs Communacopia conference this morning in New York, Stephenson said the biggest cost AT&T has is the cost to run its network and its IT shop. "That's our biggest element in our P&L," he said. And he credited the company's efforts to virtualize 75% of its core network functions as paying off in big cost savings. "What it's done to our cost takeout has been stunning," he said. "We are now roughly 17 quarters where the cost of this has been going down year-over-year 7% to 8%. That's a stunning development." Stephenson also gave a shout-out to AT&T Communications CEO John Donovan, who recently announced his retirement effective October 1. Donovan has been a very public face for the company and has been particularly

relevant for FierceTelecom readers as he led the charge on network virtualization for AT&T and helped the telecom operator break away from the dreaded "vendor lock in." Donovan has worked closely with open source groups to completely transform telco networking. Stephenson today credited Donovan for this work. "This is a big deal because when you virtualize these functions and then you create operating systems that manage them and you put those operating systems in the open source community, that's what we've been leading, that's what John Donovan and his team have been leading." He added that open source and virtualization "inoculates" a telco from problems that could arise with a Chinese vendor or Chinese competitor who may try to dominate the global supply chain. He said, "I think the global telecom community owes [Donovan] a thank you for what he has led here." It's not known why

Donovan chose to retire at this time. It's possible that he felt he was not the "heir apparent" to Stephenson. The two men are actually about the same age (in their late fifties). Shortly after Donovan announced his retirement, AT&T said that John Stankey would assume Donovan's role along with his existing responsibilities leading AT&T's WarnerMedia unit. At the Goldman Sachs conference today, Stephenson defended AT&T's choice of Stankey as the company's president and chief operating officer. Stankey will also continue to head up AT&T's WarnerMedia unit. Stephenson said today that he's "been asked a thousand times" if Stankey is his heir apparent. "First of all, the board hasn't informed me I'm retiring yet," joked Stephenson. "But I will say if Stankey is successful at running this play over the next year, he's in a pretty good position."



## BT and the Telecom Infra Project Launch Third Wave of Start-Up Accelerator Program

BT, the Telecom Infra Project (TIP), and Facebook have launched their third annual competition for start-ups in telecom infrastructure to join the UK's TIP Ecosystem Acceleration Centre (TEAC), based at the BT Labs in Martlesham, Suffolk and in London's Tech City. This year's competition is seeking innovative start-ups with services which can deliver business or social benefits by utilizing Edge Computing or 5G Private Network Infrastructure. Winners will work with globally recognized scientists and engineers at the BT Labs at Adastral Park, one of the world's leading centers for telecommunications research, with access to BT's network

facilities, hardware and testing capabilities. In addition, they will gain access to potential investors, build their network across the TEAC global community, and raise their company's visibility. Interested companies should apply by 18th October 2019 via the TEAC UK website. Entries will be judged by a panel of senior network and technology leaders from BT and TIP. The shortlisted companies will be announced at the TIP Summit in Amsterdam on November 12th-13th, and will then be invited to a final pitch event at BT Tower on Thursday 5th December, where the winners will be chosen. Howard Watson, CTIO of BT, and a member of the TIP Board notes: "TIP is playing a crucial role in helping to tackle some of the big challenges in global connectivity, supporting innovation across the telecoms sector and opening up opportunities for companies with exciting ideas, regardless of scale. This year, we're particularly interested in entries from companies who are using Edge Computing or 5G Private Network Infrastructure in innovative ways to create new business opportunities or benefit society." The TEAC initiative is part of the Telecom Infra Project, which was founded in 2016. TIP is a global community that includes more than 500 member companies, including operators, infrastructure providers, system integrators, and other technology companies working together to transform the traditional approach to building and deploying telecom network infrastructure. This year's competition represents the third wave of entries into TEAC UK. Last year, two companies; Tethir and Accelleran, were welcomed into the TIP community.



## BT Spearheading Talks on Copper Switch-Off with Government, Other Infrastructure Providers

British fixed line incumbent BT Group and other local broadband infrastructure operators are reportedly in talks with the government regarding a timetable for the switch-off of copper broadband connectivity, Sky News claims. The news outlet says it has learnt that BT is spearheading an initiative which has been under discussion with other operators, regulators and ministers for 'a number of weeks'. It is understood that under plans developed by BT CEO Philip Jansen, full-fiber broadband would replace existing copper networks on a region-by-region basis over the next six years. A final switch-off date of 2027 has been mooted for customers using the remaining copper lines, as part of the negotiations between the various parties, with residential users and businesses expected to be given two years in each area of the country to move their service to a pure-fiber-based alternative. According to unnamed sources who were said to have been briefed on the companies' proposals, the proposals would see copper broadband lines terminated on a staggered basis, once fiber infrastructure had been fully rolled out in each region. For their part, infrastructure providers would, meanwhile, be obliged

to commit to building pure fiber networks in rural areas, as well as in towns and cities.



## BT to Deliver Cyber Security Services for icare

BT has signed a contract to deploy a cloud-based SIEM service for icare, a regional provider of insurance and care services to the businesses, people and communities of New South Wales, Australia. By selecting BT, icare will benefit from market-leading cyber security capabilities to protect its customer data and enable secure business operations. The solution has been designed to be scaleable and flexible to minimize icare's risk exposure as business requirements change and security threats evolve. BT's CloudSIEM service combines an Amazon Web Services-based enterprise SIEM platform with integrated threat monitoring, investigation, response and intelligence services. BT will deliver a 24x7 managed service and work collaboratively with icare to effectively complement its internal cyber security operations team. The service will be primarily delivered from BT's Australian Security Operation Centre (SOC), which expanded in 2017 and forms part of BT's global network of 15 SOCs. Frances Bouzo, Chief Information Security Officer, icare, said: "The cyber security services BT is providing will help support the strategic transformation of our security infrastructure. The increased visibility, responsiveness and alignment with our internal security operations team provided by BT will enable us to proactively detect and counter security threats, and ultimately protect the critical data that our customers entrust us with. We're delighted to be working with a company that provides all the benefits of a global presence across the security ecosystem, coupled with

strong links and investments into the New South Wales region." James Hennessey, BT's director of security for Asia, Middle East and Africa, said: "Supporting customers in 180 countries, including some of the world's largest financial service providers, we have a unique insight into cybercrime. We know that an attack can happen anytime, and our CloudSIEM solution will help icare contextualize every relevant event with external intelligence. With our service, icare gets a real-time picture of what is happening on its network, enabling it to spot anomalies so security analysts can investigate and respond to threats."



## Cisco Demonstrates 26.4Tbps on MAREA Transatlantic Subsea Cable

Cisco announced the successful testing of its NCS 1004 platform over MAREA, the 6,600 km subsea cable system connecting the United States to southern Europe (Virginia Beach, Virginia to Bilbao, Spain). The test was to demonstrate the ability to provide increased transatlantic bandwidth as well as simulate transpacific distances via loopback on one end of the cable. Leveraging the flexibility of the NCS 1004, several channel capacity combinations were tested to maximize the performance and spectral efficiency on the cable. For the Virginia to Bilbao trial, 400G error-free performance was demonstrated; channels with record spectral efficiency of 6.445 b/s/Hz were achieved, while 4.52b/s/Hz spectral efficiency was tested on the looped back scenario of over 13,200km.

Network operators do not have unlimited bandwidth so spectral efficiency is the most important measurement in subsea deployments. Spectral efficiency refers to the rate that can be transmitted over a given bandwidth and is a measure of how efficiently a limited frequency spectrum is utilized by the physical layer. Spectral efficiency of a communication link can be enhanced by packing more information, bits, in a single transmission. Thus, maximum capacity of 26.4Tbps can be achieved on MAREA cable deploying the NCS 1004 with margin. In the same way, the transatlantic loopback scenario reached up to 18.9Tbps. "We demonstrated that 24.7Tbps could be used on MAREA with plenty of margin. We also tested in full loopback mode (Bilbao to Virginia and

back to Bilbao) showing that 18.5Tbps could be deployed for double the distance, also with plenty of system margin," said Bill Gartner, Senior Vice President and General Manager, Optical Systems and Optics, Cisco. Cisco NCS 1004 has been designed to maximize wavelength and fiber capacity with a minimum space and power footprint. At 2RU, the system supports up to 4.8Tbps of client and 4.8Tbps of trunk traffic. Cisco NCS1004 delivers multi-haul coherent DWDM transport capabilities with agility, programmability, and simplicity of use. The Cisco NCS 2000 working with the NCS 1004 delivers agility, programmability, and massive scale for ultra-long-haul, subsea, metro, and enterprise optical networks.

## Cisco and ITU Launch Digital Transformation Initiative

ITU, in partnership with Cisco, launched the Digital Transformation Centers Initiative to equip people with the skills needed to effectively participate in today's digital society and economy. Through this initiative, launched at ITU Telecom World, ITU and Cisco will work with a network of institutions to run digital skills training programmes in specific tech areas. Providing digital skills training is key to bridging the digital divide. Digital skills are needed at all levels: at the basic level, to help people connect and benefit from Internet services and applications; at the intermediate level, to help students and job seekers get the necessary skills required by the digital economy; and at the advanced level to increase the pool of ICT experts and meet the demands of the industry. This initiative targets people who need basic digital skills to use digital tools and access e-services and those who seek to enhance their basic and intermediate skills. It also targets entrepreneurs who wish to develop their

businesses and it assists policy-makers in the formulation and implementation of policies and programmes related to digital skills, with the overall objective of enabling a successful national digital transformation process. The initiative will rely on a multistakeholder partnership for its success. "We are proud to partner with Cisco to enhance digital literacy," says ITU Secretary-General Houlin Zhao. "We call on governments, the private sector, development agencies, local communities and other stakeholders to help us advance this initiative. Join us to boost digital skills to facilitate the digital transformation journey and accelerate the achievement of the United Nations Sustainable Development Goals." The Digital Transformation Centers Initiative builds on the existing collaboration between the two organizations. "We are excited to partner with ITU on the Digital Transformation Center Initiative which will leverage the Cisco Networking Academy to prepare individuals with skills in technology as well

as in entrepreneurial areas where project-based learning and design thinking are critical," says Laura Quintana, Vice President and General Manager of Cisco Networking Academy. "Cisco's objective is to help countries transform digitally and accelerate economic growth, and the collaboration between Cisco and ITU will be key to providing the needed human capital to support that transformation." To kick-start the initiative, ITU and Cisco will identify 10 Digital Transformation Centers to participate in the first phase, which will run for 18 months starting in January 2020. The Centers selected will be located in the Americas, Africa and Asia-Pacific regions. "Today half the world is online, but raw connectivity alone will not solve development challenges," says Doreen Bogdan-Martin, Director of the ITU Telecommunication Development Bureau. "Research shows that lack of digital knowledge and skills has emerged as a major barrier to Internet uptake, digital inclusion and digital transformation, especially in developing countries. The Digital Transformation Centers Initiative is designed to strengthen the effectiveness of current activities in the field of capacity development by providing training programmes to meet and address local needs, and address technology trends, developments and gaps. It is also a step forward to help our membership implement their regional initiatives in this field." The Digital Transformation Centers Initiative will complement the ILO-ITU Digital Skills for Jobs Campaign, which is part of the Global Initiative on Decent Jobs for Youth, and will directly contribute to the achievement of the 2030 Sustainable Development Agenda. It will also complement the existing work of the ITU Centers of Excellence network, which provides training to ICT professionals as well as the existing ITU efforts in enabling digital transformation and national and regional levels.





## Cisco's Acacia Deal a Key Component of Its Core Networking Strategy

Cisco will integrate Acacia into its core switching and routing platforms once the \$2.6 billion deal is complete next year. Cisco's \$2.6 billion deal to buy coherent optics company Acacia Communications is a key element of the company's long-term plans and strategies. During Thursday's Citi 2019 Global Technology Conference, Cisco's Marilyn Mora, head of investor relations, provided some additional color on the deal that was announced in July. "The Acacia announcement is a very important announcement for us as we see three key foundational components to our strategy and architecture and that being silicon, optics and software," Mora said, according to a Seeking Alpha transcript. Acacia dovetails nicely with Cisco's previous acquisitions of CoreOptics, Luxtera and Lightwire on the silicon photonics side. On the ASIC side, Cisco bought Leaba in 2016. Acacia rounds out those previous investments by bringing components, modules and digital signal processors (DSPs) for optical subsystems within switches, routers and optical networking gear. "So this is a part of a focused strategy in terms of completing the roadmap we're looking at," Mora said of the Acacia deal. "The way to think about Acacia as we integrate the silicon, software and optics, is we want to increase that into our core networking platforms. "We see the market moving from more systems to pluggable over time, and this is not happening next quarter or the next two months. This is going to be a bit of journey over the next two to three years that we see this happening, and we are going to help to drive that transition." According to Acacia's April annual report, Cisco accounted for 14% of Acacia's revenues last year while ZTE, despite its issues with the Trump administration, was tops at 20% followed by Infinera (17%), which included Coriant after Infinera bought it last year, and Adva (15%). During its fourth quarter

fiscal earnings call, Cisco executives acknowledged that weaker sales in China has a slight impact on the company's revenues. On the earnings call with investors, Cisco CEO Chuck Robbins said Chinese government-controlled enterprises were shutting Cisco out due to the trade war with the U.S. Mora said that while Cisco doesn't provide long-term guidance, the company was more focused on integrating Acacia into its core routing and switching platforms instead of worrying about the potential loss of Chinese customers. Mora acknowledged that Cisco gets a lot of questions in regards to how it will manage third-party Acacia customers once the deal closes in the second half of next year. "We do sell too many of our peers, and we're going to continue to support and sell to those third-party customers," she said. "As I mentioned earlier, we have a longer term play here that's really about the future roadmap."




## Comviva and AsiaHawala Scoop Two Awards at the Telecoms World Award 2019

Comviva and AsiaHawala have jointly won two awards at the prestigious Telecoms World Award 2019. AsiaHawala mobile money service was declared winner in the 'Best Emerging Market Initiative' and 'Digital Transformation Award- Vendor' categories. The awards were presented on September 24th, 2019 at The Conrad Hotel in Dubai, UAE during the Telecoms World Middle-East Summit. AsiaHawala and Comviva have also bagged the Customer Experience Asia Excellence Awards 2019, where they won Silver in two categories "Best Use of Mobile 2019" and "Best Digital Experience 2019". AsiaHawala, launched in December 2005, is Iraq's first

mobile money service which is powered by Comviva's mobquity® platform. AsiaHawala leverages mobile phones to provide quick, convenient and cost-effective digital financial services to the financially underserved consumers and create a digital economy. AsiaHawala is an inclusive digital service. The only prerequisite for using AsiaHawala is mobile phone with Asiacell connection; hence the service can be used by all, even unbanked consumers. It can be accessed by all phones – feature phones or smartphones via USSD or mobile app. With AsiaHawala mobile wallet, customers can do multiple financial transactions – transfer money,

receive financial-aid, get salary, receive pension, give donations, pay bills, pay merchants, shop online, top-up mobile and internet connection, purchase e-vouchers, book flight tickets and make cab payments, all using their mobile phone anytime, anywhere. To facilitate registration and last-mile services of cash-in and cash-out, AsiaHawala has established a network of over 1000 agents spread across Iraq. Commenting on the win, Mr. Zring Faruk, Chief Executive Officer, AsiaHawala said, "We are very excited that Telecoms World has recognized us with two awards. Our strength lies in our ability to serve diverse consumer segments. On one hand,

AsiaHawala has facilitated financial aid disbursement to over 200,000 households covering approximately 1 million internally displaced people and refugees. On the other hand, it has enabled Iraqi youth (millennial and Gen-Z consumers) to top-up internet, shop online and purchase e-vouchers, and experience the digital revolution just like their peers in other countries. AsiaHawala is leveraging technology to enable digital payments and eventually helping to rebuild Iraq." Ramy Moselhy, Vice President and Head of MENA region at Comviva said, "We are glad that we are playing a part in AsiaHawala's digital transformation journey, which is providing peace and convenience to millions of people through safe and secure mobile money services, anytime and anywhere. These awards also validate our ability to innovate and rise to the occasion in challenging conditions in any part of the world. We believe that the intersection of business and technology opens new opportunities for digital transformation, while doing social good. We are very pleased that our mobiquity® Money is leading the way in digitizing societies and impacting lives

of millions."AsiaHawala is powered by Comviva's mobiquity® platform. It delivers a host of digital financial services that transforms the way consumers save, borrow, transfer and pay. It is designed to seamlessly integrate consumer touch points with a wide ecosystem of banks, billers, merchants and third-party payment systems, creating a convergence powered by interoperability. Apart from delivering convenience to consumers, the solution enables financial service providers to

acquire new customers, create long-term loyalty with existing ones, and seize new revenue opportunities to increase their footprint in the market. The platform empowers financial service providers to be agile in their markets, with complete focus on the customers. mobiquity® has clocked over 70 deployments in more than 50 countries. It serves 110 million customers globally and processes more than 6.5 billion transactions every year amounting to over \$130 billion annually.



## inwi Launches Mobile Money Service 'inwi Money' Powered by Comviva's mobiquity® Money Platform



inwi, Moroccan telecom operator known for its digital innovations, has recently launched its mobile money service "inwi money". The service works on Comviva's mobiquity® Money, one of the world's largest mobile money platform. The service offers consumers a quick, convenient and secure way to perform multiple financial transactions such as person-to-person money transfer, airtime purchase, bill payments and merchant payments. Customers can access the service using any type of mobile phone

through "inwi money" mobile application or USSD menu. The service is available in French and Arabic languages. It facilitates multiple levels of registrations ranging from self-registration to agents supported registration. "inwi money" customers can send money to other "inwi money" customers instantly anytime anywhere. The service also allows customers to request money from other "inwi Money" customers. Customers can also recharge their own or other people's mobile subscription using the app. Moreover, the contract customers can pay their mobile subscription bill from comfort of their home or office. The operator will also allow merchants to collect payments using "inwi money". To pay merchant customers need to enter merchant's mobile number or scan a QR Code. Nicolas Levi, CEO of "inwi money" said, "We are delighted to offer "inwi money" service which is powered by Comviva's mobiquity® Money platform.

As it did in various countries, mobile money service aimed at simplifying and enhancing lives of millions of Moroccans by providing them easy, fast and more convenient digital financial services". "By digitizing money transfers and payments we participate to accelerate financial inclusion and to contribute towards the economic development of the country" said Ghassane El Machrafi, Chairman of "inwi money". Ramy Moselhy, Vice President and Head of MENA region at Comviva, said, "Mobile phones today are not just communication devices; they have become a holistic channel for digital lifestyle. Comviva is making this reality through its mobiquity® Money platform that enables service providers to provide digital financial services to consumers through mobile phones. In Morocco, we are carrying forward this revolution with inwi through its mobile money service that delivers a seamless and secure financial

service on mobile, meeting needs of consumers across segments." Comviva's mobiquity® Money is the world's leading mobile money platform that delivers a host of digital financial services that transform the way consumers save, borrow, transfer

and spend money. It is designed to seamlessly integrate consumer touch points with a wide ecosystem of banks, billers, merchants and third-party payment systems, creating a convergence powered by interoperability. It provides financial

services to over 110 million consumers globally and processes more than 6.5 billion transactions amounting to over \$130 billion annually. mobiquity® Money has clocked over 60 deployments in more than 45 countries.



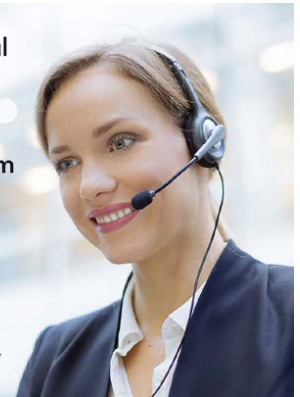
## Dialogic Announces Successful Interoperability Testing Between the Dialogic BorderNet SBC and the OrecX Oreka Audio Capture Platform

Dialogic, a cloud-optimized applications and infrastructure solutions provider for service providers, enterprises, and developers, announced that interoperability testing has been completed between the Dialogic® BorderNet™ SBC and the Oreka Audio Capture platform from OrecX, a world-leading open source call recording solution provider. The BorderNet SBC, a software-only, cloud-native SBC, secures connectivity to OrecX deployments, while simultaneously enabling high-quality call delivery and real-time call recording. The BorderNet SBC and OrecX solutions can be deployed both on-premises and in the cloud, including private, public, and hybrid cloud environments, without compromising performance, availability, and scalability. "OrecX's interoperability with the Dialogic BorderNet SBC enables our enterprise customers, platform partners, and AI-fueled ecosystem to securely scale the Oreka audio capture platform and leverage it to meet their evolving real-time and post-call digital transformation initiatives," said Steve Kaiser, OrecX CEO. "OrecX customers using the BorderNet SBC are leveraging its

Dialogic Announces Successful Interoperability Testing Between the Dialogic BorderNet SBC and the OrecX Audio Capture Platform



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flexible licensing and deployment options to help them achieve their unique business objectives," added Bill Crank, President and CEO of Dialogic. "This successful interoperability testing gives OrecX platform users confidence when choosing the BorderNet SBC for their security and session control needs."



## Eutelsat 117 West A Selected by Orby TV for New United States DTH Satellite Service

Eutelsat Americas, a subsidiary of Eutelsat Communications (Euronext Paris: ETL), has been selected by Orby TV for capacity on the EUTELSAT 117 West A satellite. The multi-year, multi-transponder agreement between the companies was announced at the International Broadcast Convention (IBC 2019) following Orby TV's recent launch of its new and affordable satellite service across the lower 48 continental United States. Orby TV is leveraging EUTELSAT 117 West A's exceptional Ku-band coverage of the US to distribute its satellite television service, featuring pay-as-you-go flexibility, dozens of popular networks, free local channels, with no credit checks or contractual commitments. Orby TV has two base programming packages priced at \$40 (Essentials) or \$50 (Extras) per month for up to four rooms, with optional premium network programming packages and DVR service available. All fees and taxes are included in the monthly prices. Local channels and unlimited use of the Orby TV interactive program guide is provided at no additional charge, even if the subscriber decides to turn off the monthly paid Orby TV service. Orby TV hardware

is available for purchase in all US Best Buy and select Target U.S. retail locations, with select independent dealers, or online with free shipping at [www.OrbyTV.com](http://www.OrbyTV.com). Michael Thornton, CEO of Orby TV, said: "Orby TV is very pleased to enter into a multi-year agreement with Eutelsat to help us reliably deliver a quality, best in-class pay-TV experience that is affordable with no Internet streaming required. With Orby TV prices starting at just \$40 per month and the flexibility of the prepaid model to turn the service on/off, while always enjoying free local programming and use of the interactive guide, Orby TV is filling a void in the US marketplace." Mike Antonovich, CEO of Eutelsat Americas, added: "We are delighted that Orby TV selected EUTELSAT 117 West A for the first major mainstream English language DTH bouquet to launch in the US market in over 20 years. This groundbreaking deal showcases the important role satellite continues to play in TV distribution, even in well-established markets. We look forward to supporting Orby TV as their innovative business and offerings continue to grow."

## Eutelsat Reveals ELO Constellation for the IoT Market

Eutelsat Communications revealed its ELO constellation project, targeting the Internet of Things (IoT) market. The ELO constellation aims offer global IoT coverage enabling objects to transmit data, regardless of their location. The constellation should contain 25 nanosatellites in the next three years, with a demo satellite being launched early next year. The construction of this nanosatellite constellation will begin with a first series of four satellites from Loft Orbital (ELO 1 and 2) and Clyde Space (ELO 3 and 4). With expected launch dates between 2020 and 2021, these four satellites will enter commercial service as soon as they are delivered into orbit. If this new initiative proves successful, other satellites will be added to the constellation, to reach a total of 25 satellites operational by 2022. The investment required for the constellation is included in Eutelsat's existing Capex outlook. The cost associated with each satellite will not exceed 1 million euros. Rodolphe Belmer, CEO of Eutelsat commented: "We are delighted to be completing the first steps of our ELO constellation project, aimed at positioning Eutelsat in the nascent IoT segment. Our partnership with Sigfox enables worldwide coverage through the combination of satellite and terrestrial IoT. This relatively modest

investment at Group level, which is fully scalable, enables Eutelsat to access an additional potential growth lever in the context of its Connectivity strategy."



## Eutelsat CBA Exit won't Impact C-Band Proposal, remaining Members Say

Eutelsat told the FCC that while it continues to support CBA's proposal for a market-driven approach, the company did not align with some of its fellow European satellite operators on certain issues. Satellite operator Eutelsat's formal withdrawal from the C-Band Alliance (CBA) yesterday won't impact the group's ability to deliver on its proposal for selling C-band spectrum for 5G in the U.S., CBA's remaining three members said. Eutelsat notified CBA's other members Intelsat, SES and Telsat, of its exit from the group, saying the company wanted to "take a direct active part" in discussions about clearing and repurposing spectrum. Eutelsat told the FCC that while it continues to support CBA's proposal for a market-driven approach, the company did not align with some of its fellow European satellite operators on certain issues. "Eutelsat therefore concluded that its disassociation from the CBA would best serve the interests of its C-band satellite customers in the United States and its shareholders," Eutelsat said the Tuesday filing. In response CBA put out a statement saying, "The CBA remains committed to delivering its expeditious, market-based proposal and the departure of Eutelsat does not impact the CBA's

ability to do so." The group noted its remaining members represent about 95% of the revenues for the U.S. C-band market and that they "are aligned and committed to the process of engaging with the FCC on the proposal of rapidly clearing C-band spectrum to support the deployment of 5G services in the U.S." The lack of open mid-band spectrum for 5G in the U.S. has raised concerns among government officials and operators alike, with a variety of players vying for desirable C-band spectrum in the 3.7-4.2 GHz band. The FCC has accepted comment on opening up and repurposing the C-band, but the process has been complicated. The four satellite operators using the entire 500 megahertz band previously proposed freeing about 200 megahertz of spectrum, but faced opposition, with multiple parties suggesting alternate proposals. The CBA has maintained that its proposal, which promotes secondary market-based transactions, remains the best option presented to the FCC. The alliance made some changes to its plan, including those following analyses by AT&T, that the group said would provide additional flexibility to mobile operators while still protecting fixed satellite service operations and

avoiding interference. Still, there were hints of fracture within CBA when Eutelsat's CEO Rodolphe Belmer spoke on a July 31 earnings call, as noted by SpaceNews, in regards to a voluntary contribution to the U.S. Treasury from a spectrum sale, as well as calculating proceeds for CBA members. "There is no real agreement and alignment on that question within the CBA, contrary to what has been said," Belmer said. A coalition made up of the Competitive Carriers Association (CCA), Charter Communications, and ACA Connects, which presented their own plan to reallocate at least 370 megahertz of C-band spectrum, previously said CBA claims obscure the "tremendous private windfall" for the satellite companies and public costs linked to CBA's proposal. T-Mobile, which made its own suggestion for selling the spectrum, had argued the satellite operators shouldn't even be selling the spectrum because they don't own it. It is unclear when the C-band will appear on the full commission's agenda, but FCC Chairman Ajit Pai previously indicated that the agency expects to take action on the C-band front this fall – a timeframe that is quickly approaching.

## Eutelsat 5 West B Delivered to Baikonur Cosmodrome for Pre-Launch Preparation

Eutelsat Communications announces the safe arrival of EUTELSAT 5 West B at the Baikonur Cosmodrome in Kazakhstan, where it is due for launch on a Proton Breeze M rocket on September 30, overseen by International Launch Services. Built by Airbus Defense and Space and Northrop Grumman, EUTELSAT 5 West B will serve video markets in Europe and North Africa from the key 5° West orbital position where it will replace the EUTELSAT 5 West A satellite, providing business continuity and improved service quality via a Ku-band payload of 35 equivalent 36 MHz transponders. As part of a long-term agreement signed in 2017 with the European GNSS Agency (GSA), EUTELSAT 5 West B will also host the GEO-3 payload of the European Geostationary Navigation Overlay System (EGNOS), used to improve the performance of global navigation satellite systems such as GPS and Galileo.



## Eutelsat Statement on C-Band Alliance

Eutelsat announces its withdrawal from the C-Band Alliance ("CBA"), which has been formally notified to the CBA members. As a reminder, the CBA is an organization

tasked with the clearing and repurposing of C-band spectrum to make a portion of this band available for 5G services in the United States. Eutelsat wishes to take a

direct active part in the discussions on C-band clearing and repurposing.



## Facebook Buys Brain Control Start-Up

Facebook struck an agreement to acquire CTRL-labs, a start-up that develops software for controlling computers by thought and movement, in a move aimed at boosting its presence in AR and VR technology. Andrew Bosworth, VP of



Facebook's AR and VR unit, confirmed the deal in a blog post, which Bloomberg reported is valued between \$500 million and \$1 billion. Specifically, CTRL-labs makes electronic wrist bands that allow people to conduct computing tasks, such as sharing pictures and clicking a mouse by thought, as part of an emerging field called "brain computing". "The vision for this work is a wristband that lets people control their devices as a natural extension of movement," explained Bosworth. The wristband will be able to "decode" electrical signals sent by a person's neurons in the spinal cord and "translate them into a digital signal your device can understand, empowering you with control over your digital life", he added. Bosworth said this kind of technology has great potential in areas involving interactions in VR and AR, and added Facebook hopes to build the technology at scale and implement it into consumer products faster. The move falls in line with the company's long-term goals, as it has previously expressed ambitions to enter the world of augmented reality and become a leader in its commercial use.



## Huawei Unveils the Industry's First Fully Containerized 5G Core Network

### 5G Core Summit 2019



Sep 24th-25th | Madrid, Spain

The first 5G Core Summit was held in Madrid, Spain. At this summit, Huawei unveiled the industry's first fully containerized 5G core network. This 5G core network applies container technology to all NFs to make network deployment more agile and service rollout faster, helping carriers empower new business and operations for all industries and enabling digital transformation of industries. To cater for differentiated requirements of industry applications in the 5G era, networks must support fast software iteration and upgrade to accelerate service innovation, reduce trial and error costs, and achieve

business agility. 3GPP introduces service based architecture (SBA) to the 5G core network to flexibly customize and combine NFs on demand. Huawei further splits NFs in to microservices to make version release faster, deployment more lightweight, and service orchestration more flexible. Container technology is the best choice for a microservice architecture. It meets ever-changing service needs by making the 5G network more agile and flexible, maximizing resource utilization, and enabling quick location of faults and self-healing. Huawei has adopted Cloud Native in NFV-based core networks to realize stateless design,

cross-DC deployment, A/B test, and other innovative technologies. Huawei also unveiled the world's first 5G core network based on microservice-centric architecture (MCA) at MWC 2019. This industry-first fully containerized 5G core network, supports 2G/3G/4G/5G NSA/5G SA network access. It helps carriers build more agile, flexible, and efficient 5G networks to meet diversified industry requirements and achieve business success. Huawei spearheads development of 5G chips, products, and networking, and is the only communications enterprise in the world that can provide end-to-end 5G commercial solutions. Huawei has signed more than 50 5G commercial contracts worldwide and helps carriers gain a head start for 5G deployment and deliver ultimate user experience. The 5G Core Summit is hosted by InformaTech, a well-known exhibition company, and co-hosted by Huawei. It is the only professional summit in the industry which focuses on the core network field.

## Huawei Mulls Radical Plan to Sell 5G Assets

Huawei founder and CEO Ren Zhengfei revealed the vendor would consider selling access to its 5G technologies to a company based outside Asia, with the buyer free to modify key elements and block access to products created, The Economist reported. In an interview with the business magazine, the executive said for a one-off payment a buyer would be given access to the company's existing portfolio of 5G patents, licenses, code, technical blueprints and production expertise. Both parties would then be free to change elements of the source code for their own individual products. The potential cost to a prospective buyer was not disclosed. It was also unclear whether any sale would be targeted at existing companies with similar propositions or a newly-created entity. However, The Economist reported any sale would be to a company based in "the West". While Huawei has been successful in a number of Western markets, as the trade war between the US and China escalated it has found itself in the firing line, with the US not only imposing its own sanctions on Huawei but pressing other nations to follow suit. The US opened a number of investigations into the company covering everything from accusations of IP theft to allegations related to national security. Huawei has strenuously denied all allegations made by the US and other countries, including those questioning the security

of its 5G equipment. Over the last two years, Huawei's formerly rarely-interviewed CEO has increased his media presence and conducted a number of sessions with international news outlets. In various interviews, he has talked-up his company's prospects in the face of the US ban, highlighted measures being taken to minimize the impact and defended the business from the various accusations.



## Huawei Demonstrates Its 5G Vision for Connecting an Intelligent World at ITU Telecom World 2019



During the ITU Telecom World 2019 held in Budapest, Hungary, Huawei – a leading global provider of information and communications technology (ICT) is participating under the “Ubiquitous Gigabit Connectivity & Intelligent Society”. Huawei is appearing full force with a host of forums and demonstrations, such as the 5G+Gigabit, Connecting an Intelligent Future forum and the 5G is On demo truck. At the event, Yang Chaobin, President of Huawei 5G product line, released the “5G Applications Position Paper” at “5G+Gigabit: Connecting an Intelligent Future” Forum. The forum was opened by Mr. Houlin Zhao, the Secretary General of International Telecom Union (ITU) and Mr. László Palkovics, the Minister of Innovation and Technology of Hungary. The position paper highlights 5G application scenarios in the areas of enhancing broadband, media and entertainment, industrial manufacturing, and intelligent transportation. With the advancement of

the 5G commercial process, 5G innovative applications emerge in an endless stream, including enhanced mobile broadband, media-based entertainment, industrial manufacturing, intelligent transportation, etc. The 5G network can provide users with Gigabit network, ultimate network performance and user experience. Huawei also hosted an in-depth session on fixed wireless access (FWA) on the proactive role of wireless broadband access technology in national broadband development. Huawei also showcased its latest WTTx solution that enables households as well as small and medium-sized enterprises to access high-speed Internet services without optical fibers and narrows the digital divide between urban and rural areas. It is also key to implementing national broadband plans. At the event, Huawei also released the 5G Ultra-Lean Site White Paper which emphasizes the deployment strategy for 5G sites. With the aim of breaking five barriers – experience,

antenna integration, energy efficiency, zero footprint, and indoor coverage – the ultra-lean 5G sites help operators reduce CAPEX and OPEX during site evolution to enable faster 5G deployment and achieve business success. Geng Fei, Vice President of Huawei’s Wireless and Cloud Core Network Marketing Solution Sales Department, said: “Owing to continuous breakthroughs and innovations, Huawei offers simplified, green, and evolvable 5G site solutions. The latest breakthroughs in overcoming the five limits of experience, antenna integration, energy efficiency, zero-footprint deployment, and indoor coverage will prove an essential catalyst for empowering mobile network operators to simplify site structure, reduce site TCO, and protect investment. They will enable the creation of a robust foundation for the successful commercial adoption of 5G networks.” Huawei works with government regulators, global operators, industry leaders, ecosystem partners, and industry analysts to exchange ideas and experiences on leading business models and applications of 5G+gigabit and discuss its commercial deployment strategy from the perspectives of industry policy and regulation, industry applications, service development, simplified 5G sites, and network deployment. Over the past 10 years, Huawei has invested a total of US\$4 billion in 5G, making it a leader in 5G chips, products, and networks. Huawei is the only telecoms company in the world that is able to provide end-to-end commercial 5G solutions. The company has signed commercial contracts with over 50 operators worldwide and shipped over 200,000 5G Massive MIMO AAUs to help operators gain first-mover advantages and ensure premium user experience in 5G.

## Mattel Inks Deal with Huawei

Mauritanian cellular operator Mattel has signed a cooperation agreement with Chinese equipment vendor Huawei for the upgrade of its networks. A report from Agence Ecofin cites Mattel’s Managing Director, Elyes Ben Sassi, as

saying: ‘The realization of this project, in partnership with Huawei, will contribute to the growth of the sector and will allow Mattel to consolidate its growth potential in the Mauritanian telecommunications market.’ Full details of the contract were

not disclosed. Mattel, which is backed by Tunisie Telecom, is the smallest of Mauritania’s three cellcos, claiming around 23% of the mobile market as of mid-2019.

## Huawei Scoops Sustainable Impact Award at ITU 2019

Huawei's Green 5G Power solution won the Global Industry Award for Sustainable Impact at this year's ITU Telecom World Awards Ceremony in Budapest. In acknowledgment of the telecom company's consistent efforts in enabling green, digital economies through innovative ICT solutions, Huawei was praised for its outstanding contributions to energy conservation and emission reduction of mobile networks. Energy efficiency is quickly becoming one of the biggest concerns for the telecom industry. In 2018 alone, the 10 leading mobile network operators spent over US\$ 14 billion on electricity and, as the era of 5G looms, mobile networks are only going to require higher energy efficiency in order to deliver on the promise of higher capacities and faster connections. The ITU's Sustainable Impact award is aimed at highlighting this issue and encouraging enterprises to take action on climate change as one of the most urgent and important of the UN's 17 Sustainable Development Goals. This latest recognition of Huawei's efforts to tackle climate issue reflects the company's innovations in green and low-carbon communications and highlights its work to increase the data transfer efficiency and reduce energy consumption through the introduction of new technologies to energy systems. The ultra-lean 5G site solution features a high-level of integration, removing the need equipment rooms and air conditioning for site deployment. One watt of electric power can be used to sustain the transfer of more than 5,000 GB of data - 10 to 20 times more efficient than 4G. Meanwhile, Huawei's Green 5G Power integrates AI and IoT into the power system and increase the overall energy efficiency of 5G networks by 20%, so that a 5G site power consumption can be at the same

level with a 4G site. Sticking to the core principles of simple, intelligent, and green, Huawei Green 5G Power solution focuses more on the performance improvement of the entire site and network, instead of a single power supply component. By deeply modular design of traditional solutions, it helps simplify network evolution. By the application of renewable energy, intelligent scheduling technology, it greatly improves full-link energy efficiency, simplifies evolution and maximizes the efficiency of each connection. By synergies of power systems with main equipment, and PowerStar, the AI-based network-level energy conservation solution, Green 5G Power solution maximizes the utilization of site resources and helps 5G network deployment to be faster, more saving, and simpler. To date, Green 5G Power has been commercially adopted in many countries, including Italy, South Korea, and

Qatar. In Huawei's 2025 Global Industry Vision, the company pledged to slash the per-connection carbon emission by 80% on average by 2025. If achieved, this would make ICT one of the world's most efficient industries in regards to energy use, with the amount of energy being conserved actually higher than the energy it consumes. Hao Yingtao, President of Huawei's Wireless Site Domain, said: "5G will see a deep coordination between telecom energy systems and wireless systems, making mobile telecom networks more simplified, intelligent, and efficient. Huawei is committed to enabling mobile network operators to build ultra-fast 5G networks and seek green 5G development. Huawei will continue to make innovations to empower the mobile telecom industry to fulfill the sustainable development goals of United Nations."



## Innovation is Redefining Energy: Huawei Launches Solutions at World Energy Congress 2019

Huawei has launched a series of 5G and AI-based innovative energy solutions at World Energy Congress 2019, under the theme 'Innovation Is Redefining Energy'. Huawei collaborated with over 70 energy ministers, 500 energy CEOs, and numerous

partners, with these attendees coming from over 150 countries to expand the vision driving sustainable energy development by innovative ICT. Huawei also shared thoughtful insight into 5G, AI, cloud, and other innovative technologies,

how it is reshaping the energy industry, and how it built the core of a digital world to accelerate the transformation of the energy industry from digitalization to intelligence. Ji Xiang, General Manager of the Energy Business Dept, Enterprise BG at



Huawei said: "The development of human civilization is closely linked with energy evolution. A hundred years ago, the large-scale usage of electric power marked the beginning of the second industrial revolution. Communications technologies, such as 2G, 3G, and 4G, ushered in the third industrial revolution and connected people together. Now, 5G, AI, cloud, and many other innovation information and communications technologies (ICTs) are bringing in the fourth industrial revolution. 5G features high speed, low latency, and large capacity, allowing ubiquitous connectivity. AI highlights high computing power, low power consumption, and all-scenario application, enabling pervasive intelligence. Cloud supports virtualization, ultra-large scale, and high scalability, permitting extensive sharing. Together, they fuel digital transformation of all industries and build the foundation for the future digital world. Huawei is dedicated to cooperating with partners and customers to make intelligent energy a reality".

#### **5G Sharing Base Station Solution**

5G base stations use high frequency bands and have small coverage, leading to high base station density. Therefore, 'limited space for multiple sites' has become a restriction that hinders fast deployment of 5G networks. Huawei provides a new solution for building 5G base stations on substations, which appropriately addresses this issue. The solution enables energy suppliers, tower providers, and carriers to benefit by sharing infrastructure resources. Energy suppliers provide physical bases for substations, which carriers can use to deploy 5G base stations. Carriers lease substation cabinets and power supply from energy providers to ensure uninterruptible power supply (UPS) for 5G base stations. Using Huawei's unique 5G antenna technology, tower providers are able to fully utilize and integrate their tower resources by mounting multiple types of antennas onto one mono-pole tower. In September 2019, China Unicom Nanjing successfully deployed such a base station. The construction period has been shortened from 30 days to only one day, significantly reducing the construction cost. In addition, a large amount of land, pipelines, transmission, and power is saved. Land acquisition is reduced by 840,000 square meters, which is equivalent to 117 football courts, and 420,000 tons of steel is saved.

A total of US\$1.3 billion is saved.

#### **5G Mining Solution**

Huawei and Yuexin Intelligent Machinery collaborated to develop applications with 5G technology. By using the Ultra-Reliable Low-Latency Communication (URLLC) feature of 5G networks, Huawei successfully applied 5G networks to the largest molybdenum mine in China and enabled autonomous driving of mining trucks and remote control of excavators. On-site excavators in another mine in Luoyang, China, can be remotely controlled from Huawei's exhibition hall in Shenzhen via the 5G network. The two locations are over 2,000 kilometers apart. Using the Enhanced Mobile Broadband (eMBB) feature of 5G networks, mining companies can conduct AI-based analytics for a large number of on-site videos captured by fixed and mobile cameras to facilitate precise and efficient mining. 5G technology will help reduce many manual operations in the mining industry and enable unmanned smart mining in the future.

#### **Intelligent AI Power Line Inspection Solution**

Huawei and Zhiyang Innovation jointly developed an intelligent power transmission solution. The solution integrates front-end reasoning, cloud-based training, and cloud-edge synergy. It uses Huawei's Ascend AI processors to build an intelligent power transmission monitoring system. Huawei Atlas 200 AI acceleration modules with embedded Ascend AI processors are integrated into pole and tower monitoring units. After installation, the units can perform intelligent analysis for the poles and towers. The modules work with the cloud to update detection algorithms in real time and automatically monitor and transmit potential hazards such as mechanical intrusion, foreign objects, and bird nests to the monitoring center with no manual assistance. In this way, the efficiency of power line inspection is improved more than five times that of the traditional method, and secure and stable power line operation is ensured.

#### **Intelligent Distribution Transformer + Edge Computing**

Huawei, China Electric Power Research Institute, State Grid Shandong Electric Power, State Grid Jiangsu Electric Power, NARI Group, and XJ Group jointly launched a new type of smart distribution transformer. The new smart distribution

transformer adopts the 'software-defined terminal' design concept and uses an open edge computing architecture. Upgrade and additional features can be applied flexibly through apps, enhancing the configuration of resources and improving response to requirement changes by the power distribution network. The product implements innovative plug-and-play and interconnection between devices. It conducts local comprehensive analysis and intelligent decision-making on various types of collected data and effectively supports service requirements such as power failure analysis, power distribution device status management, electric vehicle charging control, and high-quality customer service. While being promoted and applied in China, the product developed to fully meet the comprehensive energy service requirements of electric power customers, is widely recognized, and is a warmly welcomed addition to the industry.

#### **Global Electric Power Industry Ecosystem Layout**

Huawei has more than 100 partners in electric power worldwide, and has joined multiple international standards organizations, including the International Electrotechnical Commission (IEC), International Telecommunication Union (ITU), Institute of Electrical and Electronics Engineers (IEEE), CIGRE, and China Electricity Council (CEC). Huawei has served as a member of more than 10 industry associations, organizations, and alliances, for example, the Chinese Society for Electrical Engineering (CSEE), Global Energy Interconnection Development and Cooperation Organization (GEIDCO), and China Smart Metering Infrastructure Alliance. Over 30 proposals have been submitted. Earlier in 2018, Huawei and IEEE IOT IC jointly published IEEE P1901.1, the Standard for Smart Grid Power Line Communication (SGPLC). In August, Huawei HiSilicon officially published IEEE 1901.1.1 Standard Test Procedures for IEEE 1901.1. The Standard is formulated in compliance with other IEEE standards. It promotes development and application of medium frequency (less than 12 MHz) power line communication in related fields and provides guidance and a standard reference for the evolution of new technology. The IEEE 1901.1 Standard also plays an important role in guiding and standardizing the application of HPLC in the industry globally.

## Asia-Pacific Leads 5G Innovation, Huawei Enables Sustainable Development of a Digital Economy

The 5th Huawei Asia-Pacific Innovation Day was held in Chengdu, China. This year's Innovation Day is themed "Innovation Enables Asia-Pacific Digitization". More than 200 representatives from government, industry and academia of Asia-Pacific countries and regions got together to discuss innovative 5G technologies and applications, sustainable development, as well as technology, humanity, and nature. As a ubiquitous technology, 5G is the cornerstone of a smart world in which everything is connected. Today, as we usher in the 5G era, we are also at a critical stage of digital transformation across industries worldwide. Industrial development has progressed from mechanization and electrification to automation and digitization. Speaking at the event, William Xu, Huawei Director of the Board, President of the Institute of Strategic Research said: "5G is arriving at the right time. More specifically, 5G can provide wide coverage, large bandwidth, and low latency on the basis of traditional connections. It can also provide slicing for different applications. This new feature makes it adaptable to a variety of complex industrial applications. With the advancement of 5G, there will be many 5G-enabled applications that will change the world. At the same time, 5G, AI, IoT and cloud are improving everyday life and nature, making the world a better place." Asia-Pacific is leading the world in terms of 5G deployment. South Korea is the world's first country that has realized large-scale commercial use of 5G. Since the rollout of 5G in early April, the number of 5G subscribers in this country exceeded 2 million. South Korea has become the global benchmark for the commercial use of 5G. China has built a large-scale 5G network for pilot commercial use. The three major carriers have deployed 5G networks in cities including Beijing, Shanghai, Guangzhou, Shenzhen, and Chengdu. The tested downlink rate is as high as 1 Gbps, which means it takes only seconds to download an HD movie in 1080P. 5G is becoming a reality. Around the world, 35 carriers in 20 countries have launched 5G and 33 other countries have distributed 5G spectrum. Huawei has secured over fifty 5G commercial contracts worldwide



and shipped over 200,000 Massive MIMO AAUs. With rich experience in 5G pilot commercial use and active exploration of 5G innovative applications, Huawei is committed to providing the safest and most advanced 5G products and solutions, as well as application scenarios. Huawei seeks to enable carriers in the Asia-Pacific region to deploy 5G faster and fully leverage the advantages of 5G. The aim is to empower numerous industries, improve social efficiency and accelerate industrial digitization. At the event, China Mobile Sichuan and Huawei launched a 5G stereo-coverage network, which consists of a basic coverage layer, a capacity experience layer and indoor coverage for high-value scenarios to achieve seamless coverage of 5G. In addition, Huawei has partnered with carriers and other industry partners to demonstrate various innovative industry applications, including 5G+VR, 5G+8K video, 5G+drones, 5G telemedicine and 5G ambulances. All these indicate the infinite potential applications of 5G in the era of commercial use. Guests from government, industry and academia gave speeches from various perspectives, such as policy-making and regulation and industry digitization. They talked about how innovative technologies can support the development of the cultural industry and natural ecological protection and shared typical cases on how "5G+AI" can empower numerous industries. StorySign

is an AI-enabled application that uses image recognition and optical character recognition technologies to translate children's books into sign language, helping deaf and mute children learn how to read. In Costa Rica, a company called Rainforest Connection has deployed solar-powered monitoring equipment in 2,500 km<sup>2</sup> of rainforest. With the massive data storage and intelligent analysis capabilities of Huawei Cloud, the monitoring equipment can process complex audio data in the rainforest in real-time, and identify the noises of chainsaws and trucks in an accurate and timely manner, so as to prevent illegal logging. Helping vulnerable groups, protecting the earth, and realizing the harmonious development between man and nature are issues that concern everyone in society. New technologies like 5G, cloud, IoT and AI are shaping a world where all things will be sensing, connected and intelligent. The intelligent world is coming to all individuals, all companies, and all industries. Technologies are making the world a better place. Since 2013, Huawei Innovation Day has been held in different cities, including London, Milan, Munich, Paris, Singapore, Sydney, Kuala Lumpur, Bangkok, Dubai, and São Paulo. Following the principles of openness, innovation, collaboration and shared success, Huawei is committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

## Huawei Encourages Digital Inclusion, Build Developers' Ecosystem for Computing, and Unveils Future Strategies at Huawei Connect 2019

During the fourth annual Huawei Connect conference, a global industry event organized by Huawei, the company reaffirmed its commitment and plans to drive digital transformation on a global scale. Huawei's Deputy Chairman, Ken Hu, called for individuals and organizations to join Huawei in addressing issues related to healthcare, education, development and the environment, with the ambition of using its TECH4ALL platform to help another 500 million people benefit from digital technology in the next five years. Huawei Connect 2019 was held under the theme of 'Building a Fully Connected, Intelligent World', and saw industry peers gather from September 18-20 to discuss some of the sector's biggest topics. These included digital development, artificial intelligence (AI), and the expansion of cloud services in a connected world. The conference comes at a time when spending on digital transformation in the Middle East, Turkey, and Africa region is predicted to cross the \$25 billion mark this year – according to IDC – as more organizations experiment with technologies to spur innovation and boost customer experience. "Digital technology is reshaping the world," said Ken Hu, Huawei's Deputy Chairman. "We want it to benefit everyone and we want digital inclusion for all. We want to protect vulnerable groups and make ordinary people extraordinary. This is the unique value of technology. Digital inclusion will need the joint efforts of businesses, governments, and society at large. Currently, we have just made the first step. We welcome more people and organizations to join us." During the event, Huawei announced several new AI and cloud solutions that will contribute to the company's vision for digital inclusion, and help its customers and partners in the Middle East and beyond to embrace digital transformation. The event also saw several senior representatives from Huawei and its partners deliver keynote speeches, including Hou Jinlong, President of Cloud and AI Products and Services at Huawei; Dr. Helmut Michael Ma, President of Intelligent Computing Business Dept at Huawei; Patrick Zhang, CTO of Cloud and

AI Products and Services at Huawei; Jack Jia, General Manager of EI Product Department - Cloud BU, Huawei; Bazmi R. Husain, CTO of ABB; Li Jianhang, COO of Tongfang, and Liu Wenhuan, Chairman of Wuhan Deepin Technology. During the event, Huawei announced its latest strategy for the computing market, which will focus on four key areas: architecture innovation; investment in all-scenario processors; clear business boundaries, and building an open ecosystem. The latter will see Huawei invest US\$1.5 billion in its developer program with the aim to expand support to five million developers, enabling worldwide partners to develop the next generation of intelligent applications and solutions. The newly-released Atlas 900, the world's fastest AI training cluster, builds upon the technical strengths that Huawei has developed over the last decade. A powerhouse of AI computing, Atlas 900 combines the power of thousands of Ascend processors and will bring new possibilities to different fields of scientific research and business innovation – anything from astronomy, weather forecasting, autonomous driving, to oil exploration. Huawei launched its latest Atlas series of products and 43 cloud services based on Ascend processors with powerful computing capabilities. Through these services, Huawei aims to provide superior computing power to make cloud computing and intelligence available to everyone. The new services are available to unleash outstanding computing power and enable inclusive AI. The Atlas 900 AI cluster, Atlas 300 AI training card, and Atlas 800 AI training server are among the products to have attained the pinnacle of computing power across the globe. The services launched are built on Ascend 910 and Ascend 310, and tailored to scenarios such as AI data inference, AI data training, image processing, knowledge computing, and autonomous driving training. As a result of continuous innovation, Huawei Cloud now offers high-performance and cost-effective AI services to a wide range of industries for inclusive AI for all. Huawei also unveiled its next-generation intelligent product strategy and new + AI products for

the enterprise market. The increasing scale of interconnectivity and maturing intelligent technologies are bringing disruptive changes to enterprises around the world. By adding AI capabilities to the next-generation of ICT products, Huawei strives to constantly lead innovation and help customers address a new round of digital transformation challenges to achieve business success. Its latest solutions include a three-layer AI architecture based on the Engine AI Turbo product series, the iMaster NCE autonomous driving network management and control system, and the industry's first iMaster NAIE network AI platform. In addition, Huawei also released a new-generation OceanStor Dorado intelligent all-flash storage based on Kunpeng and Ascend processors, Huawei OptiXtrans DC908, the industry's first intelligent data center interconnect (DCI) product, and more. During its presentations on Empowering Converged Data Infrastructure with Kunpeng, Huawei proposed three intelligent solutions for converged data infrastructure powered by Ascend and Kunpeng processors: data lakes, Storage-computing synergy and data edges. Huawei and industry partners also announced the establishment of a Database Industry Working Group based on the Kunpeng Intelligent Data Industry Alliance. The group will launch the GaussDB Golden Seeds Development Program for Academia to promote the database industry ecosystem. Huawei reveals Intelligent Campus Ecosystem Plan, collaborating with the industry to win a trillion-yuan market Huawei introduced its Intelligent Campus Ecosystem Plan and the intelligent HiCampus solution jointly developed with partners for enterprise customers. The announcement came during an intelligent campus summit themed around bringing digital to every campus for pervasive intelligence. To address the needs of this fast-growing market, Huawei has worked with its partners to develop HiCampus, an integrated intelligent campus solution based on the Huawei Horizon Digital Platform. The platform is developed based

on Huawei's extensive experience of campus digital transformation. It is "fully connected, converged, and open", which helps customers and partners deliver rapid service innovation. Huawei released the "Thinking Ahead About AI Security and Privacy Protection" white paper, which outlines the company's perspective and practices in AI security, privacy issues and related solutions, and proposes a shared responsibility model for AI security and privacy protection governance. Sean Yang, Director of Huawei's Global Cyber Security and Privacy Office, introduced the white paper at a summit focused on building a comprehensive AI security and privacy protection system. In the white paper, Huawei has defined seven governance objectives on security and privacy: system security and controllability, transparency and traceability, privacy protection, fairness, data management, competence, and deployment objective assurance. In

addition, the white paper introduces Huawei's security and privacy protection governance practices. AI products and applications are part of a comprehensive ecosystem and encompass a wide range of market participants. Due to the difficulty for any individual party to address complex AI security and privacy threats and risks alone, Huawei proposes a shared responsibility model for AI security and privacy protection governance, with accountability across five roles that must work together for the healthy development of AI: consumers/customers, application developers, deployers, full-stack solution providers, and data collectors. Huawei announced an investment of USD 1.5 billion over the next 5 years as part of its Developer Program 2.0, with the goal of partnering with enterprises and individual developers to build the computing industry ecosystem. The leading ICT solutions provider also unveiled the Kunpeng

Developer Kit and ModelArts 2.0 AI development platform for software development on the Huawei Kunpeng and Ascend computing platforms. Developer Program 1.0, launched by Huawei in 2015, has 1.3 million registered individual developers and works with over 14,000 enterprise developers to innovate products and solutions to create value for customers. Developer Program 2.0 will focus on building an open computing industry ecosystem based on Kunpeng + Ascend computing processors; establishing an all-round enablement system; promoting the development of industry standards, specifications, demonstration sites, and technical certification system; building industry-specific application ecosystems and region-specific industry ecosystems, and sharing Kunpeng and Ascend computing power, making it available to every developer.

## Huawei and Government Officials Announce a New Cloud Data Center in Chile This Week During a Huawei Conference

While Huawei faces bans in the U.S. and other countries, it's open for business with a new data center in Chile. The Chinese tech giant announced at this week's Huawei Cloud Chile Summit 2019 that it has opened the doors on a new cloud data center. Huawei Cloud will not only provide a full-stack cloud platform for Chile, but also for organizations elsewhere in Latin America, Huawei said in its press release.

"Huawei has been serving Chile for 16 years and has earned the trust of customers, partners, institutions, universities, and governments in the country," said Zou Zhilei, president of Huawei Latin America Region, in a prepared statement. "Huawei Cloud's mission here is to create a fertile environment for enterprises and governments to digitally transform and improve international competitiveness."

While the new data center is Huawei's first in Chile, Google and Digital Realty are among the cloud providers that are also looking at building data center facilities there, according to a story by Data Capacity. Huawei Cloud said it could deliver domestic latency of 20 milliseconds, which is roughly the standard round-trip latency that's needed for network edge applications and services, and a latency of 50 milliseconds for other Latin American countries. The Huawei Cloud Partner Network (HCPN) program was also announced at the Summit in Santiago, with 36 Huawei partners from around Latin America named as certified program partners. In addition to giving Huawei a foot in the door in Chile and South America, the program provides partners with business, technical, marketing, and go-to-market support for working with Huawei Cloud. As of June, As of June 2019, Huawei Cloud and its partners have opened 23 regions with a total of 44 availability zones, and launched over 180 cloud services and 180 solutions.





## Microsoft and ENGIE Announce Innovative Renewable Initiatives

Microsoft Corp. and ENGIE announced both an innovative, long-term solar and wind energy power purchase agreement (PPA) that provides 24/7 supply in the United States and implementation of Darwin, an energy software developed by ENGIE using the intelligent cloud services of Microsoft Azure to optimize performance of ENGIE's wind, solar, and hybrid (wind + solar) renewable assets worldwide. The hybrid renewable deal will see Microsoft purchase a total of 230 MW from two ENGIE projects in Texas, bringing Microsoft's renewable energy portfolio to more than 1,900 MW. Microsoft will purchase the majority of the output from the new 200 MW Las Lomas wind project, which will be located in Starr & Zapata Counties in south Texas. Microsoft will also purchase 85 MW from the 200 MW Anson Solar Center project, which will be built in Jones County in central Texas. Both projects will be operated by ENGIE and are expected to come on-line in January 2021. "ENGIE's ambition is to work with our customers and communities to lead the transition to a zero-carbon world," said Isabelle Kocher, CEO of ENGIE. "We are proud to support Microsoft in its plan to increasingly meet its energy needs with renewable power, and to do so in a highly customized way to meet 24/7 demand over many years." The relationship between ENGIE and Microsoft will not only produce more clean energy in the United States, it also creates an example for how customers can procure it. This PPA includes an innovative volume firming agreement (VFA) that will convert the intermittent renewable energy supply



into a fixed 24/7 power solution aligned with Microsoft's energy needs. In addition, ENGIE and Microsoft are advancing the digital transformation of the renewable energy sector. ENGIE's Darwin software, currently deployed on more than 15,000 MW of assets globally, enables real-time plant monitoring and control, reporting, forecasting, performance monitoring and predictive maintenance, among many other benefits. Darwin relies on the latest Microsoft Azure intelligent cloud technologies such as IoT and artificial intelligence, including machine learning and cognitive services. Darwin has already enabled ENGIE to increase plant availability and to enhance production performance of up to a few percent on some of its assets. With renewable energy expected to be the largest single source of electricity growth

in the next five years, according to the International Energy Agency (IEA), these kinds of data-driven solutions will become increasingly important. ENGIE alone has a program to build approximately 9,000 MW of new renewable energy projects from 2019–2021 globally, with 2,500 MW of new renewable capacity planned for North America. The company has an additional 10,000 MW of wind and solar projects in its broader development pipeline in the U.S. and Canada. "Procuring more renewable energy helps transform our operations, but when we pair that with Microsoft's leading cloud and AI tools, we can transform the world," said Carlo Purassanta, area vice president, Microsoft France. "This agreement with ENGIE is an exciting step toward a low-carbon future, driven by capital investments and enabled by data."



## Mobily 1st in Download Speeds during Hajj Season

Etihad Etisalat “Mobily” overtook the Kingdom ICT companies during Hajj 1440 in terms of download speeds, according to Speed Checker report. Mobily succeeded in doubling the average download speed of Hajj 1439H, crowning efforts to provide advanced infrastructure within Mashaer and Holy Central Areas in Makkah and AlMadina. The report analyzed cellular data collected from over 50,000 speed tests taken between 8-15 August 2019; results showed a boost in download speeds over 70% compared to last year, placing Mobily atop the list. Speed Checker website pointed out that Mobily's partnership with Ericsson significantly contributed to this achievement. The Mobily-Ericsson partnership is in line with Saudi Vision 2030 and its objectives to enhance the ICT sector to raise the level of services provided to customers. “These results underscore the company's commitment to provide high-quality and secured internet in accordance with the government direction to enable pilgrims and worshippers to perform their rituals smoothly,” commented Alaa Malki, Chief Technology Officer at Mobily. Malki stressed Mobily's insistence on

the highest standards when building its infrastructure, noting that the company's research at the end of each Hajj season has contributed to raising its national cadres' experience in this regard. This Hajj season Mobily added more than 1,070 towers and covered the train network to facilitate telecommunications. Additionally, it readied 68 maintenance and operation centers as well as 950 maintenance and operation teams. Mobily has carried out various infrastructure development projects within Mashaer and AlHaram

Central Area, increasing the capacity of the total frequency spectrum by 159%, thus increasing the load rate by almost double that of the previous season; the fiber optic network played a pivotal role in connecting Mobily's fixed and mobile towers, including Jamarat Bridge which facilitated smooth flow of international and internal calls/data traffic without bottlenecks. Mobily also launched its 5G network during this Hajj season in AlHaram Central Area, Mashaer and AlMadina AlMunawara, where internet speeds exceeded 1 Gbps.



## Mobily Ranked As the Leader in Hosting Infrastructure Services in Saudi Arabia According to Latest IDC Report

According to the latest report “Competitive Profiles and 2018 Analysis of Leading IT Services Players in KSA” by global research company International Data Company (IDC), Mobily has been ranked no. 1 in Hosting Infrastructure Service with 18.2% market share in 2018. The IDC study presents the top 75 IT services providers in Saudi Arabia, including their market shares, based on their respective performances in 2018. The announcement showcases Mobily's investment in further accelerating the digital transformation ambitions of Saudi Arabia. Mobily Chief Business & Wholesale Officer, Majed AlOtaibi said “Building the cornerstone

of digital transformation through next-gen infrastructure with trusted partners is going to be a vital part of Saudi Arabia's transformation. Mobily has and will continue to support the digitization initiative, which is a key part of the National Transformation Program and the wider Vision 2030. Mobily's world class datacenter- and ecosystem-driven approach towards technology will play a key role in offering services to its customers in order to realize their business goals and help build a stronger economy for the kingdom.” Mobily has been a pioneer in the datacenter space in the Kingdom for several years. The

company currently owns and operates a number of datacenters across the Kingdom including Malga, a Tier 4-ranked datacenter. Malga was the first to receive such a ranking in Saudi Arabia, which is the highest level of certification awarded to a datacenter. Mobily also owns and operates 2 Tier (3) III datacenters, one each in Dammam and Jeddah, which enjoy the highest certification class of operational sustainability. Additionally, Mobily offers co-location, managed services, enterprise class cloud, virtual server recovery and other leading IOT services.



## KDDI Awards 5G Network Upgrade Contracts to Nokia

Finnish equipment maker Nokia has been selected by Japanese mobile operator KDDI (branded au) to upgrade its 4G LTE network to 5G using its AirScale radio access solution – which supports both technologies. The launch of AirScale in 2020 will enable KDDI to modernize its 4G network and meet the growing consumer and industrial demands for 5G, it confirmed in a press release, adding that the contract for 5G radio ‘re-enforces the strong relationship between the two companies, which dates back over two decades’. On completion, the nationwide network upgrade will deliver ‘enhanced Mobile Broadband (eMBB) to consumers and

enhanced Machine Type Communication (eMTC [also known as LTE-M]) enabling multiple new applications and services for industries in the 5G era,’ it confirmed. Moreover, the network architecture – which supports both the cmWave and mmWave 5G frequency bands – will also be transformed to enable 5G Ultra Reliable Low Latency Connectivity (URLLC). Commenting, John Harrington, Head of Nokia Japan, said: ‘This deal will allow KDDI to get ready for the 5G era and we are honored and excited to continue our long-term relationship. As an end-to-end supplier of multiple technologies to KDDI, we look forward to transforming the

network and launching 5G for consumers and industries.’ In a related press announcement, Ericsson of Sweden says it will supply KDDI with radio access network (RAN) gear to support the cellco’s planned commercial launch in March 2020. By that date, KDDI expects the first commercial live fifth-generation services to be available, with more than 93% coverage of 5G base station areas specified by Japan’s telecom regulation body – the Ministry of Internal Affairs and Communications (MIC) – by 31 March 2025. Under the contract, Ericsson will supply KDDI with RAN equipment, including products and solutions from the Ericsson Radio System portfolio, allowing the Japanese firm ‘to maximize its spectrum assets and enable the service provider to roll out commercial 5G services in several parts of Japan on [its] sub-6GHz and 28GHz bands for 5G New Radio (NR)’. KDDI’s selection of Ericsson as a 5G vendor follows nearly four years of close collaboration on 5G between the companies. The pair have carried out a series of joint tests across a wide range of 5G use cases on the 4.5GHz and 28GHz frequency bands, including interoperability between 5G and LTE.



Nokia secures  
KDDI 5G deal



## Nokia Showcases Its End-to-End 5G Leadership with New Future X Lab in Finland

Nokia has opened a 5G Future X Lab at its global headquarters in Espoo, Finland, enabling customers to experience Nokia’s full end-to-end portfolio of 5G equipment, software and services. The Lab will enable communications service providers, enterprises and infrastructure providers to learn and understand the techno-economic power of a 5G end-to-end network to better serve their customers and unleash new value. The Lab will showcase the strength of Nokia’s 5G end-to-end capabilities with live hardware, software and full network slicing, all under seamless digital operations control. The Lab will also include an “Experience Zone” where customers will see demonstrations

of Nokia technologies and innovations. In addition to serving Nokia’s 5G customers, the Espoo Lab will also provide an innovation platform for internal Nokia research, prototype development and testing, as well as enable engagement with the wider research and innovation ecosystem. Marcus Weldon, Nokia’s Corporate Chief Technology Officer and President of Nokia Bell Labs, said: “The Future X Lab is an extensive build-out of a 5G end-to-end network, enabling customers to explore how a dynamically reconfigurable and automated network can increase network performance in areas of latency, capacity, reliability and security while reducing total cost of ownership.

This new state-of-the-art facility is an extension of our Future X Lab in Murray Hill, NJ, and will enable us to better serve European customers and innovate with key industrial verticals. “We look forward to hosting customers from around the world at either Lab to experience network slicing and learn firsthand how our 5G end-to-end network architecture will help them create new economic value.” Nokia last year outlined its Future X network architecture for 5G, which includes products such as high-capacity 5G New Radio, core and SDN-controlled ‘Anyhaul’ transport, becoming the only 5G vendor with a truly end-to-end portfolio available globally. More than half of Nokia’s 48 commercial 5G contracts

include more than radio access from the end-to-end portfolio. According to a study from Nokia Bell Labs Consulting, a 5G end-to-end network with an integrated solution from a single prime vendor can reduce total cost of ownership (TCO) by more than 20 percent and decrease time to market by at least 30 percent, compared to multi-vendor solutions. The Future X Lab in Espoo is a live end-to-end network and application lab for the 5G era where visitors can see real consumer, enterprise and industrial scenarios unfold in a myriad of simulated and physical environments, all orchestrated on a single network managing individual network slices. Visitors will be able to compare the performance of a Nokia end-to-end 5G network against existing networks, clearly demonstrating the advantages of the Future X network architecture in key performance and economic metrics such

as latency, reliability, availability, security and TCO. Highlights of the Lab include:

**Service and Slicing Operations Center:** The center quantifies the value of Nokia's end-to-end portfolio through live network configurations in different industrial automation and consumer use cases, and dynamically models resulting performance and TCO metrics in real time, revealing the clear operational and economic advantages.

**Massive Scale Access:** Massive throughput and capacity are the muscles behind 5G era services, with 5G New Radio, Ultra-Reliable Low Latency Communication (URLLC) and massive Machine Type Communications complemented with fixed access solutions serving as the enabling forces behind the 4th industrial revolution.

**Universal Adaptive Core:** An agile, access technology-agnostic adaptive cloud-native core for decentralized

network architectures allows operators to deploy dynamic, on-demand high-bandwidth services across diverse access technologies.

**Programmable Network Operating System:** Manually configured, static and closed networks have run their course. The new network operating system will create, optimize and maintain end-to-end network slices for differentiated services and TCO gains. This will evolve from rules-based solutions and move to true zero touch enabled by AI across the network.

**Digital Value Platform:** This will allow industries to better perceive, understand, control, and automate the physical world, creating new network-agnostic tools to enable novel services and applications.

**Dynamic Data Security:** The next industrial revolution will require a concurrent revolution in security. Multi-layer safeguards, driven by machine learning, network programmability and enhanced by ASICs customized for security will provide protection from the vulnerabilities of today and tomorrow.

The Future X Lab in Espoo is an extension of the Future X Lab opened last year at Nokia Bell Labs headquarters in Murray Hill, N.J. The two Labs are seamlessly connected to demonstrate true global interworking and network slicing, with the widest variety of use cases, run locally or remotely – a continent away. Nokia and Nokia Bell Labs continue to be chief contributors to 5G technologies and its development as a standards-based technology. Nokia Bell Labs has pioneered key 5G innovations, including millimeter wave and massive MIMO, among others.



## Nokia and Etisalat Complete Terabit-Per-Second Trial

Nokia says it has carried out the world's first single-carrier terabit-per-second trial over the fiber-optic network of Etisalat in the United Arab Emirates (UAE). According to Nokia's press release: 'The trial successfully transmitted a record 50.8Tbps using multiple wavelengths, each with a net information rate of 1.3Tbps, over a 93km fiber route of Etisalat's wavelength division multiplexing (WDM) network.' Esmaeel Alhammadi, Senior Vice President for Network Development at Etisalat, said: 'Increasing network capacity helps us to provide bandwidth-hungry services such as 5G extreme mobile broadband, fiber-to-the-home (FTTH) and data center interconnect for enterprises'.





## Nokia and Telefónica Peru to Enable Automated, Digital Mining Operations for Las Bambas, One of the World's Largest Copper Mines

Nokia and Telefónica Peru have signed a contract with Minera Las Bambas, the world's ninth largest copper mine, to enable digitalization and automation projects at its site in Apurímac, Peru. The contract will build and deploy a private LTE network 4,600 meters above sea level, then perform an assessment of the mine applications in order to begin services migration to the new network. The contract includes planning the site's capacity and providing technical support for the next five years. As part of the deal, Nokia will deploy its LTE Radio Access Network solution, including base stations, technical support and training services to enable more reliable communications between machines and people. The new network will improve existing wireless service, allowing Las Bambas to deploy additional safety solutions and reduce operating costs of its Tetra communication system. As the network evolves further towards 5G,

the Las Bambas mine will also benefit from push-to-talk and push-to-video. Mining operations often require highly reliable networks that can cover large outdoor sites. Complementing services such as Wi-Fi, private wireless solutions offer more secure and reliable wireless coverage. They also enable an evolution of new services in mining, thanks to providing a trustworthy, high-capacity, low-latency and multi-services network that enables connectivity for several thousands of workers, mine devices and applications. To embrace the Fourth Industrial Revolution, asset-intensive industries such as mining need to digitalize their processes and systems to drive extreme automation. Automation relies on the ability to sense, analyze and act. To do so, these industries will need to connect all sensors, machines and workers in the most flexible way – and for that they need business and mission-critical wireless networking solutions such as

private LTE. Nokia has a wealth of experience in deploying industrial-grade private wireless solutions for mining, which have been certified with several key automation manufacturers such as Komatsu and Sandvik. Nokia has also pioneered the private wireless space for multiple verticals, with over 80 large enterprise customers deploying private LTE around the world and leveraging an industry-leading, end-to-end wireless networking portfolio tailored to meet the mission- and business-critical connectivity needs of its industrial market customers. Miguel Canz, Regional Technology Manager at Minera Las Bambas, said: "This is an important milestone for Minera Las Bambas as it will enable a series of new automation technology solutions increasing productivity in our mining operation as well as supporting more advanced automation to improve worker safety." Dennis Fernández, B2B VP at Telefónica Peru, said: "We're working closely with Minera Las Bambas to provide an end-to-end connectivity solution for their operation that allows them to focus on their core business, while we care for the connectivity." Osvaldo Di Campli, Head of Latin America for Nokia, said: "This private LTE network will allow the Las Bambas mine to increase productivity and automation and, in doing so, embrace the Fourth Industrial revolution. Nokia has a wealth of experience providing such mission-critical, industry-revolutionizing networks, and we're proud to partner with Telefónica Peru in bringing these capabilities to Peru for the first time."



## Iliad Inks Deal with Nokia for 5G Rollouts in France, Italy

Iliad Group has entered into a strategic agreement with Nokia for the rollout of the group's 5G networks in France and Italy. Nokia, which has been a Iliad partner since 2010 for the deployment of its 3G/4G mobile networks, will work with the group on its 5G

rollouts in France and Italy, offering next-generation connectivity to around 17 million users in the two countries. Iliad said that it is currently preparing for the deployment of 5G, which will start in 2020.

## Viettel and Nokia Broadcast 5G in Ho Chi Minh City

Viettel and Nokia have broadcasted the first end-to-end 5G network in Ho Chi Minh City. The launch positions Vietnam head to head with other countries in the region looking for an early commercial 5G rollout. Being first to 5G will allow Viettel and Nokia to play a crucial role in enabling Industry 4.0 applications that will boost Vietnam's economy. Nokia deployed the 5G network in a very short time frame, building on its existing LTE footprint with the operator, upgrading the entire infrastructure from radio access, Cloud Packet Core and transmission to 5G technology. Viettel's first cloud-based Packet Core network is currently serving its live subscribers. The network will offer a range of real-time 5G end-user experiences, such as VR gaming and 8K resolution streaming, as well as enabling Nokia's Fixed Wireless Access. Viettel and Nokia have set up 10 5G base stations in the area of Ward 12, District 10, Ho Chi Minh City, Vietnam's biggest city with more than 2,000 km<sup>2</sup> area and a population of 13 million. The project sets

the basis for a comprehensive evaluation of the band, coverage and application of 5G before commercialization in 2020. Tao Duc Thang, Deputy General Director of Viettel's Industry - Telecommunications Group, said: "The official broadcast of 5G in Ho Chi Minh City is an important milestone in Viettel's strategy to make Vietnam one of the first countries in the world to commercialize 5G services. With

5G, Vietnam will go along with the world." Nguyen Kim Dung, head of Customer Business Team at Nokia Vietnam, said: "This trial demonstrates Nokia's end-to-end 5G expertise and delivery capabilities in the Viettel network. As a trusted supplier to the operator, we are looking forward to making 5G a commercial reality that opens enormous growth opportunities for Vietnam."



## Nokia, NTT DOCOMO and OMRON Bring 5G to the Factory Floor in Industry 4.0 Trial

Nokia, NTT DOCOMO, INC. and OMRON Corporation have agreed to conduct joint field trials using 5G at their plants and other production sites. As part of the trial, Nokia will provide the enabling 5G technology and OMRON the factory automation equipment while NTT DOCOMO will run the 5G trial. The trial follows the increasing demand for wireless communications at manufacturing sites driven by the need for

stable connectivity between IoT devices. As background noise from machines and the movement of people have the potential to interfere with wireless communications, the trial will aim to verify the reliability and stability of 5G technology deployed by conducting radio wave measurements and transmission experiments. During the trial, Nokia, DOCOMO and OMRON will aim to establish the feasibility of the

concept of a layout-free production line with Autonomous Mobile Robots (AMRs). As product cycles become shorter due to fast-changing consumer demands, manufacturing sites are under increasing pressure to rearrange production lines at short notice. By taking advantage of 5G's high speed, large capacity, low latency and ability to connect multiple devices, the trial will see AMRs automatically conveying components to the exact spot where they are required based on communication with production line equipment. The trial will also leverage 5G connectivity for real-time coaching using AI/IoT. Machine operators will be monitored using cameras, with an AI-based system providing feedback on their performance based on an analysis of their movements. This will help improve the training of technicians by detecting and analyzing the differences of motion between more skilled and less skilled personnel. "This trial will allow us to address some of the biggest

**NOKIA** | **OMRON**

**NTT docomo**

Nokia, NTT DOCOMO and OMRON bring 5G to the factory floor in Industry 4.0 trial



challenges facing manufacturers today", said John Harrington, President and CEO, Nokia Japan. "Whilst consumers will experience faster, more immediate mobile communications, it is manufacturers that are set to benefit the most from 5G. The stable, lower-latency and higher throughput wireless connections that come with 5G allow them to truly embrace the Internet of Things. Production lines will be more flexible and adaptable, and productivity on the factory floor can be more easily improved. We are dedicated to helping manufacturers enable this Industry 4.0 vision." Mr. Takehiro Nakamura, Senior Vice President and General Manager of 5G

Laboratories, NTT DOCOMO, commented: "NTT DOCOMO has conducted multiple trials creating 5G use cases with a variety of partners, with factory automation emerging as one of the most interesting and challenging fields to explore. We are delighted to collaborate with Nokia and OMRON in the co-creation of innovative 5G services for the manufacturing sector. We are confident we will be able to prove the feasibility of layout-free factory production lines with Autonomous Mobile Robots and person-machine collaboration, thanks to Nokia's expertise in 5G infrastructure and OMRON's manufacturing technology know-how." "We are pleased to start this

experiment with Nokia and DOCOMO, aiming to bring 5G onto the real manufacturing floor", said, Mr. Shinji Fukui, Executive Officer and Senior General Manager, Technology Development Division HQ, Industrial Automation Company, OMRON Corporation. "OMRON is striving to create innovations in manufacturing through our technologies and solutions based on the industry's widest range of control devices. We believe this collaboration will enable us to create innovative solutions with 5G to address issues in the manufacturing industries by integrating OMRON's control technology, DOCOMO's 5G expertise and the cutting-edge technology of Nokia."



## Paltel Group Invests In New Data Center

Paltel Group has launched the latest data center in the region located in Ramallah; it is the Company's second state-of-the-art data center to date. With technology developing at such a fast pace, the Group continues to carry out the digital revolution and exceed its commitment to lead the ICT sector in Palestine. The latest investment, established on a 65,000 square feet area, is constructed to the most up-to-date international data center standards and

compliances. The highly advanced data center is Tier 3 certified and delivers high-level availability, complete transparency, and guaranteed confidentiality. The data center is equipped with the utmost standards of security and multi-level protection, as access to the center is strictly monitored. The center comes in compliance with earthquake-resistant structures to form an architectural landmark that serves the function of the

data center and ensures its continuity in line with disaster management plans. It provides cloud computing services, such as IaaS, PaaS, and SaaS, and data storage hosting services (co-locations) and management services to guarantee network security and protect the servers from any potential network attacks and intrusions by a dedicated 24-7 operation team.





## PCCW Global Collaborates with DE-CIX to Extend Global Reach

PCCW Global and DE-CIX have collaborated to extend the reach of DE-CIX's cloud and data center offerings via the Console Connect SDI® platform by PCCW Global. The collaboration will also provide Console Connect customers direct on-demand access to the DE-CIX platform via the self-provisioning platform. The Console Connect SDI® platform, the world's first global platform for Software-Defined Interconnection®, offers DE-CIX customers a real time self-provisioning, pay-as-you-go ecosystem that delivers on-demand virtual connections among 37 countries, together with instant provisioning to key cloud partners such as AWS, IBM Cloud, Tencent Cloud, Alibaba Cloud, Oracle Cloud, Google Cloud, and direct, private connectivity to an

additional 120 data centers in key markets throughout Europe, Asia, the Middle East, Africa, and North America. DE-CIX provides premium network interconnection services and operates 18 carrier and data center-neutral Internet Exchanges in Europe, the Middle East, North America, and India. Mr. Ivo Ivanov, Chief Executive Officer of DE-CIX International, said, "It has always been DE-CIX's ambition to make interconnection as easy as possible anywhere our customers need our services on the planet. This collaboration with PCCW Global is just the right step to getting interconnection even closer to the edge. We are thrilled to be the first IX globally to join the Console Connect SDI® platform." DE-CIX customers will be able to run private, secure virtual connections

across the Console Connect platform and provision, upgrade and monitor services on-demand. The collaboration will enable DE-CIX customers who are using the Console Connect SDI® platform globally to instantly provision services from any data center directly into the DE-CIX platform. Mr. Michael Glynn, Vice President of Digital Automated Innovation, PCCW Global, said, "We are pleased that this collaboration will be the first IX interconnect platform to be integrated with our global SDI® platform, enabling our wholesale and enterprise customers to instantly provision virtual circuits across our SDI® platform to access multi DE-CIX on-ramp locations. It also enables DE-CIX customers to purchase on-demand services via our platform from key cloud partners around the world and extend their IX platform to over 120 on-net data centers in 37 countries. This is another step in assuring SDI® platform for carriers, SD-WAN providers, IX platforms, and other SDN operators, helping them extend their reach and interconnect together via traditional Network-to-Network Interconnection using our self-provisioning portal, or integrating via API at any of our access points." The Console Connect SDI® platform overarches the worldwide PCCW Global network – spanning over 160 countries and 3,000 cities – offering an uncontended, redundant, core network with multiple diverse paths between countries.



## PCCW Global, Orange and PEACE Cable International Team Up to Deploy PEACE Cable

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, Orange, the leading telecommunications operator in France and a major investor in over 40 submarine cables in the world, and PEACE Cable International, a leading international submarine cable operator, today signed an agreement during the Submarine Networks World event in Singapore to deploy the Pakistan and

East Africa Connecting Europe (PEACE) submarine cable system, with a 12,000km ultra-low latency high-speed cable system that will relieve critical congestion on one of the busiest data routes in the world. This trilateral agreement among PCCW Global, Orange, and PEACE Cable International follows the signature of a memorandum of understanding that was announced during the Capacity Europe international telecommunications event

in November 2018 in London. In terms of the cooperation, Orange will supply and operate the cable landing station in Marseille, as well as linking the system to one of the city's major data centers - creating a connectivity gateway across Europe and on to the Americas through existing transatlantic networks. PEACE is a privately owned cable system connecting three of the largest and most populous continents in the world - Asia, Africa and

Europe. Increased global demand for connectivity is resulting in congestion on the busy route. In addition, Africa has the fastest-growing youth population in the world and is a market particularly ripe for investment because of the rapidly growing number of Internet users and a corresponding increased demand for connectivity. When complete in 2021, the PEACE cable system will provide the shortest and most direct data route from North Asia to Europe, combined with exceptionally low latency which is vitally important for a wide array of commercial and consumer applications. The backbone of the project will interconnect Pakistan, Djibouti, Egypt, Kenya and France, providing critical interconnections to key Asian, European, and African economic corridors, with additional planned landing points and extensions. Mr. Marc Halbfinger, Chief Executive Officer, PCCW Global, said, "Our collaboration with Orange is a critically important step towards bringing PEACE online and we trust the capabilities and vast experience of their teams in France to provide a successful and timely delivery of the European leg of the project. Orange has vast experience in submarine cable infrastructure development. So we are confident that Orange will not only successfully provide the necessary cable infrastructure in France, but also benefit from being one of the first major users of the PEACE cable to connect important and growing traffic from Africa to Europe." Mr. Jérôme Barré, Chief Executive Officer, Orange, said, "For Orange, PEACE is a major investment as it will provide greater route diversity, improved connection security and guaranteed support for increased capacity across all regions in the Indian

Ocean zone, particularly Réunion and Mayotte." Mr. Wu Qianjun, Chief Executive Officer, PEACE Cable International, said, "The PEACE project has been progressed very well and the equipment manufacturing has been achieved more than 60%. The system will be ready for service on time based on its schedule. We are confident that PEACE will provide low-cost capacity for those fast growing regions and enhance the routing diversity in Asia, Africa and Europe."



## PCCW Global and DCConnect Extend Global Reach with SDI Collaboration

PCCW Global and DCConnect have entered into a technology collaboration that will enable both Console Connect and DCConnect customers to seamlessly leverage network services from either service provider, including providing DCConnect customers with on-demand access to PCCW Global's extensive international network footprint. PCCW Global's Console Connect is a game-changer for business, making the process of connecting to cloud-based business-critical applications and geographically distributed offices, partners and clients simple, predictable and secure. Spanning over 37 countries, the Console Connect platform enables users to purchase on-demand connectivity in more than 100 global data centers and to all major cloud on-ramp partners, including AWS Direct Connect, Microsoft Azure, IBM Cloud, Oracle Cloud, Google Cloud, Alibaba Cloud and Tencent Cloud. DCConnect is the leading software-defined enterprise and carrier platform in China. DCConnect's coverage includes every major data center



and cloud vendor in China. The technology collaboration will enable DCConnect's clients to interconnect with the Console Connect platform in Hong Kong, Singapore, and Los Angeles - providing access to a truly global network. The API integration allows users to run private and secure virtual connections across both networks, as well as being able to provision, upgrade, and monitor on-demand services. Both platforms enable users to interconnect and purchase flexible services on a daily, weekly, or monthly basis - only paying for services which are available to be used with no lock-in contracts or minimum usage criteria. Mr. Billy Fung, Chief Technology Officer, DCConnect, said, "DCConnect is excited to establish a two-way integration with PCCW Global. We look forward to enabling our customers to make use of PCCW Global's extensive and robust IP backbone and global subsea network, providing instant access, with Quality of Service, to many markets around the world. Similarly, we also look forward to serving PCCW Global customers with our own extensive network resources throughout China." Mr. Michael Glynn, Global Vice President of Digital Automated Innovation, PCCW Global, said, "The interconnect collaboration with DCConnect allows our customers to access more data centers directly from our platform. We are building one of the largest SDN wholesale ecosystems worldwide for carriers, network providers, and other SDN providers, enabling them to access our extensive redundant global backbone on-demand, while extending their coverage and service offering to support their own customer needs, by interconnecting into our platform at any of our on-net data centers."



## SES to Deliver Premium Broadcast-Grade Cloud Service for Media Delivery on Microsoft Azure

SES announced it is developing a broadcast-grade managed cloud service offering on Microsoft Azure as a result of an expanded collaboration with Microsoft. Benefitting from Azure's extensive cloud and AI capabilities, and its own expertise in providing managed services for leading broadcasters and media companies worldwide, SES is transforming media service delivery via the cloud. This service will provide end-to-end, service-level agreement (SLA)-based media delivery services on Azure, giving broadcasters and media companies the flexibility and scalability that are essential in today's rapidly changing media environment. Bringing the most relevant content to the cloud and providing innovative services covering the entire video value chain – ingest, playout, and delivery – will enable media companies to scale and address the consumer's growing demand for a premium viewing experience on every screen. SES leads the industry with its worldwide reach of over 355 million TV households (or 1 billion people) and distributes over 8,200 channels via satellite. With SES's recent unification of its wholly owned video services subsidiary,

MX1, with its SES Video business unit, SES now manages over 525 channels and delivers more than 8,400 hours of online video streaming, including over 620 hours of premium sports and live events per day. Going to market with a unified solution for video infrastructure and services means that SES will accelerate the rollout of hybrid linear and non-linear content delivery services and solutions with unprecedented global reach. At IBC2019,

SES will demonstrate two initial use cases for its new service with Azure. Visitors to the SES stand (1.B51) will be able to witness first-hand:

- Fully managed playout services on Azure, including master playout and localized playout including ad detection and replacement
- The advantages of efficient, high-quality multichannel live IP encoding managed 24/7 by SES on Azure



## Datasat to Provide Enhanced Connectivity to Ferry Fleet in the Mediterranean Sea with SES Networks

Datasat, a leading provider of gateway internet services via satellite, has partnered with SES Networks to bring cutting-edge, end-to-end connectivity to a ferry fleet in the Mediterranean Sea servicing passengers and cargo in multiple destinations in Greece, Italy, Spain and Morocco, SES announced. Datasat will leverage SES Networks' Signature Maritime Solutions and ground infrastructure to deliver a premium experience for passengers and crew travelling onboard the modern and technologically-advanced vessels, which provide high-quality transportation services for passengers and private vehicles in the Eastern Mediterranean Sea.

While on board, passengers now will find not only luxurious accommodation, fine dining, and a wide range of activities, but also market-leading connectivity services. "The era of the connected ship is upon us, and it's a change that will revolutionize vessel communications and operations," said David Franeau, Managing Director at Datasat. "SES Networks' innovative, high-throughput connectivity and fully managed end-to-end services is our gateway to more intelligent ships, smarter fleet management, and an unparalleled guest satisfaction. We are constantly looking for ways to optimize the service provided to ferry passengers and we're

delighted with the quality of service enabled by SES Networks, which provides a premium user experience." "Like us, Datasat recognizes the enormous benefits that high-quality connectivity provides for passengers, seafarers and ships," said Morten Hagland Hansen, Vice President, Commercial Maritime and Energy Sales at SES Networks. "Delivering the highest level of service today requires seamless and reliable connectivity, and SES Networks is setting a new standard for the cruise and ferry sector that's unmatched in terms of scale, performance and technological diversity."

## SES Redefines Live Events with Synchronized Satellite and OTT

SES's latest solution, which will be showcased at IBC2019 in Amsterdam, synchronizes over-the-top (OTT) and satellite broadcasts by delivering IP signals to OTT platforms as fast as satellite to create enhanced live viewing experiences. The new solution, named Satellite and OTT in sync, gives broadcasters the power to deliver a more consistent experience to viewers watching any screen, or even multiple screens, by eliminating the delay between their TV broadcast and OTT services. Even a few seconds of delay between different screens can spoil the live event experience, and this has been a challenge to eliminate. SES's unique solution achieves that synchronization, giving broadcasters confidence that their viewers will be able to enjoy unforgettable moments. SES's Satellite and OTT in sync solution takes the source signal on its way to the satellite and distributes it via IP in tandem with satellite. By applying low-latency encoding and tuning to the IP stream at the source, the solution can deliver the content to OTT platforms in sync with the satellite signal. The technique shaves off the seconds of delay between a traditional television broadcast and other low-latency OTT solutions or regular OTT broadcasts. "Today's broadcasters are looking to protect and grow their business by delivering the best experience possible during live events, particularly for

premium sports. When a fan is watching an important match on an OTT platform and they hear the crowd at the bar down the street cheering before they even see the goal, the disappointment is palpable," said Ferdinand Kayser, CEO of SES Video. "Being a hybrid video distributor, SES can process video at the source for both satellite and OTT distribution, helping broadcasters deliver a unique, consistent, and satisfying end-user experience." SES leads the industry with its worldwide reach of over 355 million TV households (or 1 billion people) and distributes over

8,200 channels via satellite. SES's recent unification of its wholly-owned video services subsidiary, MX1, with its SES Video business unit, means SES now manages over 525 channels and delivers more than 8,400 hours of online video streaming, including over 620 hours of premium sports and live events per day. Going to market with a unified solution for video infrastructure and services means that SES will accelerate the rollout of hybrid linear and non-linear content delivery services and solutions with unprecedented global reach.



## SES to Enhance and Expand O3b mPOWER System Capabilities with Dynamic Software Innovation

SES announced that Adaptive Resource Control (ARC), a dynamic software solution under development in partnership with Kythera Space Solutions. This groundbreaking system will further enhance the market-leading flexibility and efficiency of O3b mPOWER, SES's next-generation medium earth orbit (MEO) communications system. ARC will enable the dynamic control and optimization of power, throughput, beams and frequency allocation across the entire O3b mPOWER system's space and ground assets, resulting in the efficient delivery of low-latency, satellite-based data services

with a superior end-user experience. ARC will deliver unprecedented levels of automation and adaptability for telco, government, and communications-on-the-move customers, enabling predictable, reliable services delivered over O3b mPOWER. ARC uses standards-based application programming interfaces (APIs) for easy integration into SES's service orchestration solution based on Open Network Automation Platform (ONAP). ARC and ONAP work together as a unified service delivery and optimization solution, with ARC managing the physical network resources allocated to services

orchestrated end-to-end by ONAP. SES's high-throughput low-latency O3b mPOWER communications system, scheduled to launch in 2021, will leverage seven next-generation MEO satellites, each capable of generating thousands of electronically-steered beams that can be dynamically adjusted to suit customer demand and geographic position. O3b mPOWER also will include a variety of intelligent, application-specific Customer Edge Terminals integrated with SES's terrestrial network. SES will leverage ARC to efficiently synchronize, optimize and automate the utilization of these

space and ground assets – seamlessly integrating satellite with terrestrial networks. As the newest technology partner in the O3b mPOWER ecosystem, Kythera, a leading provider of dynamic management systems for next generation satellite payloads and networks, is working with SES to develop ARC as an entirely new paradigm for communications services delivered via high-throughput satellites. ARC's ability to capture and utilize real-time data from Customer Edge Terminals means that end-user requirements can be instantly aligned with space- and ground-based network resources. Together with O3b mPOWER's dynamic network and user terminals, it will further boost the next-generation system's flexibility and network efficiency when it launches in 2021. SES's current O3b constellation has been operational since 2013 and is delivering fiber-equivalent connectivity

services to customers operating in nearly 50 countries today. The O3b system is the only technically-, operationally- and commercially-proven non-geostationary system for delivering low-latency data communications today. In addition to O3b mPOWER, SES also will implement ARC on its SES-17 high-throughput satellite. The geostationary satellite, which will be launched in 2021, is dedicated to providing services for the aeronautical, maritime and fixed and mobile broadband markets across the Americas with its 200 spot beams. "Next-generation satellites such as SES's O3b mPOWER and SES-17 have sophisticated on-board processors that offer tremendous new value in the form of flexible service and superior performance. The solution we are working on with SES is about unlocking that value," said Dr. Jeffrey Freedman, CEO of Kythera. "We are proud to be able to leverage our 10-year heritage of

developing satellite resource management and optimization software to co-develop the industry's most advanced software solution for SES's O3b mPOWER and SES-17 satellites." "For satellites to play a key role in the cloud-scale connectivity ecosystem, we have to make sure our satellite network offers maximum agility and adaptivity to real-time changes. This is the heart of our network modernization strategy and the reason why we are co-developing and implementing ARC," said Stewart Sanders, SES's Executive Vice President of Technology and O3b mPOWER program manager. "In choosing Kythera as the latest technology partner in the O3b mPOWER ecosystem, SES is laying down a key building block in the realization of that strategy – the ability to fully integrate the power of our space resources with the latest network software innovation."

## SES Networks Tunes Up Private Cloud Connections with Azure ExpressRoute

SES Networks is the first satellite provider in Microsoft's Azure ExpressRoute ecosystem. SES has ratcheted up its relationship and connectivity options with Microsoft Azure by becoming an Azure ExpressRoute services partner. The partnership allows SES Networks to provide dedicated, private network connectivity across land, sea and air, and other hard to reach places by using its satellite systems. SES Networks CEO JP Hemingway said that becoming an Azure ExpressRoute partner was a milestone for his company as it seeks to offer connectivity solutions to enterprises, energy companies and government sites in places that are beyond the reach of fiber. Hemingway said SES has been working with Microsoft Azure for a little more than a year. The fruits of those efforts included last month's announcement that SES was using the open networking automation platform (ONAP) in partnership with Microsoft Azure and Amdocs. ONAP is providing the orchestration capabilities for the ExpressRoute services. Azure ExpressRoute announcement was a big step toward SES's goal of providing a cloud-enabled, satellite connected suite of satellite services to both its customers and Microsoft's customers, according to Hemingway. "There are many ExpressRoute Azure connectivity partners out there," Hemingway said. "But, obviously, they've been predominantly around terrestrial connectivity with the large telcos, which have now enabled great access to the cloud applications, cloud solutions, to those that are terrestrially connected. "What we bring into the mix now is that we're enabling the breadth and the scale that satellite can enable so that we can bring cloud connectivity out to all of those users that we can reach that other options can't reach." SES is able to provide connectivity services across its fleet of 50 Geostationary Earth Orbit (GEO) satellites and its 20 Medium Earth Orbit (MEO) satellites. The 20 O3b MEO satellites in particular can deliver MEF-certified data connectivity services with low latency across Azure's



global gateway network and terrestrial network infrastructure, all of which can be used facilitate edge compute services. Azure customers also will be able to tap into SES's next-generation MEO communications system, O3b mPOWER. Launching in 2021, O3b mPOWER will deliver 10 times the throughput of the existing O3b constellation. "We are collaborating with SES across a range of initiatives to build upon their expertise in satellite communications and increase connectivity to critical services and applications for customers in remote and underserved areas," said Ross Ortega, partner, product manager of Azure Networking, in a statement. "This new collaboration between SES and Microsoft Azure Express Route further enables us to bring Azure to any business or government site." Hemingway said that SES has a similar cloud agreement with IBM Cloud Direct Link, and that he expects additional cloud partners going forward. SES also announced an expanded collaboration with Microsoft to use Azure's cloud and AI capabilities to deliver one of the first broadcast-grade cloud services for media delivery.



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dynamically adjusted to suit customer demand and geographic position. O3b mPOWER also will include a variety of intelligent, application-specific Customer Edge Terminals integrated with SES's terrestrial network. SES will leverage ARC to efficiently synchronize, optimize and automate the utilization of these space and ground assets – seamlessly integrating satellite with terrestrial networks. As the newest technology partner in the O3b mPOWER ecosystem, Kythera, a leading provider of dynamic management systems for next generation satellite payloads and networks, is working with SES to develop ARC as an entirely new paradigm for communications services delivered via high-throughput satellites. ARC's ability to capture and utilize real-time data from Customer Edge Terminals means that end-user requirements can be instantly aligned with space- and ground-based network resources. Together with O3b mPOWER's dynamic network and user terminals, it will further boost the next-generation system's flexibility and network efficiency when it launches in 2021. SES's current O3b constellation has been operational since 2013 and is delivering fiber-equivalent connectivity services to customers operating in nearly 50 countries today. The O3b system is the only technically-, operationally- and commercially-proven non-geostationary system for delivering low-latency data communications today. In addition to O3b mPOWER, SES also will implement ARC

on its SES-17 high-throughput satellite. The geostationary satellite, which will be launched in 2021, is dedicated to providing services for the aeronautical, maritime and fixed and mobile broadband markets across the Americas with its 200 spot beams. "Next-generation satellites such as SES's O3b mPOWER and SES-17 have sophisticated on-board processors that offer tremendous new value in the form of flexible service and superior performance. The solution we are working on with SES is about unlocking that value," said Dr. Jeffrey Freedman, CEO of Kythera. "We are proud to be able to leverage our 10-year heritage of developing satellite resource management and optimization software to co-develop the industry's most advanced software solution for SES's O3b mPOWER and SES-17 satellites." "For satellites to play a key role in the cloud-scale connectivity ecosystem, we have to make sure our satellite network offers maximum agility and adaptivity to real-time changes. This is the heart of our network modernization strategy and the reason why we are co-developing and implementing ARC," said Stewart Sanders, SES's Executive Vice President of Technology and O3b mPOWER program manager. "In choosing Kythera as the latest technology partner in the O3b mPOWER ecosystem, SES is laying down a key building block in the realization of that strategy – the ability to fully integrate the power of our space resources with the latest network software innovation."



## Tech Mahindra Recognized As a 'Leader' in Software Product Engineering Services

Tech Mahindra Ltd. a leading provider of digital transformation, consulting and business reengineering services and solutions, has been recognized as a 'Leader' in the Everest Group Software Product Engineering Services PEAK Matrix™ Assessment for the year 2019. Focus on future technologies, investments

in strategic platforms, customized industry specific solutions and advisory role in customer's digital transformation journey were amongst the key assessment criteria. As part of this report, Everest Group classified service providers on the PEAK Matrix™ into leaders, major contenders and aspirants, and positioned Tech Mahindra

as a "Leader" for their strong capabilities in software product engineering and successful engagements with customers via innovative constructs such as product carve outs. Akshat Vaid, Vice President, Engineering Services Research & Advisory, Everest Group, "Tech Mahindra maintained its leadership position in the 2019 PEAK

Matrix™ assessment as a result of good all-round performance through the year and concerted efforts in further strengthening capabilities in software product engineering. The company has invested in emerging themes such as microservices, user interface/ user experience, cloud enablement and management, and Artificial Intelligence/ Machine Learning in the form of IP assets and frameworks. Tech Mahindra's willingness to engage via innovative commercial models, partnering in ideation, and its ability to accelerate time to market are well appreciated by customers." Tech Mahindra was evaluated across a range of parameters such as "vision & capability" and "market impact" including services, products, solutions and locations. It was positioned as a 'Leader' based on - top quartile performance across market success; delivery capability captured through ability to deliver

services successfully through scale, scope, enabling capabilities and delivery footprint; expertise in, and driving focus on technologies of the future, investments in strategic platforms; customized industry specific solutions and advisory role in a customer's digital transformation journey. Karthikeyan Natarajan, Global Head, Engineering, Internet of Things and Enterprise Mobility, Tech Mahindra, said, "As part of the TechMNxt charter, Tech Mahindra is focused on leveraging next generation technologies to deliver enhanced experience to customers globally through our next gen software and digital engineering practices. This recognition is a testimony of our continued investments in building IP (Internet Protocol), software platform and automation solutions, enabling our customers to be agile, intelligent and cognitive." According to the PEAK Matrix report from Everest

Group, Software accounted for nearly one-third of the global engineering research and development spend by businesses in 2018 and it has been the fastest growing segment over the last three years. The global outsourcing market for Software Product Engineering stood at US\$11.2 billion in 2018, witnessing a Year on Year (YoY) growth of 20.4%. Tech Mahindra's Integrated Engineering Solutions (IES) delivers solutions enabling "Digital Engineering Enterprise" across Aerospace and Defense, Automotive, Industrial, Telecom, Hi-Tech, Healthcare, Transportation and ISVs. With 50+ exclusive engineering development centers supporting new program launches and 120+ marquee global customers, Tech Mahindra IES is an established leader for Engineering Services in the industry.

## Tech Mahindra to set Up Media Innovation Lab in Manchester



Tech Mahindra Ltd. a leading provider of digital transformation, consulting and business reengineering services and solutions, announced today the setting up of a media innovation lab in Manchester, United Kingdom, to develop next generation solutions. The announcement was made on back of IBC 2019 (International Broadcasting Convention) held at Amsterdam RAI Fairground. The media innovation lab in Manchester will leverage Amazon Web Services (AWS) offerings and fuel co-innovation, targeting

media customers in Manchester Media City and nearby regions. The lab will help in delivering qualitative content to end customers quickly and monetize the value of content faster. The lab will focus on future business models and underlying use cases focusing on millennial, Gen Z and Gen X. Vikram Nair, President, EMEA Business, Tech Mahindra, said, "The media and entertainment industry is transforming at a rapid pace, and as a digital transformation partner, we need to be participative in that change to drive maximum growth. As part

of our TechMNxt charter, Tech Mahindra is leveraging next generation technologies to drive innovation to deliver enhanced experience to customers globally. We already have a Makers Lab in Manchester that focuses on innovation to solve real business problems, the media innovation lab is a continuation of our journey towards creating future ready solutions." Tech Mahindra has already built cutting-edge solutions for media customers globally using AWS. For instance, the Telco Media Convergence solution provides a hyper-converged experience to telco customers by allowing them to access content of their choice with the utmost ease. Further, Tech Mahindra has also built a product SPOTON to automate 80-85% of the manual work required to quality check audio, video, and issues on compliance, and to reduce the time to air for content. Additionally, Tech Mahindra has also built a Blockchain-based Digital Content Track and Trace solution that helps in tracking content distribution, revenue, and contracts efficiently.

## Tech Mahindra and Keysight Collaborate to Accelerate Adoption of 5G Devices Globally

Tech Mahindra, a leading provider of digital transformation, consulting and business re-engineering services and solutions, has announced an extended collaboration with Keysight, a leading technology company that helps enterprises, service providers and governments accelerate innovation to connect and secure the world, to support leading mobile operators achieve their goals of successfully deploying new 5G devices. Due to low latency and high range, 5G devices will be the key catalyst behind the expansion of Vehicle to Everything (V2X) communications, that is, passing of information from a vehicle to any entity like vehicle, infrastructure and grid that may affect the vehicle, and vice versa. Karthikeyan Natarajan, Global Head - Integrated Engineering Solutions, Tech Mahindra, said, "The successful rollout of 5G is critical for the promotion of the next phase of digital transformation. Tech Mahindra is betting big on the 5G opportunity and is looking at the global markets to achieve growth. The 5G market is moving quickly and our collaboration with Keysight will enable us to provide the customers an environment which supports the accelerated 5G lifecycle." Tech Mahindra will leverage Keysight's 5G protocol and radio frequency/radio resource management (RF/RRM) carrier acceptance toolsets which are part of the Keysight's suite of 5G network emulation solutions. The solutions will be offered to

communication service providers (CSPs) and telecom equipment manufacturers (TEMs) which will help leading 5G mobile operators deliver a superior subscriber experience. Kailash Narayanan, Vice President and General Manager of Keysight's Wireless Test Group, said, "We're pleased that Tech Mahindra has chosen Keysight to help them address key 5G test requirements mandated by mobile operators, device makers and various standards. By offering a strong portfolio of 5G carrier acceptance solutions adopted by a connected mobile ecosystem, we're accelerating global 5G commercialization of multi-mode devices in different form factors." Keysight's industry-first 5G end-to-end design and test solutions enable the mobile industry to accelerate 5G product design development from the

physical layer to the application layer and across the entire workflow from simulation, design, and verification to manufacturing, deployment, and optimization. Keysight offers common software and hardware platforms compliant to the latest 3rd Generation Partnership Project standards, enabling the ecosystem to quickly and accurately validate 5G chipsets, devices, base stations and networks, as well as emulate subscriber behavior scenarios. As part of its TechMNxt Charter, Tech Mahindra is focused on leveraging next gen technologies to cater to the customer's evolving and dynamic needs. As a leading digital transformation company, Tech Mahindra continues to deliver tangible business value and experiences to solve real business problems.



## Tech Mahindra Recognized as a Leader in Dow Jones Sustainability World Index 2019

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions, has been recognized as a leader in the Dow Jones Sustainability Indices (DJSI) 2019 for the fifth consecutive year. Tech Mahindra is one of three Indian companies to be included in the DJSI World Index and one of twelve Indian companies in the DJSI Emerging Markets category. The company is ranked amongst top six companies globally in the "IT services & Internet

Software and Services\*" segment. The DJSI ranking is a validation of Tech Mahindra's focus towards driving its sustainability agenda across environmental, social and governance parameters through specific initiatives, such as renewable energy and water reusability projects and investment in innovative sustainability solutions. Manjit Jus, Head of ESG Ratings, RobecoSAM, said, "We congratulate Tech Mahindra for being included in the DJSI World and DJSI Emerging Markets categories. The SAM

Corporate Sustainability Assessment has again raised the bar in identifying those companies best-positioned to address future sustainability challenges and opportunities. This year – which marks the 20th anniversary of the DJSI – record corporate interest in the SAM CSA reflects the enduring relevance of the DJSI for measuring and advancing ESG practices." S&P Dow Jones Indices (DJI) is the gold standard for corporate sustainability and the first global index to track

sustainability efforts among corporates. RobecoSAM which specializes in providing Environmental, Social, and Governance (ESG) data, is an investment specialist focused exclusively on Sustainability Investing (SI) and the development of leading ESG assessment criteria to

achieve deeper insights into companies' sustainability practices. Sandeep Chandna, Chief Sustainability Officer, Tech Mahindra, said, "We, at Tech Mahindra, take great pride in driving measures that focus on managing social and environmental impacts, improving operational efficiency

while ensuring that corporate decisions lead to an equitable growth. Our inclusion in the DJSI World Index ranking for the fifth consecutive year is a validation of our continued efforts to make sustainability not just a business case, but an imperative for long term growth." Tech Mahindra has taken ambitious emission targets, which have been approved by the SBTi (Science based Targets Initiative) and is actively engaged in various smart city projects. Some of the other sustainability initiatives include reducing water and energy consumption across buildings, waste reduction, using renewable sources of energy for power generation, achieving carbon neutrality, making supply chains sustainable, and employee and customer engagement. Tech Mahindra has also undertaken a comprehensive program to reduce its absolute scopes 1 and 2 GHG (Greenhouse Gas) emissions 22% by 2030 and 50% by 2050, from a 2016 base-year.



## Tech Mahindra, University of California Santa Cruz Silicon Valley Extension and Intel Capital Collaborate to Drive Artificial Intelligence Led Innovation

Tech Mahindra Ltd., a leading provider of digital transformation, consulting and business reengineering services and solutions, announced a partnership with the University of California Santa Cruz Silicon Valley Extension and Intel Capital, Intel's strategic investment organization, to drive innovation leveraging Artificial Intelligence. As part of the partnership, they will be hosting a 'CIO Artificial Intelligence (AI) roundtable' every quarter, inviting CIOs and industry experts to discuss the latest AI applications and developments. The first panel is scheduled for September 26th, 2019, in Los Angeles, California. One of the key features of the CIO AI roundtable is that each discussion will center on the groups specific AI interests, including disruption, adoption, and new developments in AI. In addition, Tech Mahindra will also invite partners outside of the technology and digital industries, including academia and analysts, to participate in these panel discussions. Rahul Bhuman, Head of Artificial Intelligence, Business

Development & Strategy, Tech Mahindra, said, "The CIO Artificial Intelligence (AI) roundtable is designed specifically for executives, business leaders, and strategists to provide concise executive briefings on the most promising and important developments in AI for business. Our collaboration with the University of California Santa Cruz and Intel Capital will offer in-depth conversations on the latest AI technologies and use cases that can benefit enterprises globally." Bipin Thomas, AI Chair at UCSC Silicon Valley Extension, said, "Advances in AI and Knowledge discovery are accelerating at a very fast pace. We are delighted to collaborate with Tech Mahindra on the CIO AI roundtable to bring workforce skills tailored for breakthrough AI solutions to the industry and emerging intelligent ecosystems." Tech Mahindra and Intel Capital have collaborated on other AI summits as well. Since 1991, Intel Capital has invested more than \$12.6 billion in innovative startups targeting artificial

intelligence, autonomous mobility and a wide range of other disruptive technologies. Trina Van Pelt, Vice President & Intel Capital Senior Managing Director, said, "Artificial Intelligence is one of the biggest disruptions not only as technology, but also in driving societal benefits. Over the next few years, we predict enterprises will substantially accelerate adoption of AI across a wide range of use cases that benefit business and society in a pragmatic way. Intel Capital is pleased to collaborate with Tech Mahindra and UCSC to showcase some of the disruptive technologies in our portfolio that can help CIOs foster innovation." As part of the TechMNxt charter, Tech Mahindra is focused on building an ecosystem that supports collaboration in the real sense. As a step in this direction, Tech Mahindra has collaborated with some of the finest startups, working with academia, drawing from the millennial workforce, and jointly creating cutting-edge technology solutions with partners.

## Tech Mahindra Racks Up Multi-Year Cloud Deal with AT&T

Tech Mahindra wins a multi-year deal with AT&T to move some of the telco's systems and operations to the cloud. AT&T is covering all of its cloud bases with yet another cloud announcement, this time with IT vendor Tech Mahindra. The multi-year agreement with Tech Mahindra, which is reportedly worth \$1 billion, follows hot on the heels of recent cloud announcements with Microsoft, IBM, and Mirantis. AT&T's announced partnership with Microsoft in July was the telco's coming out party for its "public cloud first" strategy, which includes moving most of its non-network workloads, such as IT workloads and systems and HR functions, to the public cloud by 2024. Tech Mahindra will take over the management of many of the applications that support AT&T's network and shared systems. It's not clear if that

means layoffs for AT&T employees. While there weren't a lot of details in Thursday's announcement between Tech Mahindra and AT&T, it looks like Tech Mahindra will do the heavy lifting in regards to moving some of AT&T's systems and operations to the cloud. AT&T and Tech Mahindra did say that they would work together across several technologies and platforms such as artificial intelligence, DevOps, data analytics and 5G. On a related note, Tech Mahindra announced at Mobile World Congress earlier this year that its continuous integration and continuous deployment framework was designed to accelerate 5G adoption by automating key network lifecycle stages such as telco cloud, VNFs (virtual network functions) lifecycle automation, and implementation of DevOps continuous integration and

service orchestration. By offloading some of the work to Tech Mahindra, AT&T will be able to focus more on virtualizing the remaining 75% of its network by the end of next year and the continued build out is software-defined 5G network. "Our agreement with Tech Mahindra is another step forward in delivering greater flexibility across our IT operations," said AT&T Communications CIO Jon Summers, in a prepared statement. "This includes optimizing our core operations and modernizing our internal network applications to accelerate innovation as we march forward to our goal of a nationwide 5G network by the first half of 2020. Our collaboration with Tech Mahindra will ultimately help accelerate our network operations and overall technology leadership." According to a story by The Economic Times, the Tech Mahindra deal is worth \$1 billion, and it's among the New Delhi, India-based company's biggest over the past five or six years. Tech Mahindra has a long history of assisting AT&T, including AT&T's deal to buy BellSouth in 2006. More recently, the two companies worked together on artificial intelligence project Acumos prior to AT&T putting it into open source with the Linux Foundation. Early last year, Tech Mahindra announced it was reselling AT&T's FlexWare network product.



### Expanding Strategic Collaboration to Accelerate AT&T's Technology Transformation

IT Network Application | Shared Systems Modernization | Movement to the Cloud

## Tech Mahindra and Adjoint Collaborate to Announce Industry's First Blockchain Solution for Secure Enterprise Financial Management and Insurance

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions, and Adjoint, a global leader in innovative financial technology, have announced industry's first Blockchain solution for secure enterprise financial management and insurance services across locations to create a seamless and reliable customer experience. With this solution customers will be saving up to USD 4 million for every 1 billion of financial risk management and banking relationships. The solution is built upon Uplink, an

open source distributed ledger platform designed to improve efficiency, security and compliance in modern financial processes. It has a messaging and consensus protocol mechanism through which the participants in the Blockchain ecosystem agree on the data to be put in the blockchain ledger. It allows enterprises to quickly deploy, maintain, verify and execute secure, multi-party workflows. Rajesh Dhuddu, Global Head Blockchain, Tech Mahindra, said, "Tech Mahindra will partner with Adjoint to provide customized treasury and insurance solutions to Asia,

Europe and the US markets. The solutions will help the clients improve profitability, efficiency and will help protect sensitive information in general data protection regulation (GDPR) compliant fashion. With Tech Mahindra focusing on the Banking, financial services and insurance (BFSI) sector across the globe, we are happy to collaborate with a financial technology company like Adjoint to enrich our Banking and Insurance Solutions offerings." The Adjoint solution would enable enterprises to validate the business case with their own data in their own secure environment

and help in eliminating out-of-order and double data entry, creating a seamless and reliable user experience backed by data integrity and quality. Auditors can be given access to an immutable record of all transactions, facilitating reporting and compliance as well. Somil Goyal, Chief Operating Officer, Adjoint, said, "Our collaboration with Tech Mahindra will help us bring digital innovation to the corporate treasury and insurance space.

Our clients will be able to better manage settlements, loans and investments that may currently be restricted by corporate divisions, countries, or bank accounts, and thus reduce their working capital needs. Our solutions provide secure, end to end automation of business processes which reduces costs and eliminates the cumbersome process of data entry and reconciliations, which is common today in banks and corporates." This collaboration

is in line with Tech Mahindra's TechMNxt charter which focuses on leveraging next generation technologies and solutions, like Blockchain. The underlying priority is to enable digital transformation, build and deliver cutting-edge technology solutions and services to address real world problems and meet the customer's evolving and dynamic needs.



## Yahsat and Thuraya: Military and Government Comms Spotlighted @ DSEI in London

Yahsat and their mobile satellite services subsidiary, Thuraya, showcased their latest military and government communication capabilities at DSEI in London. During the four day event that has the UAE as its international partner, Yahsat Government Solutions and Thuraya introduced a number of end-to-end solutions at stand #N7-230 for mission critical operations on land, sea and air platforms. The combined portfolio – powered by C-, Ka-, Ku- and L-bands – will complement cutting-edge developments showcased by the Emirati defense and security industry at the adjoining UAE National Pavilion.

Yahsat Government Solutions is the UAE government's preferred partner for satellite solutions, providing highly secure, diverse and integrated fixed and mobile communication solutions for the UAE armed forces, enabling Beyond Line of Sight (BLOS) Communications, Blue Force Tracking (BFT), Secure Communications on the Move and Military Grade Handheld Communications. Yahsat and Thuraya bring more than 30 years of combined expertise in developing solutions for the most complex security requirements. Following Yahsat's acquisition of Thuraya in 2018, Thuraya's two satellites, which

serve more than 160 countries, joined Yahsat's network to expand the group's total fleet to five satellites. As a result, Yahsat Government Solutions' service portfolio is now poised to reach a wider breadth of markets in Europe, Africa, the Middle East, South America, Australia and Asia. Ali Al Hashemi, GM of Yahsat Government Solutions and CEO of Thuraya said that as the world's 6th largest satellite operator with an enhanced portfolio that includes fixed and mobile communication solutions, Yahsat and Thuraya were excited to be part of the defense and security dialogue at DSEI.

## Yahsat and Thuraya Reinforce UAE Presence with Joint Portfolio of Defense Communication Systems

Yahsat, the UAE's leading global satellite operator and Thuraya, its mobile satellite services subsidiary showcased their latest military and government communication capabilities at DSEI, a premier defense exhibition in London, from September 10 to 13. During the 4-day event that has the UAE as its international partner, Yahsat Government Solutions and Thuraya introduced a number of end-to-end solutions at booth #N7-230, for mission critical operations on land, sea and air platforms. The combined portfolio - powered by C, Ka, Ku and L-bands - will complement cutting-edge developments showcased by the Emirati defense and security industry at the adjoining UAE National Pavilion. Ali Al Hashemi,

General Manager of Yahsat Government Solutions and Chief Executive Officer of Thuraya speaks of the participation: "As the world's 6th largest satellite operator with an enhanced portfolio including fixed and mobile communication solutions, Yahsat and Thuraya are excited to be part of the defense and security dialogue at DSEI. We look forward to welcoming our partners, and exploring opportunities to enable comprehensive, future-focused systems for our government and commercial customers." Today, Yahsat Government Solutions is the UAE government's preferred partner for satellite solutions, providing highly secure, diverse and integrated fixed and mobile communication solutions for the UAE

armed forces, enabling Beyond Line of Sight (BLOS) Communications, Blue Force Tracking (BFT), Secure Communications on the Move and Military Grade Handheld Communications. Yahsat and Thuraya bring more than 30 years of combined expertise in developing solutions for the most complex security requirements. Following Yahsat's acquisition of Thuraya in 2018, Thuraya's two satellites, which serve over 160 countries, joined Yahsat's network to expand the group's total fleet to five satellites. As a result, Yahsat Government Solutions' service portfolio is now poised to reach a wider breadth of markets in Europe, Africa, the Middle East, South America, Australia and Asia. 🇦🇪



# Data Centers Experts ranked #1



Mobily data centers ranked #1 in the Kingdom  
in Data Hosting Infrastructure Services

## ARTICLE

# Regulatory Frameworks for IoT: Opportunities and Challenges



**Hani Almojel**

Executive Officer Regulatory Affairs  
Mobily



*The imminent launch of 5G services is also a very important reason behind the heightened interest in IOT. 5G is expected to finally, provide the level of speed, latency and security which will potentially enable the provision of services like autonomous vehicles, smart homes and wearable for various health and other applications, to name a few.*

ITU defines internet of things as "a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies". It began with the adoption of wired M2M technology in "SCADA" (supervisory control and data acquisition) in utility companies and became wireless in the 1990s, after the availability of wireless technology and its inherent advantages. IOT is the next step in the M2M evolution, which involves, in most cases, IP communication, active internet connection and data delivery relayed through a middle layer, hosted in cloud. Hence, while M2M may refer to any isolated device-to-device connectivity, IOT is about larger scale synergized communication between multiple devices with different protocols, to achieve complex objectives. Therefore, while conventional vehicle tracking would be categorized as M2M, autonomous vehicles would fall under the IOT services. Technologists have been dreaming about the futuristic applications of M2M for a long time. However, the required speed, latency etc. were not possible until now. This is about to change with the impending launch of 5G services, in most countries.



*IOT is expected to be a multibillion-dollar industry in the GCC. A report published by the Kuwait Financial Centre "Markaz" estimates only, the cost savings in oil and aviation industries to reach around 20Bn USD. Many countries in the region are working towards the diversification of their economies, strengthening of private sectors and the development of knowledge economy. IOT, big data and 5G therefore, occupy an important position in the national policies of these countries.*

IOT has become a hot topic nowadays, due to the almost ubiquitous availability of wireless connectivity, widespread adoption of IP technology, advancement in data analytics and the rise of cloud computing. The imminent launch of 5G services is also a very important reason behind the heightened interest in IOT. 5G is expected to finally, provide the level of speed, latency and security which will potentially enable the provision of services like autonomous vehicles, smart homes and wearable for various health and other applications, to name a few.

IOT is expected to be a multibillion-dollar industry in the GCC. A report published

by the Kuwait Financial Centre "Markaz" estimates only, the cost savings in oil and aviation industries to reach around 20Bn USD. Many countries in the region are working towards the diversification of their economies, strengthening of private sectors and the development of knowledge economy. IOT, big data and 5G therefore, occupy an important position in the national policies of these countries. Consequently, many GCC countries are working to establish a strong ITO industry. For example, Du (UAE) showcased its smart city solutions at IoT Middle East 2019 Conference. Etisalat launched its IoT (Internet of Things) gateway solution to connect customers' remote organisational assets securely to the enterprise network in 2018.

In KSA, IoT is estimated to become a USD 16.01 billion market by 2020. Hence, Saudi government has paid special attention to it in the vision 2030. MCIT has established Saudi IoT, an annual event focusing on the growth and development of technology in the Kingdom of Saudi Arabia. It is a once a year event for customers, service providers and technologists. Saudi's Regulator (CITC) is working on the development of regulations and has already issued its "Rules and Conditions for MVNO Services and IOT-VNO Services Provision". A consultation paper has also been issued about draft Regulatory Framework on Internet of Things (IoT) and draft special conditions for class licenses Type (B) to provide Internet of Things (IoT) Services using license-exempt frequency.

Saudi Operators are gearing up to enter this lucrative market. At present, Mobily offers POS, fleet management and other M2M services.

More advanced IOT services are expected to be launched after the availability of 5G

services in the countries. Operators have already started negotiating with local and international partners to launch such services.

We believe that the first service propositions will be focused on SCADA type applications for utility companies with E-health and smart vehicle type services following them. More advanced services like autonomous vehicles etc. are not expected before a widespread penetration of 5G. There will be a lot of potential of revenue generation in oil and gas sector and operators will face fierce competition in this vertical.

*More advanced IOT services are expected to be launched after the availability of 5G services in the countries. Operators have already started negotiating with local and international partners to launch such services.*

Saudi operators will have to overcome several challenges for establishment of a thriving IOT market. Most important of these challenges could be regulatory ambiguity, entrance of established big players from abroad and lack of technological know how in the local market. At the same time, national complicated security requirements will also create some hurdles. Operators should start developing technical capabilities and alliances while working with Regulator and other government bodies to facilitate rules and regulations related with IOT. 📍

## REGIONAL NEWS

### GCC Phone Shipments Total 6.5 Million Units in Q2

The GCC's mobile phone market saw strong unit growth in the second quarter of 2019 with shipments totaling 6.5 million devices worth \$1.7 billion, according to new figures. Statistics from International Data Corporation (IDC) showed growth of 11.5 percent compared to Q2 2018 and quarter on quarter growth of 8 percent, continuing the growth seen in Q1. Despite shipments declining 4.5 percent in Q2 compared to the year-earlier period, the feature phone market saw quarterly growth of 5.5 percent to total 1.7 million units. The smartphone market, spurred by particularly strong performances in Saudi Arabia and the UAE, totaled 4.7 million units, up 19 percent on an annual basis. IDC also said combined mobile shipments declined in Bahrain (-5.9 percent), Oman (-4.4 percent), and Kuwait (-12 percent) compared to Q1, caused by a downturn in smartphone shipments, with the feature

phone segments remaining stable in each of these countries. "Smaller GCC markets like Bahrain, Oman, and Kuwait have seen their smartphone markets contract due to a reduction in consumer spending caused by the introduction of new levies, a difficult job market, and changing government policies," said Akash Balachandran, a senior research analyst at IDC. "Kuwait has seen a significant degree of consolidation in terms of brands, while the implementation of new taxes has reduced the purchasing power of Bahraini residents. In Oman, the government's Omanization policy has caused a significant drop in the expat population, which has naturally impacted the mobile phone market." He added: "By contrast, Saudi Arabia's smartphone market is seeing growth as the market finally stabilizes following all the upheaval caused by domestic policy and regulatory changes in recent years." Despite May's

announcement of a ban on US companies doing business with Huawei, the GCC's smartphone vendor rankings remained unchanged in Q2, with Samsung first followed by Huawei and Apple. While Huawei experienced a sharp halt in shipments in June, immediately following news of the ban, its overall volumes for the quarter were not impacted as significantly as anticipated, IDC said. Looking ahead, IDC said it expects overall GCC mobile phone shipments to close 2019 up 3.5 percent while in the long term the market is likely to expand at a five-year compound annual growth rate (CAGR) of 2.9 percent through to 2023. "This growth will be further fueled by the introduction and rapid proliferation of 5G devices and other form factors, such as foldable devices, that are also expected to drop in prices quite rapidly towards the end of the five-year forecast period," said IDC.

### Oman's Third Mobile Network to Begin Operations in 2020

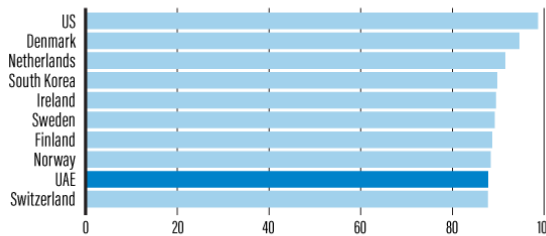


UK-based Vodafone has signed a non-equity agreement with Oman Future Telecommunications (OFT) to roll out the sultanate's third mobile telecoms network. Operating under the Vodafone brand, the new company will develop "new services ... to drive the next stage in the development of the country's telecommunications market", the joint statement said. The new operator is expected to begin commercial operations in the second half of 2020. OFT is a consortium of local investment funds led by Itqan Tech Development, a subsidiary of Oman 70 Holding. In October 2017, Oman cancelled the tender for the contract to operate its third mobile license in favor of a team comprising its sovereign wealth funds and an undisclosed "international partner". UAE-based Etisalat Group, Saudi Arabia's Saudi Telecom Company and Kuwait's Zain submitted a bid for the contract. Oman has two existing mobile telecoms operators – Omanmobile, a subsidiary of Oman Telecommunications (Omantel), and the Oman subsidiary of Qatar-based Ooredoo. Formerly called Nawras, Ooredoo Oman was awarded the second mobile license in 2004.

# UAE Ranked First in GCC in Digital Competitiveness Ranking

The UAE is ranked first in the Arab region and 12th globally among highly competitive countries in the IMD World Digital Competitiveness Ranking 2019, issued by the IMD World Competitiveness Centre, Lausanne, Switzerland, one of the highly specialized institutions in this field worldwide. According to the report, the UAE has advanced five positions from the previous year's ranking, to be ranked 12th globally and first in the Arab Region. In this year's report, the UAE has also progressed to achieve the first rank in the Arab Region in all three main factors of the report, namely the "technology" factor, in which the country achieved the second rank globally, advancing by five ranks from last year, and the 9th globally in "Future Readiness" factor, progressing from the 12th rank last year. The UAE advanced one rank in the "knowledge" factor to be the first in the Arab Region and 35th globally. Hamad Obaid Al Mansoori, TRA Director General, praised the UAE performance in the 2019 report and the achievement of high ranks in this strategic sector. Al Mansoori said: "The UAE progress in the Digital Competitiveness Ranking 2019 is a new global testimony added to the UAE record of achievements and teamwork. I would like to thank our partners in government and private sectors for their efforts and collaboration to enhance the competitiveness of the country and its progress in all global indicators and reports. "The analysis prepared by the Competitiveness Strategy Team at the Federal Competitiveness and Statistics Authority for the factors and sub-factors of this report showed that the UAE achieved outstanding performance in a large number of factors and sub-factors. In the "Knowledge" factor, which tracks the performance of the country by measuring three sub-factors - "Talent", "training & education" and "scientific concentration" - the UAE is ranked first globally in "international expertise" and second globally in "management of cities". It is ranked third globally in "net flow of international students", fourth globally in "employee training" and fifth globally in "foreign highly-skilled personnel". The "Technology" factor monitors technological progress through three

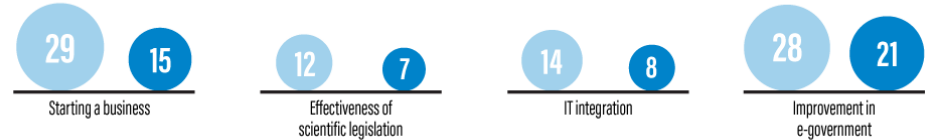
## TOP 10 NATIONS FOR FUTURE READINESS, 2019



## Overall and factors

	2016	'17	'18	'19
Overall	25	18	17	12
Knowledge	35	38	36	35
Technology	20	14	7	2
Future readiness	17	7	12	9

## UAE's ranking improvement in digital competitiveness



Source: IMD World Digital Competitiveness Ranking 2019

main sub-factors: "regulatory framework", "capital" and "technological framework". Moreover, the UAE has achieved advanced positions globally in these sub-factors, ranking first, second and fifth globally. In terms of indicators: the UAE is ranked first globally in "immigration laws" and "wireless broadband", ranked 3rd globally in "development and application of technology", "banking and financial services", and "venture capital", and 4th globally in "funding for technological solution". The third and last factor, "Future Readiness", monitors countries' readiness for change in different sectors, and the role of technology in handling changes, by measuring three sub-factors: "adaptive attitudes", "business agility" and "IT integration". In this factor, the UAE is ranked first globally in four sub-indicators: "Agility of companies", "Use of big data and analytics", "Public-private partnership" and "Opportunities and threats". The UAE is ranked second globally in "Cyber security" and third globally in "knowledge transfer" and "Attitudes toward globalization". Al Mansoori highlighted the key role of federal and local government entities and the private sector in achieving the vision, aspirations and goals set by the wise leadership for the continuous development and improvement of technological infrastructure, as well as supporting training and development initiatives for national capacities in the field of information technology, and encouraging research and development in ICT and advanced science. Al Mansoori also emphasized on the task of executive

teams for competitiveness indicators, which consists of representatives of numerous federal and local government entities, responsible for enhancing the country's position in economic and social indicators in general, and the digital competitiveness index in particular, as this indicator reflects the progress in digital and electronic transformations represented in Artificial Intelligence (AI) projects and big data to support and develop smart government services and build smart cities. Al Mansoori concluded by saying: "Technology today is the cornerstone of the economic and social development strategies and plans adopted by the world's advanced economies. Innovation is the key for success and cooperation among individuals, federal and local government entities in the development of solutions, and future foresight plays an accelerating role of this innovation and thus improve the country and society." The World Digital Competitiveness Ranking was added to the IMD World Competitiveness Yearbook in 2017. The ranking is based on 50 indicators grouped into nine sub-factors that form three main factors: knowledge, technology and future readiness. The IMD World Competitiveness Yearbook is an important global reference for many other international institutions that rely on this report to conduct their studies and publish their reports. Additionally, many academic institutions consider it an important measure to identify international best practices.

## TRA UAE Participates in the Broadband Commission for Sustainable Development Goals 2030 in New York

The UAE, represented by the General Authority for Regulating the Telecommunications Sector (TRA), participated in the 2030 targets of the Broadband Commission for Sustainable Development, held in New York, USA as part of the 74th session of the UN General Assembly, where high-level commissioners from various governmental and industrial sectors came up with solutions to accelerate the pace of digital transformation in LDCs, and showcased a number of innovative of digital transformation and their social and economic impact across the world. During the Commission meeting, the UAE submitted a joint proposal in cooperation with Saudi Arabia to establish a working group entitled "Towards useful communication", focusing on several elements in terms of connecting countries to the Internet. Commenting on this participation, Hamad Obaid Al Mansouri, TRA Director General, Broadband Commission Member, said: "The Broadband Commission for Sustainable Development Goals aims to underline the importance of broadband in the international policy agenda, broaden access to broadband by all countries as a key to accelerating progress towards national and international development goals, and identify practical ways that can help countries achieve their development goals in cooperation with the private sector." Al Mansouri stressed that the participation of the UAE as a Commission member reflects the vital role played by the country in international forums and its concerted efforts in supporting all decisions and proposals that promote digital transformation at the regional and global levels. He added: "All sustainable development processes that countries are currently pursuing depend on the extent

of their broadband use, as it is the real foundation of the ICT sector. We in the UAE strongly believe that broadband is the foundation for the future, and therefore we are adopting plans and strategies that aim to promote broadband penetration. We are keen to support all decisions that would enhance broadband in the Arab region in particular and the world in general, leading to the achievement of sustainable development goals and increasing welfare and happiness of human societies." He pointed out that the UAE has become an exemplary global model for broadband deployment, adding: "The UAE has ranked first globally in mobile broadband subscriptions, and this achievement is the result of plans and strategies developed by the UAE government under the guidance of its wise leadership and the team spirit of government entities. We at the TRA are eager to spread the leading Emirati experience to the benefit of all." The Broadband Commission engages in high-

level advocacy to promote broadband in developing countries and underserved communities. One of the central roles of the Commission is to advocate for higher priority to be given to the development of broadband infrastructure and services, to ensure that the benefits of this technology is realized in all countries. Governments and industry need to work together, hand-in-hand, to devise strategies for driving the roll-out of these networks much more proactively. In 2018, given the shift towards new UN development Agenda 2030 and new challenges of a digital world, the Commission re-evaluated and launched new framework of Targets 2025 in support of "Connecting the Other Half" of the world's population. These targets seek to expand broadband infrastructure, and Internet access and use by populations around the world, in support of achievement of the Sustainable Development Goals established by the United Nations.



## PTA Warns Zong Over 5G Adverts

Sector watchdog the Pakistan Telecommunication Authority (PTA) has published a statement reminding the public that Chinese-owned mobile provider Zong has only been permitted

to test 5G technology and the company is not authorized to offer a commercial 5G service. The PTA claimed that certain advertisements from the cellco may 'mislead the public regarding [the]

availability of commercial services based on [a] 5G network' and instructed the company to withdraw the relevant material.

## Dubai is Silicon Valley of Middle East: Sheikh Mohammed bin Rashid Al Maktoum



His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of UAE and Ruler of Dubai, met Founder and CEO Divyank Turakhia whose ad-tech company, Media.net based in Dubai Internet City, was sold for over Dh3.3 billion. Sheikh Mohammed said, "Dubai has become the 'Silicon Valley' of the Middle East." He added, "We are witnessing the prominent role of Dubai Internet City in creating new economies and nurturing global entrepreneurs." Dubai has witnessed similar multi-billion tech deals including the Dh11-billion acquisition of the Dubai-based Careem by Uber and Souq.com that was earlier acquired by Amazon for over Dh2 billion. The Ruler reaffirmed that Dubai will remain an incubator for talent and an ideal hub for tech entrepreneurs.

## Egypt Hosts Shared Services and Outsourcing Forum

Egypt, represented by the Information Technology Industry Development Agency (ITIDA), in cooperation with the Shared Services and Outsourcing Network (SSON) hosted the Shared Services and Outsourcing Forum Middle East 2019, on September 3-4, under the patronage of the Minister of Communications and Information Technology Amr Talaat. Egypt's hosting of the Forum comes in line with the vision of the Ministry of Communications and Information Technology (MCIT) to reinforce Egypt's position as a hub for shared services and outsourcing in various IT areas. The Forum discussed a number of topics of interest to decision makers, including corporates and international organizations. This includes discussing the best practices and key elements of successful strategies for choosing centers and locations for providing shared services. In addition, the Forum delved into common mistakes of international organizations and private institutions in choosing service providers, how to develop and benefit from successful business models. The Forum serves as a special platform for experts and industry leaders to meet and discuss the future of shared services and modern digital business models for managing outsourcing services. It is also a great opportunity to present the development achieved in Egypt, especially the transformation from a mere location for providing classic outsourcing services to an international hub for high-quality value-added services. SSON has recently issued a report, presenting Egypt's competitive potentials, including its unique geographical location, the abundance of skilled personnel, competitive business costs, and its growing ICT sector, placing Egypt in a privileged position for providing high value-added



services, and maintains the growth of these services, especially trans boundary services. Companies including Teleperformance Egypt, Xceed, Raya, and BDO Esnad participated as partners of the Forum, and Deloitte as the consulting partner. SSON is the world's largest community of shared services and outsourcing professionals, with more than 140,000 members specializing in shared services and outsourcing. For the past 25 years, SSON has been providing consultation and facilitating communication for exchanging knowledge and expertise needed to succeed, through organizing leading events and providing digital content such as reports, surveys, interviews, editorial, research papers, infographics and data analytics.

## MoCI and ITA to Bring Latest e-Commerce Tech to Oman

Oman's Ministry of Commerce and Industry (MoCI) and the Information Technology Authority (ITA) will together ensure that Oman keeps track of the latest e-commerce developments in the market, to ensure that the country can adapt to such changes accordingly. The announcement was made at the Oman e-commerce conference, which saw the participation of more than 40 local and international companies, as well as 50 speakers from different countries. Bader Al Lawati, an academic researcher in digital technologies, said: "The conference comes at an important time with the government's orientation and the efforts of the MoCI and ITA to keep pace with the global technological developments. It comes parallel to the vision of Oman 2040, especially after Royal Decrees were issued over investment laws such as the foreign capital investment law and the commercial companies' law. The e-commerce department has also been established at the ministry to deal with and develop e-commerce." He added: "E-commerce started 25 years ago as an idea of selling from a seller to a buyer only. Today, the term e-commerce refers to everything that happens online, such as exchanging information or providing services and benefit from remittances and electronic payment, as well as the process of buying and selling. Every service provided by the government or the private sector via the internet falls under electronic commerce." Adnan Al Lawati, who participated in the exhibition that accompanied the conference, said: "During the conference, we launched our electronic platforms which called 'Jabali Online' which was

the first Omani electronic platform that brings together a number of local and international brands and stores." "The consumer can choose and order products electronically through the platform and will be delivered within 48 hours across the Sultanate. The platform is witnessing a large turnout of brands and stores that want to show their products through the platform and there are about 60 brands and shops in the platform. The Oman e-commerce conference is an opportunity to meet and communicate with local and international companies and exchange experiences," he added. Majid Al Ameri, the founder of the Thawani platform, said: "Thawani platform for electronic payments using a mobile phone is a free application on Android and iOS, and the platform can be used by traders and consumers. Payments by phone are available round-the-clock and our platform allows consumers to pay for their purchases via mobile phone without the direct use of bank card or PIN." The second and final day of the conference

included a presentation of a number of working papers, including Oman 2040, the transformation of business, the growth of electronic payment in Oman as well as a working paper on the best policies for innovation in the field of electronic services and how to expand the scope of start-up through e-commerce in the world. Additionally, working papers on how to benefit from technology to digitally enhance society, improve customer experience, business management, future trade regulatory approaches, convert data into actionable visions, shape business practices, and the role of e-commerce in empowering women and youth, were presented. The conference also included a number of discussions where the revolution of electronic commerce and the factors leading to change and the impact of electronic commerce on the economy and how it would impact the future were discussed, while another session discussed block chain technology.



## Egypt Has Most Online Financial Transactions in Arab World

Egypt's Managing Director of German software giant SAP Hoda Mansour said that Egypt has the most online financial transactions in the Arab world. There are 152,000 firms undergoing digital

transformation around the world and are accounting for e-commerce in their work, Mansour said during her participation in E-commerce Summit held in Egypt. Mansour said that consumer experience

should be strongly taken into consideration when undergoing digital transformation in the Egyptian market.

## Kuwait Got Potential to Implement Digital Transformation

Secretary-General of The Supreme Council for Planning and Development Dr. Khaled Mahdi said that Kuwait has a clear strategy and a roadmap to achieve digital transformation and technical development. This came in a speech by Dr. Mahdi during a seminar organized by Kuwait Institute for Public Policies at the At the General Secretariat of the Supreme Council for Planning and Development (SCPD) headquarter. Kuwait has highly developed technical infrastructure in the 5G technology, this indicates Kuwait's ability to move towards digital technology, which is one of the most prominent development goals of the state, he added. He pointed out that Kuwait occupies the second place in the world depending on 5G technology after South Korea, due to number of transmitters dedicated to this technology,

and digital infrastructure compared to the size of the country, according to a report by Huawei China. He stated that digital revolution has configured new global

markets in the past five years, witnessing strong competition especially with the existence of China as a global competitor.



## Aftel Plots 4G Launch by Year-End

State-backed provider Afghan Telecom (Aftel) – which offers mobile services under the Salaam brand – has announced plans to launch commercial 4G services by the end of the year, the National quotes Aftel COO Mohammad Bashar Niazi as saying. The activation would potentially make Aftel the second mobile provider to launch an LTE system in the country,

following Afghan Wireless Communication Company (AWCC), which switched on the nation's first cellular 4G network in May 2017. The official noted that it expects to gain around five percentage points of market share from the 4G launch, boosting its share from roughly 11% to around 16% by 2020. Commenting on the potential for growth, the COO highlighted Afghanistan's

low level of broadband take up: 'currently internet penetration is around 19.6% and with the availability of cheap smartphones, this figure will go up significantly.' As another potential driver of subscriptions, the provider noted the demand for mobile banking and other financial services.



## Touch Switches on Lebanon's First 5G Site at HQ

Lebanese state-owned mobile operator Touch – managed by Zain Group – announced in a press release that it has launched the country's first 5G mobile site, located at its headquarters in downtown Beirut. Data speeds of 1.4Gbps have been tested at the site, with latency of less than 6ms. Touch says that 5G-enabled devices will be available at the HQ for further testing and demos. Touch CEO Emre Gurkan said: 'Last year, we

officially conducted Lebanon's first commercial 5G trial and today we are proud to be the first mobile operator to launch the first 5G site in Lebanon, a crucial step that will soon allow us to offer the most innovative products and services to our customers in consumer, business, IoT, and smart cities sectors ... Together with Zain Group and the Ministry of Telecommunications, we will soon make 5G a commercial reality.'

## TRA UAE to Launch Innovative Projects at GITEX Technology Week 2019

The Telecommunications Regulatory Authority, TRA, is set to launch 10 innovative projects during the GITEX Technology Week 2019, representing a new set of contributions from the TRA to enhance the smart lifestyle in the UAE, support the transition to the future of AI and Smart City, and develop a mechanism for dealing with modern technologies. The TRA is participating in the GITEX Technology Week as part of the UAE Government, which hosts 18 federal government entities, displaying their major achievements in the field of modern technology and harnessing them in facilitating the provision of government services, achieving customer happiness, and promoting the one government principle and excellent technology services. Hamad Obaid Al Mansoori, the TRA Director-General, said, "The TRA is keen to activate all channels of communication with its strategic partners and the public, to exchange ideas and views and develop the services provided by the TRA, in line with the aspirations of the UAE society in all its segments. As the GITEX Technology Week is a yearly gathering of global ICT companies, the TRA is keen to participate in this global event by focusing on future and innovative projects that develop solutions based



on AI and strong ICT infrastructure in the UAE." Al Mansoori indicated that the TRA's participation in this huge annual event contributes to strengthening its position in leading the smart transformation process and enhancing the smart lifestyle in the country, in addition to its global contribution to the ICT field. The TRA has been using GITEX in its successive sessions as an important platform for launching ideas and innovations, exchanging ideas with various parties to launch innovative projects and presenting them to the public, in addition to presenting

new phases and developments of the TRA's current projects, which are characterized by continuity, as they contribute to the achievement of the UAE happiness strategy. Visitors to the TRA's stand will learn about the latest developments related to the 5G experience, which was launched last year and is considered the next technological revolution in mobile broadband. Furthermore, in line with the UAE Vision 2021, the TRA aims to be the main driver for the launch 5G mobile business.

## Veon Targets Growth in New Services

Telecoms group Veon has increased its EBITDA guidance for FY 2019 and is looking beyond connectivity for future growth. Veon serves over 200 million subscribers, mainly in central Asia, and things seem to be ticking along nicely. "Veon is performing well in the current financial year against our 2019 targets and today we are increasing our EBITDA guidance for FY 2019 from low to mid-single digit growth to at least mid-single-digit growth," said Ursula Burns, Group Chairman and CEO. "Previous guidance of Revenue growth and Equity Free Cash Flow remain unchanged." Despite that, Burns reckons Veon needs to diversify beyond mere connectivity in the pursuit of future growth. A new

strategy framework is built around three pillars: connectivity, new digital services and future assets that open up adjacent growth opportunities. This essentially seems to be a version of the kind of 5G strategy most telecoms groups are advocating. "Our new strategy framework underscores the growth opportunities we see beyond our connectivity business and aligns Veon's ambitions with our industry's future development," said Burns. "I am confident that the greater flexibility in how we allocate capital will allow us to execute on these opportunities, reinforcing our market-leading positions and maximizing shareholder returns over the longer term." "Over the next 18 months,

there are opportunities that we believe will best serve investor interests over the medium-term," said Alex Kazbegi, Group Chief Strategy Officer. "We are excited about the opportunity in our core Russian market, which we believe can be best accessed through a short-term increase in network capex to allow us to drive medium-term service revenue growth. "In Pakistan, there may be the opportunity to increase our stake in the business through the existing put option with Warid. We also believe stepping up our investment in Digital Financial Services in Pakistan is an exciting first step in Future Assets."



## Bahrain Credit Partners with Veeam for Cloud Migration

Veeam Software, a provider of backup solutions that deliver cloud data management, announced it has been selected by Bahrain Credit, a division of Bahrain Commercial Facilities Company (BCFC), to guarantee data availability, improve operational efficiency and better deliver digital services to its customers. "Financial services digitization is our key to provide a differentiated customer experience that suits the new lifestyles changes," said Ali Al Marzooq, head of innovation and business technology at Bahrain Credit. "With unique digital services on-boarding, we aim to simplify the process to help our customers save their time and effort. We're building omni-channel engagement for our customers

through web portals, mobile apps and self-service kiosks, so their entire customer journey can be managed online." Veeam claims its scalable backup and replication capabilities accelerates business performance, providing an easier and more efficient way for the Bahrain Credit in-house team to manage scalable workloads. The solution also takes care of the backup and recovery of several mission-critical virtual machines (VM), including the VM running Bahrain Credit's core database, which stores all customer data and serves all its enterprise applications. With huge amount of its data existing solely in digital formats and a single hour of downtime costing a significant amount of money, Bahrain Credit attributes the ability to now

smoothly run key operations, guarantee business performance and meet its customers' needs to Veeam. Bahrain Credit is now set to partner with Veeam in a cloud migration project designed to be the first step in an ongoing digital transformation journey for the company. The program will also integrate Veeam's replication solution for disaster recovery and a system for the archiving of emails for off-boarded employees to promote greater service continuity for customers. "The cloud will enable us to meet our goal of not having any physical servers by 2020 and we see Veeam as being a key partner in achieving this objective," added Mr Al Marzooq.

## UAE, Saudi Arabia Lead GCC in Digital Transformation Interest Online

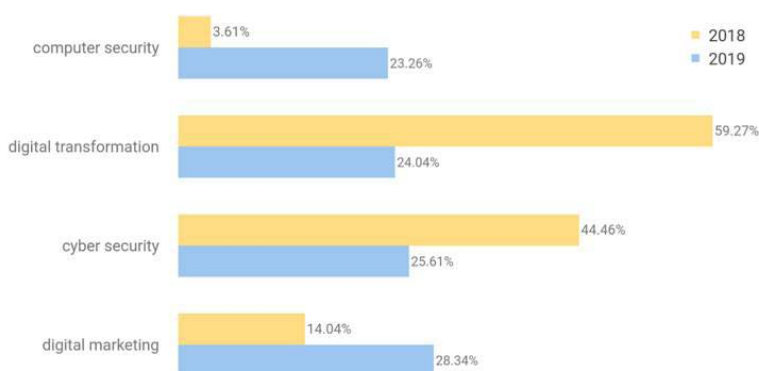
The UAE and Saudi Arabia are leading GCC-wide online searches relating to digital security and transformation over the last 12 months, according to new results released by SEMrush, an award-winning all-in-one digital marketing suite. The back-data study covered four key strategic digital terms: 'digital transformation', 'digital marketing', 'cyber security' and

'computer security', with the significant increases in searches highlighting how the two Gulf states are setting the regional data protection agenda and leading demand. In terms of online search volume trends from August 2018 to August 2019, the UAE's most searched term was 'digital marketing', closely followed by 'cyber security'. As for year-on-year growth, the fastest growing

UAE search terms are 'digital marketing' at 28 percent, followed by 'cyber security' at 25 percent, 'digital transformation' at 24 percent and 'computer security' at 23 percent. Meanwhile, Saudi Arabia witnessed the largest single market jump in related search volumes during the same period. The Kingdom's fastest growing related term was 'digital transformation', which witnessed 123 percent growth, with 'digital marketing' and 'computer security' at 84 percent and 30 percent growth, respectively. "These insights provide marketers working within this sector greater clarity into the interests of residents and companies across both the UAE and Saudi Arabia. By harnessing this data, they will be able to support their own marketing campaigns and outreach to acquire new business leads as interest and investment grows," said Adam Zeidan, Corporate Communications Manager at SEMrush for MENA region. "According to Internal Data Corp, the UAE and Saudi Arabia will dedicate USD 8 billion and USD 11 billion, respectively, to IT and digital transformation in the next year, something marketers need to be monitoring."

YoY Growth of Interest to Digital Transformation Terms in Search

Data for UAE | In comparison with previous year



## UAE Shows Far Higher Levels of Trust in IoT Tech Compared with European Nations

The UAE has far higher levels of trust in Internet of Things (IoT) technologies, such as smart home devices and wearables, compared to Europe, according to research commissioned by global Cybersecurity leader Palo Alto Networks. The research shows that 71% of respondents in the UAE believe that IoT technology is secure, compared to an EMEA average of just 38%. Of the European countries in the survey, Germany (53%), France (48%), and the UK (46%) had the highest levels of trust in IoT. The proportion of Europeans who do not trust IoT outweighs those who do, with 43% of European participants stating they believe IoT tech is 'not secure' or 'not at all secure'. This is in stark contrast to the UAE, where just 25% of respondents believe IoT technology to be either 'not secure' or 'not at all secure'. The results of the survey are likely to resonate in the UAE, which is keen to utilize technology including IoT and AI to help drive economic growth and prosperity. In March, Dubai published its IoT Strategy including a bold vision to build the world's most advanced IoT ecosystem in a bid to improve people's lives. The strategy aims to protect Dubai's digital wealth, encourage government departments to join the emirate's smart transformation, and achieve the objectives of the Smart Dubai Plan 2021 to transition to a 100% paperless government. The UAE population's trust in IoT, and the government's technological ambitions, also bode well for economic growth and prosperity of the country, with IoT set to play an increasing role in raising productivity levels around the world. According to a recent report from GSMA

Intelligence, the productivity benefits of IoT will be worth more than \$370 billion per annum in 2025, representing 0.34% of global GDP, while IoT companies will generate over \$1 trillion in revenues by the same year. Haider Pasha, Regional Chief Security Officer (CSO), Emerging Markets, Palo Alto Networks, said: "The level of trust in IoT technology in the UAE appears to be far ahead of the EMEA average. This is very encouraging for the UAE, especially in light of the country's commitment to harness the power of technologies including IoT and AI for economic growth and development. Continuing to work on maintaining this trust is vital to help this technology reach its full transformative potential," Pasha added. The study also

revealed marked differences in perceptions about who should be trusted to look after an individual's personal data, with a majority of respondents in the UAE (46%) placing responsibility on the government. This contrasted sharply with Europe, where only 26% of respondents said the government should be responsible for the security of personal data. The UAE also differed from Europe in perceptions of personal responsibility for the security of personal data. While 45% of respondents in the UAE said that the individual should be responsible for securing their personal data, the figure was significantly higher in Europe, where 55% of respondents believe the individual should be chiefly responsible for the security of their personal data.



## MCIT Egypt to Construct Telecom Network for First Phase of New Capital City

Egypt's Ministry of Communications and Information Technology (MCIT) is reportedly planning to begin work on the construction of an EGP40 billion (USD2.44 billion) telecommunications network, as part of the first phase of development

of the country's proposed new capital city. According to Reuters the MCIT has signed a cooperation agreement with the Administrative Capital for Urban Development (ACUD,) the new capital's owner and developer, to begin work on the

infrastructure over a period of six months. Ahmed Zaki Abdeen, a retired general who heads the company building the new city, was cited as saying that that ACUD is providing the funding for the new network.

## VEON Acquires Direct Ownership of Jazz, Banglalink; GTH Delists

Amsterdam-based VEON has announced that its offer to acquire the multinational operating assets of its Egypt-based subsidiary Global Telecom Holding (GTH) has been approved at a GTH shareholder meeting, following which VEON has completed the intra-group ownership transfers of mobile operators Jazz (Pakistan) and Banglalink (Bangladesh), and submarine cable operator Med Cable. VEON's announcement did not mention Algerian cellco Djezzy, which is also expected to be transferred from GTH to direct VEON ownership under the agreed offer. NASDAQ and Euronext-listed VEON also confirmed that GTH's shares have been delisted from the Egyptian

Exchange (EGX), following a Delisting Decree published by the EGX. GTH also paid its final instalment of outstanding tax liabilities to the Egyptian Tax Authority. VEON has set out a 'future strategy and capital allocation framework', including a commitment to boost long-term growth beyond traditional connectivity services as a 'communications and digital services provider'. The strategy is based on three business pillars: mobile and fixed line Connectivity services; a portfolio of New Services built around digital technologies with the active involvement of big data and artificial intelligence; and Future Assets which seeks to identify, acquire and develop 'know-how' and technologies that

open up adjacent growth opportunities. Alex Kazbegi, Group Chief Strategy Officer, said: 'Over the next 18 months, there are opportunities that we believe will best serve investor interests over the medium-term. We are excited about the opportunity in our core Russian market, which we believe can be best accessed through a short-term increase in network CAPEX to allow us to drive medium-term service revenue growth. In Pakistan, there may be the opportunity to increase our stake in the business through the existing put option with Warid. We also believe stepping up our investment in Digital Financial Services in Pakistan is an exciting first step in Future Assets.'

## Regional Organizations Wrapping Up WRC-19 Preparations

The African Telecommunications Union (ATU) held its final preparatory meeting ahead of World Radiocommunication Conference 2019 (WRC-19), convened by the International Telecommunication Union (ITU). Attending the session in South Africa was Brian Jacobs, ZS6YZ, who represented the South African Radio League (SARL) and International Amateur Radio Union Region 1 (IARU R1) as part of the South African delegation. Delegates reached consensus on several items of interest to the Amateur Service. The highlights included:

Agreement on an African Common Proposal (AFCP) on allocating 50 – 54 MHz to the Amateur Service in Region 1 on a primary basis with provisions to allow wind profiler radars and the Amateur Service to avoid mutual interference. (WRC Agenda Item 1.1)

Discussion on spectrum to be considered for International Mobile Telecommunications, (IMT), which ATU agreed should not include the primary amateur band at 47 – 47.2 GHz. (WRC Agenda Item 1.13)

Agreement to an AFCP that retains the current regulatory position in the 5725 – 5850 MHz band, which includes secondary allocations to the Amateur and Amateur Satellite services. (WRC Agenda Item 1.16)

No change to the International Radio Regulations regarding wireless power transfer for electric vehicles (WPT-EV), but with a continuation of International Telecommunication Union Radiocommunication Sector (ITU-R) studies to ensure that appropriate frequency ranges and technical limits are incorporated into standards to protect radio services.

In ITU Region 3, the Australian Radio Study Group 5 (ARSG 5) met for the final time on August 23 in advance of WRC-19. ARSG 5 addresses terrestrial systems and networks for the Fixed, Mobile,



Radiolocation, and Amateur and Amateur Satellite services in Australia and provides key technical inputs to meetings of ITU-R Working Parties 5A, 5B, 5C, and 5D; the Asia-Pacific Telecommunity (APT), and WRC-19. Australian Communications and Media Authority (ACMA) sites Sydney, Canberra, and Melbourne were linked via videoconference to review progress toward relevant WRC-19 agenda items, to discuss the outcomes of recent international meetings, and to decide on any follow-up actions. Coordinators for each WRC-19 agenda item briefed the meeting on the progress of work at ITU-R and the outcome of the APT fifth Conference Preparatory Group (APG19-5) meeting, held in July and August in Tokyo, which reached preliminary APT common proposals for WRC-19. The ARSG 5 meeting also discussed the upcoming final meeting of the Department of Communications and the Arts (DOCA) Preparatory Group WRC-19 (PG WRC-19), set for September 16. DOCA is responsible for communications policy and programs. The PG WRC-19 meeting will finalize Australia's positions on all WRC-19 agenda items and provide security and operational information for the Australian delegation to the conference. World Radiocommunication Conference 2019 will take place October 28 – November 22 in Sharm el-Sheikh, Egypt.

## TRA UAE Participates in Cyber Defense Live 2019

The UAE, represented by the Telecommunications Regulatory Authority, TRA, participated in the Cyber Defense Live 2019 (FireEye) in Dubai, which discussed key practices to detect and respond to cyber-attacks. The conference was aimed at informing the participants about the latest cyber threats and ways to safeguard institutions from potential cyber breaches. It also constituted a networking opportunity for specialists and leaders in the Cybersecurity sector, as well as a cooperation opportunity for organizations and institutions on Cybersecurity. TRA's Internet Advancement Senior Manager, Abdulrahman Al Marzouqi, in his opening speech said, "In the UAE, we have developed a national strategy for Cybersecurity, to be a key element in risk prevention and preparedness for the Cybersecurity challenges, accelerate the process of digital transformation and smart city, where millions of devices and platforms communicate automatically, producing vast and unprecedented amounts of data in a safe and secure manner." Al Marzouqi added, "In the UAE, we believe in the importance of a partnership between the government and private sectors, as it is essential for the achievement of our country's goals and future aspirations. The government develops legislation and regulations to protect users and preserve their privacy, while companies provide tools to protect users, such as binary verification (two-factor authentication)

and other means." The conference hosted a panel discussion on trending modern cyber-attacks, with the participation of the TRA, the Dubai Cyber Security Centre, the Emirates National Oil Company, and the American University of Sharjah. During the session, Abdulaziz Al Nuaimi, Manager of Information Security at the TRA, reviewed social engineering attacks spread via WhatsApp and social media, which seek to deceive people into revealing their private data, as well as impersonation attacks. The conference included a live cyber-attacks simulation, with specialists who presented a 360-degree view of cyber-breaches,

during which participants learned the best practices to prepare for a potential cyber-attack. It also discussed the evolution of the digital age, the cyber risks associated with it, and ways of protection. The conference reviewed the effects of cyber-attacks, their overall impact on companies, and the best practices that institutions, companies and individuals should follow to overcome the risks of penetration. Additionally, the conference focused on the importance of protecting vital infrastructure, encouraging the establishment of Cybersecurity start-ups, and contributing to the development of strategies and capacity building.



## Saudi Government Begins Project to Make Makkah a 'Smart City'

The government of Saudi Arabia has commenced work on the project to transform Makkah Moazzama as a Smart City. The announcement of making Makkah Moazzama a Smart City was announced a couple of weeks ago by Governor of Makkah Moazzama and advisor of Khadimul Haramain Sharifain Shah Salman bin Abdul Aziz, Prince Khalid Al-Faesal. The Smart City would enable

modern transport facilities for the pilgrims and senior citizens performing Hajj and Umrah at the city. As per reports, the royal authority of the city will also collaborate in promoting the project. The authorities state that the Makkah Moazzama Smart City project has been assigned to a Japanese company. Under the project, 400 smart buses made in Japan will be plied in Makkah by 2020 and the number will be

increased to 2000 in the next five years. Reports further state that the buses will be controlled with the help of a remote control system and GPS system will be installed in them. The interiors of the buses will have smart display panel which would operate in both Arabic and English languages. Passengers will be provided internet and Wi-Fi facility within the smart buses.

## UAE Ministry of Health and Prevention Launches First Blockchain-Based System

UAE's Ministry of Health and Prevention (MoHAP) has launched the first blockchain-based system to save and share assessment information of health professionals, including doctors, pharmacists and technicians, with local licensing health authorities.

- The smart system comes in line with Emirates Blockchain Strategy 2021
- The sophisticated platform to create unhackable & unchangeable distinctive imprint of digital data
- The unmatched system reduces operational costs and paper transactions, upgrades the digital security of national data

The smart system, which will cover healthcare workers in public and private health facilities overseen by the Ministry, will help reduce resource consumption in terms of time and cost, and improve efficiency and data integrity. Awad Saghir Al Ketbi, Assistant Undersecretary of the Support Services Sector, said: "The Ministry has successfully developed the necessary infrastructure for a blockchain-based decentralized database. In the first stage, we will link the evaluation of health workers system with public and private health authorities and other relevant institutions to create a single digital platform with an access to the portfolio of health professionals. "The sophisticated platform comes in line with the ministry's strategy

to develop smart systems, provide the best smart e-services, ensure the happiness of customers and implement TRA standards, smart government enablers, and the United Nations E-Government Development Index" Al Ketbi added. He stressed that the innovative project will support the Emirates Blockchain Strategy 2021, which aims to capitalize on the blockchain technology to transform 50 per cent of government transactions into a blockchain-based platform by 2021. This can be done through recording and documenting digital transactions using blockchain technology, besides allocating a distinctive imprint of digital data that cannot be hacked or changed. This huge development would increase the level of digital security of national data, reduce operational costs, paper transactions, and speed up the decision-making process, enhance the safety of patients and provide effective and efficient healthcare services. For her part, Mubarak Ibrahim, Director of Information Technology at the ministry said: "The blockchain technology offers a variety of benefits and advantages, including a decentralized database in which the stored data becomes unchangeable. The decentralized database delivers a high security level, in addition to an encryption feature to verify the authenticity and reliability of transactions, as data cannot be deleted, modified or lost. "It will also

help improve data and information validation and consistency, which in turn provides a high level of transparency and trust in the healthcare services sector. With immutable data, all health providers can access reliable information and help take appropriate decisions, automate workflow processes electronically, improve customer and employee experience, and boost operational performance" Mubarak Ibrahim highlighted. She added that the ministry is working to develop e-health services according to the smart government enablers' index. It is mapping out operational plans to integrate digital technologies with smart applications, and improve the quality, safety and efficiency of healthcare, based on the big data management, predictive models and blockchain technologies. "The Information Technology department at the ministry is looking forward to further improvements and developments to enhance the role of blockchain in licensing health professionals, and updating health workers' data when obtaining a new certificate or practice. The blockchain technology can also be used to create a blacklist of doctors who violated the standards of the profession, in addition to building a register of medicines licensed and other features that contribute to improving the digital healthcare system", Mubarak Ibrahim concluded.

## Omantel Welcomes Entry of Third Mobile Operator

Oman Telecommunications Company (Omantel) has welcomed the entry of the third mobile operator to the sultanate saying it will provide more choices to consumers. The global telecom giant Vodafone announced a strategic partnership agreement with Oman Future Telecommunications (OFT) to enter the sultanate's telecom market. 'Under the non-equity agreement, both companies will work together to roll out a new mobile network and develop a number of new services using the Vodafone brand in Oman to drive the next stage in the development

of the country's telecommunications market,' Vodafone said in a statement. In a press statement released by Omantel, its chief executive officer Talal al Mamari welcomed the step taken by Oman Future Telecom to sign a partnership agreement with Vodafone and the expected launch of the third mobile operator service next year. Mamari reiterated Omantel's commitment to support the development of the telecom sector in the sultanate by offering its robust and widespread infrastructure as well as capacities through Omantel's extensive international network of submarine cables.

"Entry of the third mobile operator will contribute to offering wider choices to customers, a key focus area that has been given utmost priority by Omantel since its launch," the statement quoted Mamari as saying. Industry experts believe that the entry of the third operator in the country could provide more choices to consumers and it will also result in increased competition among telecom companies thus putting additional pressure on margins of telecom companies.

## Sri Lankan e-Commerce Reforms to Improve Sales for Small Businesses

Sri Lankan e-commerce reforms underway in are aimed at encouraging more transactions and helping companies, especially small businesses, improve access to overseas markets, a government official said. "Improving electronic-commerce is for the benefit of SMEs (small and medium enterprises)," said Dayaratna Silva, national project coordinator of the European Union-Sri Lanka Trade-Related Assistance project. "It is the SMEs who should be ultimate beneficiaries of this initiative," he told a forum on e-commerce reforms in the island involving public and private sector officials. "Bigger companies

have the ability and resources to get around the problem be it e-commerce or other areas. It is the small firms often who do not have the capabilities." The 'National Public-Private Dialogue' on e-commerce reforms was held by the Ministry of Digital Infrastructure and Information Technology (MDIIT) and the International Trade Centre (ITC). The ITC is a joint agency of the United Nations and World Trade Organization that focuses on strengthening soft infrastructure-related assistance to trade and trains developing country officials to improve use of trade as a tool for development. "With proper

management of e-commerce, with a policy framework, e-commerce offers significant sales channels for SMEs which is the focus area for this project," Silva told the forum. It covers a wide range of reforms to promote e-commerce, ranging from electronic payments, data protection and privacy, consumer protection, and Cybersecurity to logistics and access and education. The reforms are being planned at a time of growing use of e-commerce platforms and increasing internet penetration although such transactions are still low compared with other regional countries.

## TRA UAE Delegation Visits Moscow to Learn About Best Practices in Smart Cities

A delegation from the General Authority for Regulating the Telecommunications Sector (TRA) headed by Hamad Obaid Al Mansouri, TRA Director-General, visited Moscow to learn about Russia's best practices in smart cities and digital transformation. The delegation held a meeting with number of officials specializing in technology in Russia. The meetings discussed avenues of cooperation in ICTs and exchanged innovative technologies between the two countries. Hamad Obaid Al Mansouri, TRA Director-General, said the visit comes in the context of getting acquainted with global experiences and sharing experiences and knowledge to the benefit of all parties



## Jazz and USF Pakistan to Bridge the Digital Divide in South Waziristan

Continuing its partnership with Jazz for developing cellular access in underserved regions, the Universal Service Fund (USF) has awarded a new contract worth Rs90 million to Jazz Pakistan. The contract has been awarded under the Broadband

for Sustainable Development Project in South Waziristan, according to a press release issued on Thursday. A signing ceremony took place between USF Chief Executive Haaris Mahmood Chaudhary and Jazz Chief Corporate and Enterprise

Officer Syed Ali Naseer. Federal Minister for IT & Telecom Khalid Maqbool Siddiqui informed the audience that through this project services would be provided to a population of 0.64m people in 411 muzas.

## GCC Mobile Phone Shipments Grow 11.5% Year on Year in Q2

The overall mobile phone market of the Gulf Cooperation Council (GCC) experienced robust year-on-year (YoY) unit growth of 11.5% in Q2 2019, with shipments totaling 6.5 million devices worth \$1.7 billion, according to the latest figures announced by global technology research and consulting firm International Data Corporation (IDC). Quarter on quarter (QoQ), shipments were up 8.0%, continuing the growth seen in Q1 2019. Despite shipments declining 4.5% YoY in Q2 2019, the feature phone market experienced QoQ growth of 5.5% to total 1.7 million units. The smartphone market, spurred by particularly strong performances in Saudi Arabia, the UAE, and Qatar, totaled 4.7 million units, up 19.0% YoY and 8.9% QoQ. Combined mobile shipments declined in Bahrain (-5.9%), Oman (-4.4%), and Kuwait (-12.0%) QoQ; these declines were caused by a downturn in smartphone shipments, with the feature phone segments remaining stable in each of these countries. "Smaller GCC markets like Bahrain, Oman, and Kuwait have seen their smartphone markets contract due to a reduction in consumer spending caused by the introduction of new levies, a difficult job market, and changing government policies," says Akash Balachandran, a senior research analyst at IDC. "Kuwait has seen a significant degree of consolidation in terms of brands, while the implementation of new taxes (e.g., Utility Tax, VAT) has reduced the purchasing power of Bahraini residents. In Oman, the government's Omanization policy has caused a significant drop in the expat population, which has naturally impacted the mobile phone market. By contrast, Saudi Arabia's smartphone market is seeing growth as the market finally stabilizes following all the upheaval caused by domestic policy and regulatory changes in recent years." Despite May's announcement of a ban on U.S. companies doing business with Huawei, the GCC's smartphone vendor rankings remained unchanged in Q2 2019, with Samsung first (42.9% unit share), Huawei second (22.8%), and Apple third (18.4%). While Huawei experienced a sharp halt in shipments in June, immediately following news of the ban, its overall volumes for the quarter were not impacted as significantly as anticipated, despite a third of the quarter being hit so drastically.



Indeed, shipments of Huawei smartphones in the GCC were down only 10.6% on the previous quarter in Q2 2019. "This is because a significant portion of Huawei shipments took place earlier in the quarter and at an increased pace, which helped to counteract the declines seen following the ban towards the end of the quarter," says Nabila Popal, a senior research manager at IDC. "Furthermore, most of the negative impact for Huawei was on their premium devices, whereas their midrange and entry-level devices, which make up the bulk of their shipments, were significantly less impacted. As a result, the overall quarterly volume of Huawei, and in turn the smartphone market itself, did not suffer as much as it could have done." Additionally, the seamless timing of Samsung's well-received budget and midrange offerings saw the vendor capture whatever share was dropped by Huawei, helping to offset any potential declines the GCC smartphone market may have suffered. "The success of Samsung's new A-series range – the successor to the previously popular J-series range – highlights the market shift seen towards midrange devices," says Popal. "The A-series represents a great value-for-money proposition and its introduction offers consumers a timely alternative to Huawei devices. This saw Samsung increase its unit share of the GCC smartphone market by 8.4 percentage points from the previous quarter." Looking ahead, IDC expects overall GCC mobile phone shipments to close 2019 up 3.5% YoY. "This growth will be spurred entirely by the smartphone market, which is set to post a 10.1% YoY increase in shipments for

the year as a whole," says Popal. "Despite the initial panic, Huawei's shipments have already resumed following a brief halt in June and are expected to return to normal levels by end of 2019, as strong incentives and communications are put in place by the vendor to reassure channels and consumers alike about Huawei's future." In the long term, IDC expects the GCC mobile market to expand at a five-year compound annual growth rate (CAGR) of 2.9% through to 2023. "Major events in the region, such as Expo 2020 in the UAE and the FIFA World Cup 2022 in Qatar, along with an anticipated recovery in the GCC's smaller markets, will help sustain smartphone growth in the long term," says Popal. "This growth will be further fueled by the introduction and rapid proliferation of 5G devices and other form factors, such as foldable devices, that are also expected to drop in prices quite rapidly towards the end of the five-year forecast period." "While many people seem to believe 5G will be the salvation to all the challenges facing the stagnating smartphone industry, it's imperative for market players to realize that releasing 5G devices alone won't be enough to fuel the required growth," warns Balachandran. "The provision of excellent support, widespread networks rollouts from telecom operators, comprehensive customer education on the real-world benefits of 5G, and the release of devices at the right price point will all be critical if 5G is to have a significant impact on overall market volumes and reduce the ever-lengthening refresh cycle." 📱



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## ARTICLE

# Regulatory Frameworks for IoT: Opportunities and Challenges



**Charbel El-Litani**  
 Founder & CEO  
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**inmobiles**

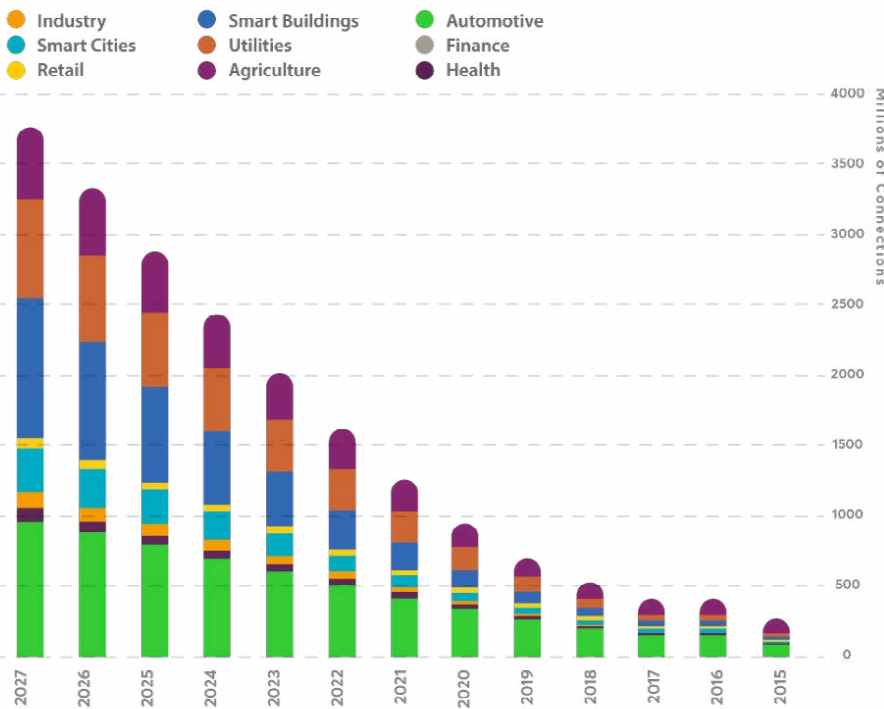
*The IoT emphasis is on 5G networks that support the millions of connected devices when it comes to the telecommunications sector. The idea is to solve the issue of temporary delays, high speed and low power consumption. Internet of Things is also diverse from a connectivity perspective. The variety of connectivity solutions, including cellular, satellite and private networks enables providers to address diverse and evolving customer requirements, across a wide range of uses in different vertical sectors.*

The "Digital Revolution" of the Internet of Things technological alteration entails new business models and, therefore, new revenue streams to various industries in our modern world. Traditional ways are being left behind and turning to become outdated, as IoT brings incredible opportunities for companies to offer real-time sensor data and information services, making it an unbelievable development in technology that will allow the end user to be connected to an infinite number of devices at all times from any point on the globe.

Technology became the key enablers of any growth and expansion strategy; and that is through providing pervasive connectivity, a combination of the national broadband network, public access points to broadband, a Smart Nation Platform which extends pervasive connectivity for sensors, open data and co-creation of new services and through heterogeneous networks for seamless roaming between networks.

The IoT emphasis is on 5G networks that support the millions of connected devices when it comes to the telecommunications sector. The idea is to solve the issue of temporary delays, high speed and low power consumption. Internet of Things

Fig 01: IoT Connections worldwide share by sector



is also diverse from a connectivity perspective. The variety of connectivity solutions, including cellular, satellite and private networks enables providers to address diverse and evolving customer requirements, across a wide range of uses in different vertical sectors.

Yet, the use of the IoT does not stop at homes, cities or information. However, it also applies for transport and many other sectors. Intelligent transport systems targeting both human beings and goods use IoT sensors since intelligent vehicles assist drivers in anticipating maintenance problems, accidents, find parking spots, etc. while it also extends to include trains, planes, ships and heavy vehicles. The aim is to manage the supply chain and handle logistics and security while increasing engine performance and durability. Many companies have already joined this trend, which makes their infrastructure more complex and development more astonishing.

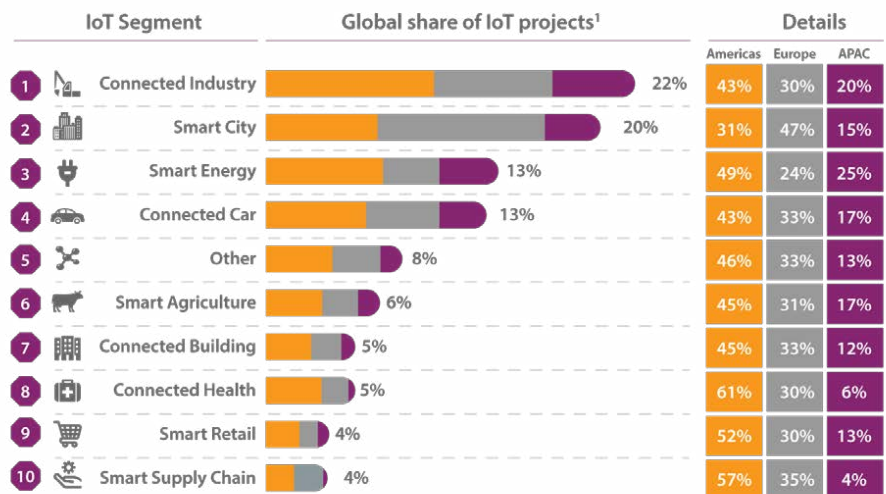
The application of the Internet of Things leads to a hyper-connected world over which security is a major concern, it is an important challenge to keep it under control as well as create routes for its protection.

Therefore, it relies on programming codes and developing software that address such a delicate situation. In addition, one of the numerous issues that the Regulatory faces are the legal matters. This applies mainly to the banking and insurance sectors, medical and pharmaceutical industries, infrastructure and manufacturing equipment, and in particular all food related equipment.

On the other hand, the security vulnerabilities (privacy, sabotage, denial of service) with the constant hacking of high-profile targets keeps this danger constantly in the back of our minds. For instance, the significances of sabotage could be far more thoughtful than a compromise of privacy. For instance, altering the mix ratio of decontaminators at a water treatment plant or stopping the climatization system at a nuclear power plant could theoretically place a whole city in instant hazard. Additionally, the determinism of the network, the lack of a common standardization and the continuous fragmentation in the implementation of IoT will decrease the value and increase the cost to the end users.

However, even while facing a reasonable amount of challenges in the implementation and adoption of the Internet of Things in many of our life's aspects, the solution is around to stay. Most of the technical and hypothetical problematic will be surely be resolved within the next few years; but it is the corporation that will come up with a generic framework and persuasive business model on how to implement and monetize the Internet of Things that will possess the goose that lays the golden eggs. 🦆

Fig 02: IoT Analytics



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## SATELLITE NEWS

### First UAE Astronaut Lifts Off with U.S and Russian Space Station Crew

Soyuz MS-15 crew members Oleg Skripochka, Hazzaa AlMansoori and Jessica Meir wave from the base of their Soyuz-FG rocket prior to boarding the vehicle on September 25, 2019. The United Arab Emirates (UAE) has now become the 40th country in history to see one of its citizens fly into space with the launch of a crew bound for the International Space Station. Hazzaa AlMansoori, a spaceflight participant flying under a contract between Russia's space agency and the UAE's Mohammed bin Rashid Space Centre (MBRSC), lifted off with cosmonaut Oleg Skripochka of Roscosmos and astronaut Jessica Meir of NASA on Wednesday (September 25). The three launched on board Russia's Soyuz MS-15 spacecraft at 9:57 a.m. EDT (1457 GMT or 6:57 p.m. local time) atop a Soyuz FG rocket from the Baikonur Cosmodrome in Kazakhstan. The flight marked the final scheduled use of Gagarin's Start, the launch pad where cosmonaut Yuri Gagarin lifted off on April 12, 1961 to become the first human to fly into space. Roscosmos officials have said that the historic pad, also known as Site 1, will be upgraded to support a more modern version of the Soyuz rocket, but when that work will be completed is presently unknown. Nine minutes after leaving Gagarin's Start, Skripochka, Meir and AlMansoori entered Earth orbit to begin their journey to the International Space Station (ISS). Following a four-orbit rendezvous, the Soyuz is scheduled to dock to the station's Zvezda service module at 3:45 p.m. EDT (2045 GMT). "It is a unique responsibility and a unique opportunity to bring aboard the station the first astronaut from the United Arab Emirates. Not that



we're flying him; he's going to work as a full-fledged crew member of our crew," said Skripochka at a press conference on Tuesday. "But it does bring a certain level of attention to our crew. It is a historic event to say the least."

### Algerie Telecom Satellite Selects Hughes JUPITER for Residential/SME Services

Algérie Telecom Satellite (ATS), the leading public satellite telecommunications provider in Algeria, has selected the Hughes JUPITER™ System to enable satellite broadband service to home users and small-to-medium enterprise (SME) customers. The mission of ATS is to develop and promote satellite telecommunications throughout Algeria, the tenth-largest country in the world and the largest in Africa. ATS will launch satellite Internet service employing the market-leading JUPITER System, including a hub and thousands of user terminals. "To connect people throughout Algeria with satellite broadband service, we need a satellite platform that can deliver high performance and efficiency, with the

right economics," said Yassine Sellahi, chief executive officer, ATS. "We chose the Hughes JUPITER System for these reasons and, also, for its scalability as we look to grow our satellite Internet business and extend connectivity everywhere." "Our strategy globally is to help connect the unconnected by delivering service directly where we operate the business, and to work with selected partners, like ATS, in places where we do not," said Ramesh Ramaswamy, senior vice president and general manager, International Division, Hughes. "We appreciate the opportunity to help ATS launch service throughout Algeria, and to bring the benefits of high-speed Internet access to the many that are unserved or under-served by terrestrial

providers." The JUPITER System is the next-generation Very Small Aperture Terminal (VSAT) platform from Hughes for broadband services over both high-throughput and conventional satellites. Employing the DVB-S2X standard for highly efficient use of satellite bandwidth, the JUPITER System powers services on more than 40 satellites around the world, and is the foundation for HughesNet®, the flagship satellite Internet service from Hughes, with more than 1.4 million subscribers in the Americas. The JUPITER System supports applications such as community Wi-Fi hotspots, cellular backhaul, and in-flight connectivity services, in addition to broadband Internet access.

## DOCOMO Selects Gilat to Provide LTE Satellite Backhaul to Improve Rural Coverage

Japan's NTT DOCOMO has selected Gilat Satellite Networks to supply it with LTE satellite backhaul, as part of plans to expand its 4G footprint in rural areas, a press release revealed. The Japanese cellco is looking to ensure 'secure and robust coverage even in the most challenging weather conditions', and to

that end will use Gilat's satellite backhaul supported by SKY Perfect's JCSAT-4B orbiter to deliver DOCOMO's service in 'selected areas' of Japan. Takumi Togi, senior manager of DOCOMO's Radio Access Network Engineering Department, commented: 'NTT DOCOMO sees great value in satellite backhauling to extend its

leading broadband fiber network to islands, destinations, and areas where terrestrial coverage is not available ... We are pleased to be partnering with Gilat, the recognized satellite backhauling leader in Japan as well as worldwide, for materializing our cellular network vision.'

## Iridium and OneWeb to Collaborate to Deliver Services in L-Band and Ku-Band

A unique Memorandum of Understanding was established between Iridium Communications (NASDAQ: IRDM) and OneWeb establishing that they will work together toward a combined service offering. This combined service offering would be designed to make it easier for their mutual partners to offer unique bundling and co-marketing opportunities for the Iridium Certus® L-band services and OneWeb's Ku-band service. The offering would leverage the strengths of their respective low-Earth-orbit (LEO) networks. This is the first time that LEO operators have collaborated to deliver services in L-band and Ku-band. The MoU also creates opportunities for companies that manufacture both OneWeb and Iridium Certus™ terminals. Such new options could include Iridium-OneWeb companion packages in addition to providers being able to offer combined equipment or even new dual-constellation terminals. While both are LEO constellations, Iridium® and OneWeb services have different capabilities on their respective bands (L-band and Ku-band), which can create a complementary, full-service option for applications such as heads of state comms, critical tactical services, maritime, disaster response and more. Matt Desch, CEO of Iridium said that it's an exciting time for the industry, and they see great potential for this offering. Their services are unique and complementary, and they know that customers are looking for the capabilities of both our low-Earth-

orbiting networks. Adrian Steckel, CEO of OneWeb added that they believe the new offering can bring many benefits for their distribution partners. By combining the strengths of their services, they can ensure their partners are able to deliver the most innovative, seamless services to their subscribers across many markets, and in all the places that don't yet have access to the internet. Due to the physics associated with L-band and Ku-band spectrum, the two come with different yet complementary attributes. The OneWeb network will deliver very high-speed broadband connectivity that transfers large amounts of data. It

is ideal for applications including Inflight WiFi, Government, and Maritime networks that require global reach, high speed and low latency. Iridium's crosslinked satellite constellation brings seamless truly global connectivity with highly weather resilient L-band user terminals, making it uniquely suited to provide safety services for ships, aircraft, vehicles and deployed personnel, and can be a regulation-required capability. The combined power of these two networks can work together to deliver capacity, resiliency, and high-speed connectivity to customers anywhere in the world.



## HawkEye 360 Awards Manufacturing Contract to UTIAS SFL

HawkEye 360 awarded the manufacturing contract for its next generation of satellites the University of Toronto Institute for Aerospace Studies Space Flight Laboratory (UTIAS SFL). Enabled by HawkEye 360's \$70 million Series B financing in August, this contract aims to substantially boost on-orbit capacity to serve the company's rapidly growing customer base. The contract will expand the constellation to 18 satellites, achieving routine revisits of less than an hour for increased global persistence. UTIAS SFL will manufacture the bus and integrate the new Radio Frequency (RF) payload developed by HawkEye 360. The satellites aim to geolocate more signals across a wider frequency range with improved accuracy and reduced data latency for more timely delivery to customers. "After proving the value and accuracy of our first satellites and securing the Series B investment, we are now quickly scaling our

business to support customer demand," said John Serafini, Chief Executive Officer, HawkEye 360. "These next-generation satellites will improve our capabilities and

expand our constellation for faster revisit rates, which translates into better insights for a safer world across maritime, air, and land domains."



## Hughes Launches Nationwide Internet Service in Mexico

Hughes Network Systems, launched HughesNet in Mexico, its flagship high-speed satellite internet service. The introduction of HughesNet marks the expansion of Hughes' presence in Mexico, where the company offers commercial enterprise and government services, through its partner Star Group/StarGo. Beginning October 1, HughesNet will deliver internet access virtually everywhere

in the country, including in areas where other internet services are not available today. HughesNet service in Mexico offers speeds of 25 Megabits Per Second (Mbps) for downloads and 3 Mbps for uploads. With the launch of HughesNet service in Mexico, approximately 95 percent of the population will have access to internet service – even in rural areas. "Now, with the launch of HughesNet, everyone across the

country can enjoy the fast, reliable internet service used by more than 1.4 million customers throughout the Americas," said Vinod Shukla, Chairman, HNS de Mexico S.A. de C.V. "In Mexico – even in areas where fiber and cable services are not available – internet access is now possible through HughesNet."

## Kacific Hired to Deploy Satellite Broadband in French Polynesia

Singapore-based Kacific has been selected to supply French Polynesia with a satellite broadband solution using its soon-to-be-commissioned Kacific1 satellite. As such, by 2020 around 276,000 people across the Society Islands, the Tuamotu Archipelago, the Gambier Islands, the Marquesas

Islands and the Austral Islands will be able to receive high speed internet access. Christian Patouraux, founder and CEO of Kacific, commented: 'I created Kacific to allow everyone to access the internet in the Pacific Islands ... With our new Kacific1 satellite, even people living on the remote

and sparsely populated islands of French Polynesia will have the opportunity to connect to broadband internet. And the connection will be maintained permanently, regardless of the possible problems related to the terrestrial fiber network.'

## SpaceChain Receives Support from European Space Agency for Blockchain Satellite Technology

ESA Business Applications and Space Solutions, under its Kick-start Activity program, has awarded funding to SpaceChain UK to further develop and identify commercial use-cases for its satellite blockchain technology. ESA's Kick-start Activity Program is designed to make it easier for entrepreneurs and start-ups to explore thematic areas with promising business potential and to create new commercial services and applications relying on space assets and data. Successful Kick-start projects can be



further developed with additional funding from ESA's Business Applications and Space Solutions. SpaceChain's satellite blockchain technology is designed to bring more security to the transmission of digital currencies and smart contracts by using a distributed satellite network and multi-signature transactions. Thus far, SpaceChain has developed an open-source operating system, and launched and flight-tested two blockchain nodes into space in the past 12 months. Current blockchain transactions carry significant security risks if a user's private signature key is compromised. To solve this problem, SpaceChain has developed a multi-signature satellite wallet that is faster and more secure than the traditional method. Instead of using one private key, the SpaceChain wallet can use a two of three signature scheme, where at least two signatures are required to complete transactions, with the satellite acting as one of those signatures. The funds in the wallet remain safe even in the event of a connectivity failure due to the fact that the two ground-based signatures can still complete the transaction. SpaceChain plans to collaborate with Deimos Space UK, whose expertise in flight systems, ground segment systems, space situational awareness, and satellite navigation make them an ideal partner.

## Remote African Areas to Receive SATCOM Connectivity via Azercosmos and INTERSAT Partnership

Azercosmos and INTERSAT signed a long-term partnership during IBC2019 for delivery of consumer broadband and enterprise services and to provide high quality and high throughput internet connectivity to remote areas of Africa, thereby reducing the digital divide on the continent. This partnership enables Azercosmos to use INTERSAT's teleport and ground infrastructure and expertise to deliver consumer broadband and enterprise services to every city, town, and community on the continent. Azercosmos and Intersat are joining forces to develop the satellite broadband market in Africa, which is currently flooded with multiple offerings of low quality and data-limited satellite broadband connectivity options. With the new service offering, customers will be able to enjoy high-throughput connectivity as well as be able to use unlimited data. Hanif Kassam, CEO of INTERSAT, said this agreement with Azercosmos is a significant step toward extending state-of-the-art and highly-affordable services

specific to the continent of Africa, using the firm's newly launched SkyFi services. With this service, the company has set a new trend for broadband satellite internet by delivering a service that gives consumers unlimited data with faster speeds and better service experience. Subrata Roy, the CTO of INTERSAT, noted that with the proven superiority of Hughes-Jupiter2 HUB platform, the company is confident

that the firm's SkyFi service will provide INTERSAT with a competitive edge for successful service expansion throughout Africa. Rashad Nabiyeu, the CEO of Azercosmos, added that the company is pleased to expand the scope of this longstanding relationship with INTERSAT to now enter into this partnership for the delivery of broadband services over the firm's satellite to the people of Africa.



## Speedcast Awarded Contract from Oil and Gas Customer in Iraq

Speedcast International was awarded a new multi-year contract with an oil and gas engineering services customer for fully managed internet services and IT support across the company's base in Iraq. This company is an existing customer of Speedcast in Europe, the Middle East, and Africa (EMEA) that, with this new contract, is extending the scope of services that Speedcast will deliver. This new solution will supply the main base camp in Basra, Iraq with fiber internet and backup. "This customer is a global leader in the delivery of engineering and technical services, and this contract is a great opportunity to support growth initiatives beyond the rigs," says Speedcast's EVP of Energy, Keith Johnson. "It's another example of the fact that Speedcast provides solutions that go beyond standard satellite bandwidth and network management. We listen to our customers' needs and deliver what they require, in this case, fiber and IT services for infrastructure support."



## DICT Seeks to Activate Satellite Slots

The Department of Information and Communications Technology (DICT) is seeking to utilize two sovereign satellite slots for surveillance and increased connectivity. In his speech, titled "Innovative Philippines: Transforming Barriers to Productivity, Transparency and Inclusive Growth Information" in Makati City, Information Secretary Gregorio Honasan 2nd said the government must also bank on the unused broadband satellite slots allotted for the Philippines to improve network connectivity. "Ultimately, to ensure that gaps in network will

be addressed and nobody will be left behind... a sovereign broadband satellite... something we have not used for several administrations, is proposed to connect communities in hard-to-reach islands and inaccessible mountainous areas..." he said. Honasan, who is a former senator, told reporters the DICT was asking for a budget from the government to activate the two slots maintained by the International Telecommunication Union (ITU). He, however, refused to disclose the proposed amount for the project. The DICT chief noted if the DICT secured an investment,

the country might expect the satellites to be operational in three years. The utilization of these satellite slots will be in line of President Rodrigo Duterte's mandate to have emergency communication systems, he added. Honasan said once the satellites were up and running, they would serve as backups if inland network infrastructure failed to provide connection. "All of these will work synergistically to make internet connectivity accessible, affordable and faster to help provide quality public service to people and uplift the standards of living ..." Honasan said.

## Thailand to Sell Satellite Orbital Slots

Thailand's telecoms regulator has announced that it plans to begin awarding licenses for the use of satellite orbit slots, currently used by existing satellites Thaicom 4 (or iSTAR), 5 and 6, by early next year "to ensure orderly transfer of concessions that expire in 2021". Thaicom 4 operates from the orbital slot at 119.5 East and Thaicom 5 and 6 are co-located at 78.5 East. Thailand's National Broadcasting and Telecommunications Commission (NBTC) also urged the

country's Digital Economy and Society (DE) Ministry to quickly draft regulations in connection with possessing satellites and ground-based teleports by next year to ensure a smooth transition before Thaicom's concessions expire. According to amended NBTC laws, which came into effect last year, the NBTC is the sole agency governing all related satellite businesses in the country, including arranging orbital slots in collaboration with the International Telecommunication Union. Air Marshall

Thanapant Raicharoen, the NBTC's deputy-director, said awarding licenses for the use of orbital slots 119.5 and 78.5 East will be done by a "beauty contest" method, whereby the qualifications and competitiveness of the bidders will be taken into account in addition to bid prices. The three Thaicom satellites are operated under a revenue sharing agreement with the government where a royalty of 5.75 per cent is handed over in addition to a 20.5 percent revenue share.



## Mission Microwave Enables Intellian Ka-Band Terminals for HTS and LEO Satellite Networks

Mission Microwave Technologies, LLC, a manufacturer of highly efficient Solid State Power Amplifiers (SSPAs) and Block Up Converters (BUCs) and Intellian, the global leader of mobile satellite communication antenna systems, confirmed their progress in building extremely high throughput terminals for newly launched Ka band capacity and the completion of early deployment trials on a LEO constellation. Intellian have designed high capacity mobile terminals for the rapidly growing Ka-band HTS (High Throughput Satellite) market and needed to be able to offer high power Ka-band solutions to support wide bandwidths and up to 32-ary advance modulation schemes. Based on Intellian's prior and on ongoing work with Mission Microwave the companies have aligned their engineering efforts to create an exceptional product offer for maritime, mobile and LEO/MEO satellite operators. Mission Microwave is providing a range of Ka and Ku-band Block Upconverters to Intellian with power levels up to 400 watts. Mission's core capabilities in designing compact and highly efficient amplifiers have enabled Intellian to produce high performance terminals with industry leading efficiency and reliability that are now operating over HTS and LEO networks.

"We have developed a working relationship with Intellian that is beneficial to our joint customer base of satellite operators, service providers and end-users. Both companies' have found a common goal in building a loyal and successful customer base using the most advanced technology available and providing those technologies in a commercial product with a proven long-term value.." said Steve Richeson, Vice President of Sales & Marketing for Mission Microwave. "Intellian's engineers have a thorough understanding of the requirements for mobile and tracking terminals and our team enjoyed working with them to overcome the challenges for this demanding commercial application of our products." "Our customers demand that we provide them with optimal solutions in terms of reliability, price and performance. The Mission Microwave products have inspired the industry with their dramatic increases in performance and reliability in an efficient and elegantly designed package. Intellian have found the Mission Microwave BUCs to be an enabling technology to help us serve our customers better and to expand into new market segments." commented Intellian executive Jim Hatcher, Senior Director of Product Management.

## BTC Improves Satellite Connectivity

Spacecom, operator of the AMOS satellite fleet, has announced that Botswana Telecommunications Corporation (BTC) is doubling its capacity on the AMOS-7 platform. With the new capacity state-backed BTC is adding cellular backhaul and various long-distance communication services to enhance rural area connectivity. This will in turn support e-learning and other e-government services,

while also improving broadband access in rural regions. Anthony Masunga, Managing Director of BTC, commented: 'BTC is adding new and exciting services that will go far to reduce our country's digital divide and offer citizens in previously underserved areas more options to communicate throughout Botswana and beyond.'



## Viasat Expands Business Internet Service Offerings in North America

Viasat expanded the reach of its business internet service offerings into Mexico, Puerto Rico, and the U.S. Virgin Islands. While Viasat business internet service has been available in these regions since early 2019, this expansion enables telecom master agents in the channel to increase sales opportunities by selling Viasat's business internet – as either a primary or secondary connectivity service – in these new target regions. As Viasat expands into new territories, it enables its channel partners to better support multi-

site businesses whose operations span borders. These partners are now able to offer their business customers a more comprehensive solution with satellite-based high-speed internet they know can reach virtually any customer location to support their sales and businesses operations. Specific to Mexico, Puerto Rico and the U.S. Virgin Islands, Viasat will offer a variety of high-speed unlimited and metered data internet plans. "For years, the telecom channel has asked us about the opportunity to sell Viasat's high-

speed satellite internet service beyond the continental U.S.," said Cody Catalena, vice president and general manager of Viasat's Global Business Solutions. "Today, we're proud to respond to their interests, and offer them new territories within our ViaSat-2 satellite footprint. Master Agents will now be able to offer assured, reliable, high-speed broadband communications to businesses, with plans that offer better speeds and capacity than many traditional satellite providers."

## Universal Satcom Successfully Launches Broadband Internet Services in Yemen on Badr 7 HTS Satellite

On the 1st of September 2019, Universal Satcom DMCC out of Dubai, launched the latest high-speed satellite broadband internet service under the brand "Universal Satnet". The service is currently operational as a VNO solution using ARABSAT's Broadband & Managed Services on the Yemen ka-band spot beam and associated terrestrial infrastructure. Universal Satcom has future plans to rollout Broadband & Managed services in other markets covered

by the Badr 7 satellite footprint. The Ka band payload on Badr 7 High Throughput Satellite (HTS) along with the terrestrial infrastructure allow for the delivery of high-speed Internet access with speeds as high as 100Mbps on download and 20Mbps on upload using very small size Customer Premises Equipment (CPE). The service is powered by cutting edge Newtec Dialog platform and associated technologies and providing Internet backbone connectivity

through European Teleports.

About ARABSAT Badr 7 HTS Badr 7 Satellite is a High Throughput Satellite (HTS), with 24 Ka band spot beams over the Middle East, South Asia, and Africa. Badr 7 Satellite was manufactured by Airbus Defense & Space with Thales Alenia Space and launched by Ariane Space from French Guiana using the Ariane 5 rocket and finally placed in the orbital hotspot of 26° East.

## Relativity Space to Launch Satellites for Momentus

Relativity Space signed a Launch Services Agreement (LSA) to launch Momentus' small and medium satellite customers on Relativity's Terran 1 rocket. Momentus will then deliver their customers' small and medium sized satellites to Geosynchronous Orbit (GEO) using the Momentus Vigoride Extended in-space shuttle service. The agreement includes Momentus' purchase of a first launch,

scheduled for 2021, with options for five additional launches with Relativity. The agreement opens access to a more diverse range of orbits for Terran 1 including Geostationary Transfer Orbit (GTO), Lunar and deep space orbits, lower inclinations, and phasing of multiple spacecraft in Low-Earth Orbit (LEO) and Medium-Earth Orbit (MEO). "With Momentus' innovations in sustainable in-space 'last mile' solutions,

we look forward to working together to expand Terran 1's flexibility and offering beyond LEO, offering small and medium satellite launch opportunities with industry-defining lead time, flexibility, and cost," said Tim Ellis, CEO and Co-founder of Relativity. "This partnership will enable us to build the space economy faster, and accelerate the future of humanity in space."

## Satellite for the Russian Ministry of Defense Successfully Launched

The Russian Air and Space Forces successfully launched a Soyuz-2.1b launcher from launch pad No. 4 of the launch complex No. 43 at the Plesetsk site. Official statements indicate the launcher carried "a new-generation satellite for the ministry of defense." The satellite is being delivered to the orbit by a Fregat-M booster. The satellite is the second "Tundra" spacecraft of the new early-warning system, known as EKS. The system is expected to include satellites in Molniya-type, highly-elliptical orbit, as well as geostationary satellites. It was designated Cosmos-2518. The first satellite of the system, Cosmos-2510, was launched into an HEO orbit in November of 2015. Cosmos-2518 appears to be an HEO satellite as well – it was reported that the industry delivered the first two HEO satellites in October of 2015 and that there was a delay with the first GEO spacecraft. Satellites of the EKS system are the only early-warning satellites that are currently in service. The old US-KS/US-KMO system ended operations in 2014. A working early-warning constellation would probably include about ten satellites on HEO as well as several GEO satellites. The new Russian armament program appears to call for ten new satellite

to be launched by 2020. However, it should be noted that Russia does not depend on the space tier of its early-warning system to the extent the United States does, so the lack of coverage by satellite does not necessarily increase the risk of miscalculation.



## Botswana Telecommunications Corporation Ltd Doubles Capacity on Spacecom's AMOS-7 in Multi-Year Satellite Services Deal

Spacecom, operator of the AMOS satellite fleet, and Botswana Telecommunications Corporation Limited (BTC) today announced that BTC is doubling its capacity on AMOS-7 communication satellite KU-beams. With this new capacity, BTC is adding cellular backhaul and various long-distance communication services to enhance rural area connectivity. AMOS-7's KU-band beams enable mobility by providing high data rates for communications-on-the-move irrespective of location in country. Thus, BTC is able to offer e-learning, e-medicine, e-commerce and other e-government services to residents countrywide wherever they are, even when they are traveling. The capacity also allows BTC

to provide improved broadband service to industries operating outside major towns e.g. Tourism, Agriculture, Construction, Banking, etc. and offer Community Wi-Fi Hotspots, Safer Cities, Smart Farming and Business Continuity services throughout the country. Spacecom's Vertical Solutions Division is working closely with the company to assist in implementation of infrastructure for the new services. According to Anthony Masunga, Managing Director of BTC, "Once again we are working with Spacecom to bolster our business offerings. BTC is adding new and exciting services that will go far to reduce our country's digital divide and offer citizens in previously underserved areas more options to communicate throughout Botswana

and beyond. Satellite communication via AMOS-7 is facilitating our growth and fulfilling our purpose, which is to provide superior communication solutions to Botswana anywhere and everywhere to enable them to live connected." Spacecom CEO and President David Pollack stated, "By the end of 2019, Spacecom will have three satellites servicing Africa: AMOS-7, AMOS-4 and AMOS-17. The ongoing cooperation with BTC signifies the success of our strategy marrying our satellite's communications capabilities to the proficiency of our Vertical Solutions Division to deliver superior Turn-Key solutions with our partners."

## Egypt Kicks Off Construction of MisrSat-II Satellite

Egyptian Space Agency, in tandem with China National Space Administration, kicked off the construction of the MisrSat-II satellite. This was during the fourth China-Arab States Expo held from September 5 to 8 in Ningxia, China. Fundraising for the project was closed in January this year and the Chinese government contributed a total of \$140 million. The new space equipment will help Egypt implement its development plans in many areas, according to Ahmed al-Rafie, the project manager. He said Egyptian engineers and their Chinese counterparts will also collaborate in the construction of Egypt's Assembly, Integration and Testing center. "The design phases will be carried out in parallel in Egypt and China, but the assembly and integration of the satellite will be done in Egypt at Egyptian Satellite Assembly, Integration and Test Center. This will provide the Egyptian side with experience in the development of satellite space systems," said Mr. al-Rafie. According to Liao Liqiang, China's ambassador to Egypt, at the end of the

MisrSat-II project, Egypt will be the very first African country to have complete satellite assembly, testing, and integration capabilities. It will also be the first-ever successful space cooperation with China

under the Belt and Road Initiative. Let's note the construction phase is expected to last 35 months and MisrSat-II will have a 5-year lifetime.



## Thaicom and Russian Satellite Communications Company Enter Into Partnership Agreement

Thaicom Public Company Limited (THCOM), Thailand's first satellite operator, today announced the signature of an Agreement of Intention with Russian Satellite Communications Company (RSCC), a Russian leading satellite operator, to collaborate on the joint development of a service offering for maritime satellite



broadband connectivity. According to the framework of the agreement, Thaicom and RSCC will initially study roaming options on their proprietary maritime VSAT networks. Roaming on Thaicom's network will be provided by Nava Roaming Solutions. Nava is Thaicom's new maritime broadband service platform, addressing the need of ship and offshore operators for fast, reliable, and secure satellite-enabled broadband connectivity and managed services. RSCC maritime VSAT network is the largest satellite broadband network in Russia connecting more than 300 maritime vessels operating in the waters surrounding Russia and Europe. Patompob Suwansiri, Chief Commercial Officer Thaicom, commented: "We intend the agreement to mark the beginning of a successful, long-term partnership between Thaicom and RSCC and the development of joint communication solutions connecting Russia with Asia-Pacific. This collaboration will leverage the capabilities of Thai and Russian marine VSAT networks. The Nava roaming solutions enabled satellite network will provide seamless switching of onboard equipment from one satellite network to the other without degradation of service level agreements provided. Customers will benefit from full high speed broadband coverage of maritime vessel routes between Europe and Asia-Pacific."

## Northrop Grumman Park Air Selected to Upgrade Airspace Communications for Chile

Northrop Grumman Corporation's U.K.-based air traffic communications subsidiary, Park Air Systems Limited, has again been selected to upgrade Chile's airspace communications equipment. This is the third consecutive time that Park Air has been selected by Dirección General de Aeronáutica Civil (DGAC) to upgrade their equipment to the latest VHF and UHF radios. Building on the existing use of the Park Air T6 Sapphire portfolio within 23 sites across Chilean aerospace, Park Air will upgrade 10 additional sites with the latest voice over internet protocol (VoIP) technology. Park Air will work closely with Aerotech, a leading Chilean company in airport systems as its partner for the contract. Working with local experts better enables Park Air to improve customer response times and give support and assistance in the local language. "Both Park Air and Aerotech teams have worked well on this project together, providing the customer with a solution they can trust and support that they can rely on," said Anais Venet, international sales manager for Americas at Park Air. The T6 is at the heart of the Park Air Sapphire portfolio, products which are designed to work hand in hand, and flexible enough to suit single radio installations and remote locations, as well as country-wide operations. It gives customers the integration, flexibility and security that they can depend on in today's air traffic management environment. Delivery of this solution is possible through the combined efforts of Park Air and



Aerotech, who will be providing in-territory support as well as installation and decommissioning expertise. Northrop Grumman Park Air Systems supplies communication systems for airspace operations worldwide. Sapphire ATM communications systems are installed in more than 50 countries, helping air navigation service providers transitioning into the digital future. In its more than 50 year history, Park Air has sold 60,000 radios in 180 countries around the world.

## China Launches 5 Remote Sensing Satellites

Five new remote-sensing satellites were launched on a Long March-11 rocket from the Jiuquan Satellite Launch Center in northwest China's Gobi Desert. The satellites belong to the commercial remote-sensing satellite constellation project Zhuhai-1, which is comprised of 34 micro-nano satellites, including video, hyper-spectral, and high-resolution optical satellites, as well as radar and infrared satellites. The carrier rocket was

developed by the China Academy of Launch Vehicle Technology, and the satellites were produced by the Harbin Institute of Technology and operated by the Zhuhai Orbita Aerospace Science and Technology. The newly launched satellites comprise four hyper-spectral satellites with 256 wave-bands and a coverage width of 150 kilometers (km), and a video satellite with a resolution of 90 centimeters. The Zhuhai-1 hyper-spectral satellites have the highest

spatial resolution and the largest coverage width of their type in China. The data will be used for precise quantitative analysis of vegetation, water and crops, and will provide services for building smart cities, said Orbita, the largest private operator of hyper-spectral satellites in orbit. The company aims to cooperate with government organizations and enterprises to expand the big data satellite services.

## U.S. Air Force Space Command's \$738.5 Million Unlimited Satellite Service Contract with Iridium

Iridium Communications Inc. has been awarded a \$738.5 million, seven-year, fixed-price contract with the United States Department of Defense through the U.S. Air Force Space Command (AFSPC) to provide unlimited satellite services from the company's LEO constellation. Through what is known as the AFSPC's Enhanced Mobile Satellite Services (EMSS) program, Iridium will continue to deliver access to global secure and unsecure voice, broadcast, netted or Distributed Tactical Communications System (DTCS) and select other services for an unlimited number of DoD and associated DoD-approved subscribers. With an unprecedented seven-year term, the company said this contract serves as a testament to the ongoing value Iridium provides in support of the DoD's vision for an integrated SATCOM enterprise and in recognition of the significant investments the company has made into its network over the past several years. Under the current fixed-price contract, the EMSS program has continuously increased its adoption and utilization of Iridium® services at a significant rate, while the capabilities delivered have also evolved over time from simple telephone voice and data to broadcast, multicast and other Internet of Things (IoT) services. Over the course of the previous contract period, DoD subscribers grew from approximately 51,000 to more than 125,000, a 145 percent increase. This growth in adoption has also resulted in increased collaboration between

the government and Iridium's ecosystem of partners, bringing their expertise to further enhance the capabilities of the DoD's SATCOM portfolio. In support of the EMSS program over the past 20 years, Iridium and the DoD have jointly developed an operational environment that provides the critical network transparency and collaboration to enable successful execution of the warfighter's mission. In fact, Iridium was one of the initial six industry participants in the Commercial Integration Cell (CIC) to engage with the U.S. Air Force's (USAF) Combined Space Operations Center (CSPOC) in an effort to improve information sharing and network situational awareness as the DoD continues its use of commercial satellite networks. This now includes the ongoing transition of EMSS, along with all commercial SATCOM services, from the Defense Information Systems Agency to the USAF. Scott Scheimreif, EVP of Government Programs, Iridium, said the

company's EMSS contract serves as a model for how commercial operators can cost-effectively and efficiently deliver critical satellite managed services to the warfighter. Iridium offers the DoD unrivaled access to its unique, operational, low-earth orbiting network of 66 cross-linked satellites. When you combine Iridium's unique network, the company's ecosystem of dedicated partners and an innovative, fixed-price, seven-year contract, you an optimal environment for DoD and other USG program offices is created to effectively plan for and budget their programs, taking full advantage of the Iridium capability. The program has been a great example of partnership and innovation between industry and the DoD as Iridium continuously explores ways to meet their emerging requirements. When this level of network transparency, collaboration and the ease of acquisition is combined, the result is a significant win for the DoD and their users.




## Iridium Certus™ Debut by Lars Thrane with a New Maritime SATCOM System

Iridium Communications Inc. has announced that Lars Thrane A/S is the newest Iridium Certus terminal manufacturer – the companies have now unveiled the LT-4200 maritime SATCOM system. The new terminal will be one of the first to support the Iridium Certus 200 service class, that features upload and download speeds of up to 176 Kbps over Iridium's L-band network. It is designed for demanding maritime environments, such as those experienced by fishing vessels and other workboats that desire faster speeds but want to avoid the coverage limitations, terminal sizes and costs associated with existing competitive options. The terminal has also been designed to support Iridium's future Global Maritime Distress and Safety System (GMDSS) services, in addition to other regulatory safety and security services including Long Range Identification and

Tracking (LRIT) and Ship Security Alert System (SSAS). The system has a range of interfaces making integration simple and offers a simple upgrade path from legacy solutions as well as greenfield opportunities for Iridium Certus partners. Made possible by the recently upgraded Iridium® satellite constellation, the Iridium Certus service goes beyond serving solely as a connectivity solution. It provides a platform for the company's partners to develop specialized broadband, midband and narrowband applications only possible through Iridium's crosslinked L-band network. The service offers the flexibility to scale device speeds, sizes and power requirements both up and down based on the needs of the end-user. Wouter Deknopper, VP and GM, maritime line of business at Iridium, said the Iridium Certus 200 service class addresses a very specific market niche in the maritime

industry, but that niche includes a large number of vessels, such as commercial fishing boats, workboats, coastal shipping and leisure craft. The new LT-4200 from Lars Thrane is a smaller, lighter, faster and cost-competitive option when compared to the closest alternative in the market. As a result, Iridium and the firm's partners are once again bringing a new and superior option to the maritime industry. Peter Thrane, CEO of Lars Thrane, added that the LT-4200 maritime SATCOM product is an important product for Lars Thrane, which allows the company to offer customers a compact and competitive L-band product with faster bandwidth and maritime performance specifications, which will satisfy most requirements for a maritime product in this class. More details about this product will be forthcoming in the near future.

## China's Long March-2D Rocket Sends Yunhai-1 02 Satellite into Orbit

China launched a new satellite On September 25 into planned orbit from the Jiuquan Satellite Launch Center in northwest China's Gobi Desert. The Yunhai-1 02 satellite, launched on a Long March-2D carrier rocket at 8:54 a.m. (Beijing Time), will be used mainly for detecting the atmospheric and marine environment and space environment, as well as disaster control and other scientific experiments. Both the satellite and the carrier rocket were developed by the Shanghai Academy of Spaceflight Technology of the China Aerospace Science and Technology Corporation. The launch was the 313th mission of the Long March carrier rocket series. 



# HUAWEI OceanStor Dorado

6 OF THE TOP 10 CARRIERS PROCESS THEIR DATA WITH THE WORLD'S **FASTEST** ALL FLASH STORAGE



## ARTICLE

# Huawei Proposes 5G Deterministic Networking to Enable Differentiated and Deterministic Services for Thousands of Industries

*Huawei has been investing heavily in research and development of 5G network architecture evolution and slicing technologies. The Huawei 5G core network is built on leading cloud-native, connectivity+, and edge computing technologies, and is the industry's first core network to support 2G/3G/4G/5G NSA/5G SA in-depth convergence.*

The "best-effort" service provided by traditional mobile networks can no longer keep up with the diversified requirements of vertical industry applications. These requirements include ultra-low and deterministic latency, mobility, reliability, and tenant security isolation.

An example is the power system differential protection under the Ultra High-Reliability and Low-Latency Communication (URLLC) scenario. When a switch command is delivered, the communication between the master and slave differential protection terminals involves electrical vector contrasting and verification of transmission path parameters. The network needs to provide a deterministic delay of 20 ms and a jitter of 600 us or less.

Huawei, China Telecom and State Grid completed the world's first 5G SA Electricity Slice Test under a real power grid environment in early April, in Nanjing, China. This was also the world's first electricity slice to comply with the latest 5G SA specifications released by 3GPP, in which Huawei provides the SA electricity slice with millisecond-level latency. It enhances bidirectional communication between power grids and end users, ensuring precise management of small power units on the power grid terminals of overloaded power grids. These advantages help minimize the economic and social impact caused by power outages.



**An Jian**

President of Carrier Networks Business Group  
Huawei Middle East





*5G deterministic networking is based on Cloud Native architecture. Dynamic orchestration and tenant isolation of dynamic intelligent network slicing technologies provides deterministic network service capabilities for industry applications, changes the operation model and work mode of key services in vertical markets, and improves operational efficiency and intelligent decision-making for traditional vertical industries.*

Differentiated and well-defined network services' capabilities are named by Huawei as "deterministic capabilities". A network with these capabilities is considered deterministic. 5G deterministic networking will help transform traditional application-adaptive networks into application-defined networks and serve the needs of different industry applications.

5G deterministic networking is based on Cloud Native architecture. Dynamic orchestration and tenant isolation of dynamic intelligent network slicing technologies provides deterministic network service capabilities for industry applications, changes the operation model and work mode of key services in vertical markets, and improves operational efficiency and intelligent decision-making for traditional vertical industries.

In addition, the heterogeneous, ultra-performance MEC platform provides

the best bit-cost algorithm, computing capability, and connectivity to guarantee industry applications with the most appropriate differentiated and deterministic network services, enabling mobile networks to evolve from "best-effort" to "guaranteed" delivery.

The core network is the key to developing 5G network slicing in terms of on-demand network definition, fast deployment, automated operations, end-to-end SLA assurance and capability exposure.

Huawei has been investing heavily in research and development of 5G network architecture evolution and slicing technologies. The Huawei 5G core network is built on leading cloud-native, connectivity+, and edge computing technologies, and is the industry's first core network to support 2G/3G/4G/5G NSA/5G SA in-depth convergence. Based on CUPS distributed architecture, it supports one-stop user plane plug and play, on-demand scheduling of heterogeneous edge computing resources, fast integration of third-party applications, and building of an open edge ecosystem, providing differentiated services and enabling thousands of industries. As a testament to its capabilities, Huawei's 5G intelligent and simplified core network solution recently won the "Best 5G Core Network Technology" Award at the 5G World Summit 2019 in London.

*The core network is the key to developing 5G network slicing in terms of on-demand network definition, fast deployment, automated operations, end-to-end SLA assurance and capability exposure.*

Huawei works with industry partners such as smart grids, 5G V2X, VR games, 4K/VR

live broadcast, and telemedicine to verify 5G deterministic networking and templates for differentiated, deterministic network service capabilities in many vertical applications. These applications include intelligent, distributed feeder automation, autonomous driving, 4K/8K live broadcast, and remote surgery. Huawei also joins hands with partners to define the industry slice template library to accelerate the use of 5G for thousands of industries.

In partnership with the majority of the operators in the Middle East region, Huawei has launched 5G services based on a Cloud Native Core network architecture. We have also already started the network slicing and MEC practice in 4K Video delivery over FWA, as well as campus intelligent management and automation direction in countries like KSA, UAE and Kuwait. Huawei will introduce the verified 5G deterministic networking and templates to the Middle East region benefiting the continuous innovation in local industry applications. We ultimately believe that the region's ubiquitous industry application will contribute its unique value to global 5G ecosystem diversity. 

*In partnership with the majority of the operators in the Middle East region, Huawei has launched 5G services based on a Cloud Native Core network architecture. We have also already started the network slicing and MEC practice in 4K Video delivery over FWA, as well as campus intelligent management and automation direction in countries like KSA, UAE and Kuwait. Huawei*

## WHOLESALE NEWS

### KT Inks 5G Roaming Deals in Four Countries

South Korean mobile network operator (MNO) KT Corp has announced that its 5G subscriber base has now surpassed the one million mark, according to Mobile World Live. With the cellco said to have revealed that uptake for its fifth-generation services had officially passed one million on 21 September, the MNO is also reported to be seeking to expand 5G access via roaming deals with partners in four countries. It is understood that KT has inked agreements with China Mobile, Telecom Italia (TIM) in Italy, Sunrise Communications (Switzerland) and Elisa Corporation (Finland), although it was noted that initially roaming will only be available to customers using the Samsung Galaxy S105 5G handset. Access via other devices is expected to be added in the future, it said. KT is the second of South Korea's three MNOs to reach the million subscriber mark for 5G; as previously reported by CommsUpdate, market leader SK Telecom SKT confirmed it had achieved the same feat on 21 August.



### UK Mobile Operators Issued Rural Roaming Ultimatum

Not enough has been done to tackle the rural digital divide in the UK, a new report from the Environment, Food and Rural Affairs Committee this week has concluded. The report argues that relying on competition between mobile network operators to tackle not-spots and partial not-spots has not worked. The Committee recommends a rural roaming solution (where calls are automatically switched to a different provider with a better signal)



to tackling poor mobile coverage in rural areas. They say that if the industry doesn't voluntarily find a comparable or better solution quickly, they will push Ofcom to enforce rural roaming. The MPs say that despite significant improvement in both rural broadband and mobile coverage in recent years, it has only barely kept up with increasing demand. "Poor connectivity continues to hinder rural businesses and is preventing people from engaging with online public services the rest of the country take for granted," a statement said. The Committee accepted that the Government has recognized the importance of connectivity on a par with utilities and noted that targets had been set with funding made available. It also acknowledged Prime Minister Boris Johnson's pledge to deliver universal full-fiber broadband by 2025. However, it noted, "Given the continued challenges posed to rural businesses and communities, the Committee is not confident that the Government has fully grasped the extent of the problem, the scale of the challenge, or the wider cost of poor connectivity for the rural economy." The report accuses the Government's plans of "lacking ambition" in rural areas, saying they are not "truly universal" and that its minimum speed of 10Mbps will be obsolete soon after introduction. MPs said they were skeptical as to whether Johnson's fiber target will be achieved without potentially controversial reforms.

## Nepal Telecom Expands Data Roaming to 13 Countries



Nepal Telecom (NTC) which resumed its data roaming service recently for India has expanded the service to 13 more countries. The international data roaming in those countries with Nepal Telecom SIM card will start from Ashoj 3, 2076. Ntc postpaid

customers with roaming service can access to cellular internet using their Ntc SIM card. They could already use voice, SMS service from before. For the prepaid customers, Ntc also adds the data roaming service but it is now available in China and India only. Find the cost of the prepaid roaming service in Ntc. All the customers with roaming service enabled will automatically get the data roaming facility. Similarly, for those you activate the international roaming service now, the data roaming service will also be available instantly along with voice and SMS service. As known, Ntc will add more countries for the international roaming service which includes data, SMS, and voice. They will also add more countries and operators to enable the prepaid SIM work as roaming in those countries/operators. Ntc has been providing international roaming service in postpaid mobile for a long time. With the international roaming service, Ntc postpaid customers could use the mobile service with 192 operators of 87 countries. Similarly, Ntc started international roaming service in Prepaid for India and China. Find how to activate international roaming service in Ntc.

## LG Uplus, China Unicom Team on 5G Roaming



South Korean mobile operator LG Uplus partnered with China Unicom to offer roaming service for its 5G customers travelling in China. The operators began roaming trials in China in June and completed network integration tests in mid-August. LG Uplus, the third largest operator in South Korea by subscribers, said it will initially offer free unlimited 5G data roaming, voice calls and text messages for customers on some premium

plans. The roaming service is currently available only on the LG V50 ThinQ smartphone, but customers will soon be able to use Samsung's Galaxy S10 and Note 10 through software upgrades, it said. LG Uplus said the official launch of the service is scheduled for the end of September. China Unicom, the second largest operator in the country, has introduced 5G pilots in 40 major cities and deployed 17,000 base stations.

## Telenet, Voo Lose Appeal against Wholesale Cable Regulation

Belgian cable operators Telenet and Voo have lost their appeal against the revised wholesale cable access regulation passed in June 2018. In a judgment issued on 4 September, the Market Court rejected their objections both on procedural and

material grounds and ruled the regulator had not violated procedure when it judged the companies hold significant market power in the relevant markets. The cable access regulation adopted in 2018 requires Proximus, Telenet, Brutele and Nethys (the

latter two operating under the Voo brand) to open their networks to competitors and apply fair tariffs for the services provided to rival operators.

## Linxa's Wholesale Management Platform will Optimize and Accelerate Rebtel's OTT Voice Business

Linxa has deployed its wholesale management platform for Rebtel, an over the top (OTT) provider of voice services for migrants and international nomads. This Turkish platform will increase efficiency and performance as it delivers international calling that is simple, reliable and cheap. Rebtel gains a simple, comprehensive and powerful platform for managing, automating and optimizing its international voice business. The wholesale management platform from Linxa delivers optimum routing plans reflecting costs, quality and commercial agreements as well as real-time visibility into live traffic, performance and profitability data. It allows Rebtel to increase automation in its back-office processes, including rate sheet management. In addition to this, it will also help with automatically optimizing routing tables to minimize costs. With this agreement, Rebtel builds on Linxa's recent deployments with Deutsche Telekom global carrier and digital wholesale solutions. Linxa's platform improves efficiencies significantly and has scalability to serve the smaller players, right up to the top ten international voice carriers. Speaking about this was the vice president of global sales at Linxa who said "Rebtel is a unique OTT player with a very specific mission around delivering




maximum quality and cost-efficiency for end users. The Linxa wholesale management platform gives it new tools for optimizing its voice business end-to-end and increasing value for users around the world." Similarly, Johan Dahlqvist, the CTO at Rebtel said "The team at Linxa are experts in Voice and really understand our needs. They have delivered the platform on time and on budget, which has had an immediate impact on our business."

## Open Fiber Expands Wholesale Agreement with Optima Italia

Italian wholesale network operator Open Fiber has enlarged an existing agreement with multi-utility firm Optima Italia. In January this year Optima agreed to use Open Fiber's gigabit-capable fiber-to-the-home (FTTH) networks in urban areas

as part of its own service offering, which provides electricity, gas, fiber broadband, fixed telephony and mobile services on a single bill. Optima has now extended the arrangement to include the networks Open Fiber is deploying in rural areas

under a series of government-subsidized contracts covering 7,635 communities which currently have little or no internet access. Open Fiber is co-owned by the Italian state lender Cassa Depositi e Prestiti (CDP) and utility group Enel. 



# REIMAGINING BUSINESS IN THE ERA OF DIGITAL TRANSFORMATION

Comviva is a leading global provider of digital solutions catering to Telecom service providers, Banks & Financial institutions. The company is a subsidiary of Tech Mahindra and a part of the \$ 21 billion Mahindra Group.

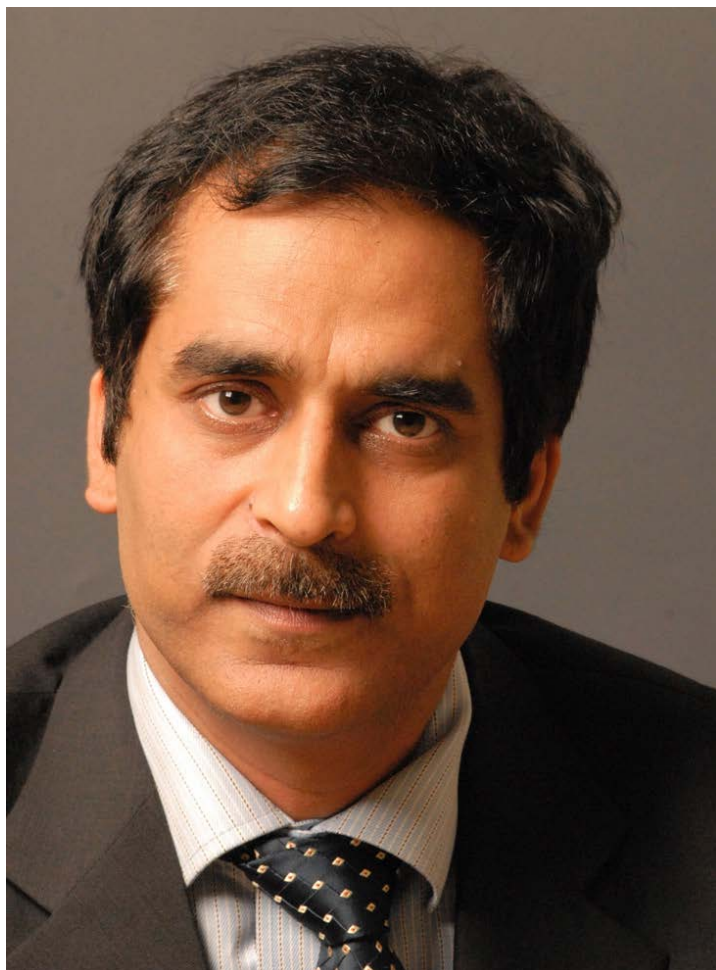
We enable customers with solutions to enable digital payments, enhance customer experience, build integrated digital business support systems and monetize data using real-time AI & analytics. Our extensive portfolio of solutions span Digital Payments, Digital Business Support systems, Real time Marketing, Digital Business Management, Integrated Messaging and Customer Value Management platforms.

Comviva solutions are deployed by over 130 Telecom service providers, Banks and Financial institutions in 90+ countries and enrich the lives of over 2 billion people.



## ARTICLE

## Digital CSP Roadmap for the Middle East



**Atul Madan**

Senior Vice President and Head of Digital Services  
Comviva Technologies



*Digitalization impacts practically every aspect of the business, be it payment instruments, digital services partner ecosystem, sales and distribution channels and most importantly subscribers or should we say consumers of telco and non-telco services.*

The Middle East provides a study in contrast. While the GCC states and Northern Africa have subscriber penetration of 77% and 74% respectively, in the emerging countries subscriber penetration is as low as 48%. Similarly, while smartphone penetration in GCC countries is as high as 74%, it is merely 49% in North Africa and 39% in emerging economies. Gulf Cooperation Council Countries have embraced digital services. UAE, Bahrain and Kuwait have higher contribution of digital services (Bahrain - 8% of GDP). Countries like Egypt, Lebanon will soon catch up and increase digitization of the region. GSMA forecasts that by 2025, North Africa and the emerging economies would have caught up with the GCC countries with regards to smartphone and subscriber penetration.

The coming saturation in the MENA telecom space is already witnessing price war, which will eventually lead to the inevitable commodification of telecom core services. Due to this commodification, the revenue forecast is very modest for the region – a CAGR of 1.8% between 2017 -2025 (GSMA Mobile Economy, Middle East 2018). As the decoupling between the operator traffic and revenue becomes stronger in time, telecom companies will be under tremendous pressure to stay relevant in a rapidly changing world.

Some of the key current and future MENA telecom challenges are:

*Traditional telecom services, such as voice and messaging, are being disrupted by faster and more nimble competitors resulting in revenue losses for the operator.*

**Commoditization**

If telecom companies are unable to halt the trend towards commoditization of data, they risk becoming data pipes to their faster and more nimble competitors.

**Disruptive Competition**

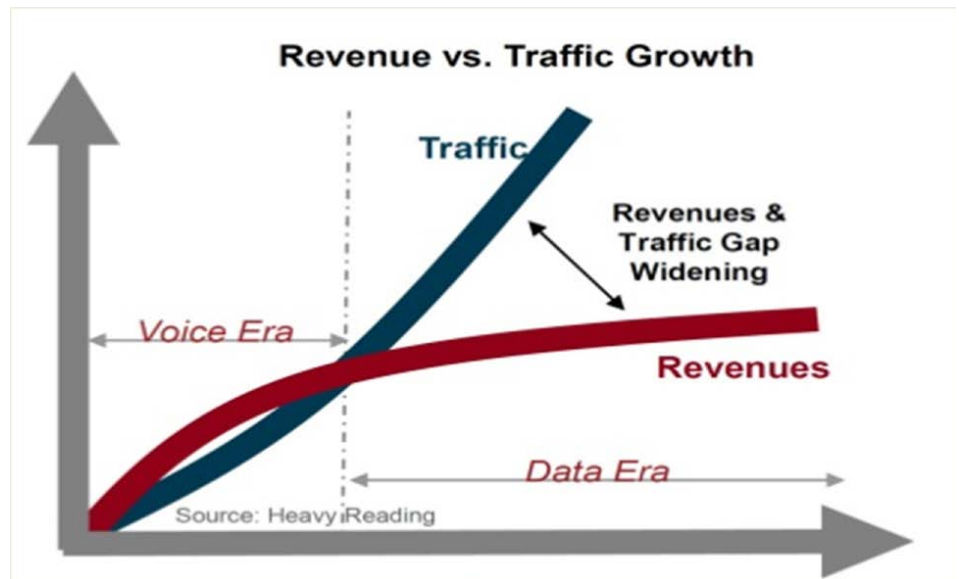
Traditional telecom services, such as voice and messaging, are being disrupted by faster and more nimble competitors resulting in revenue losses for the operator.

**Rise of the new digital customers**

Today's digitally savvy customers are used to the customization and personalization provided by digital leaders like Google, Facebook, Amazon, & Netflix and so on. In this new battleground for the customer's wallet and mindshare, the telecom companies will be measured against digital leaders like Google, Amazon or Netflix.

**Lack of agility**

Although telecom companies enjoy ubiquity in reach and deeper customer understanding through customer data they have not been able to match up with the pace with which OTT players cater to latest digital trends.



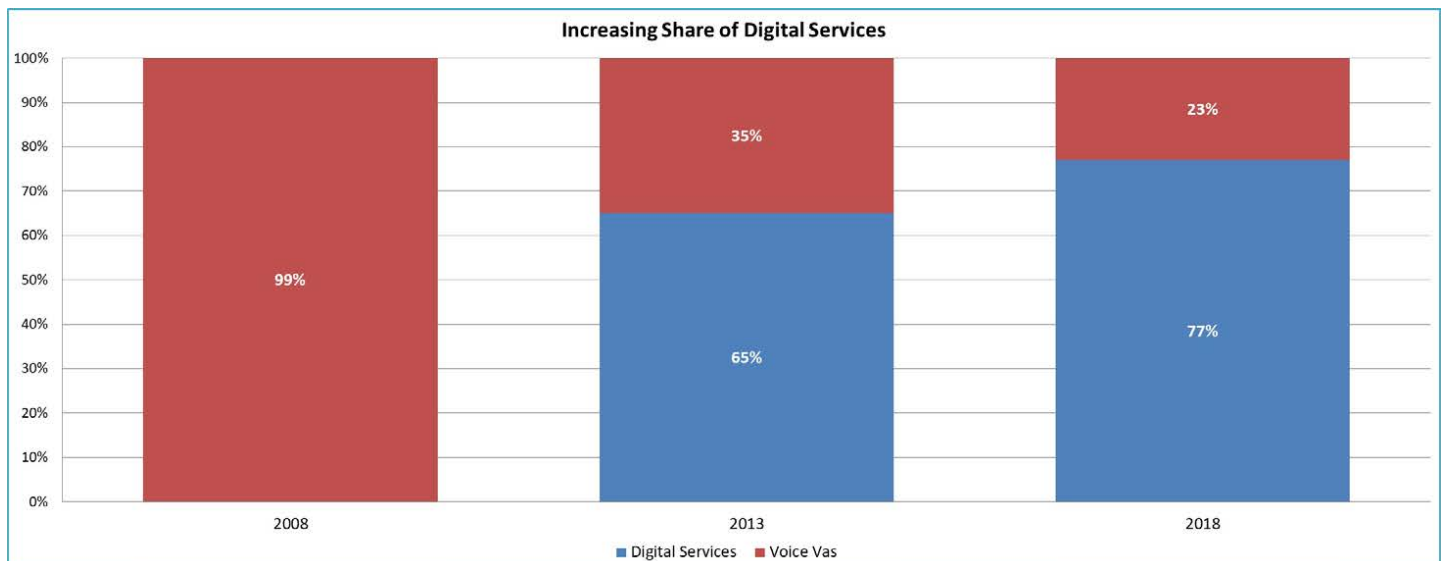
**Leap from traditional CSP to digital CSP**

In view of these challenges, it is time for Middle- East telecom companies to reimagine their business lines along digital lines and pivot for the digital future. As the battle of customer attention as well as their wallet gets underway, telecom companies will have to take the leap of faith and transition quickly to digital CSPs. Digitalization impacts practically every aspect of the business, be it payment instruments, digital services partner ecosystem, sales and distribution channels and most importantly subscribers or should we say consumers of telco and non-telco services. All of these necessitate the need for enabling and on boarding the digital services partners, who may or may not be tech savvy, thereby requiring easy to integrate "Partner Management System APIs".

We envisage that more and more partners will come on board with multitude of services, which would require creation of different products to be offered to the customers, thereby a robust and flexible "Product Catalogue System" becomes absolute must.

More service combinations would require Telcos to have robust systems in place for making consumers aware of these by innovative Campaign Management Systems and service discovery systems, with more and more personalization happening using AI/ML.

New age digital interfaces in social media will be used for customer acquisition also in addition to promotions today, this would need Subscriptions Management and Billing/Charging systems to support



*Digitalization will play a big role in managing Sales and Distribution system much more effectively for real time tracking of sales, inventory, new product launch, effective utilization of feet on street and incentivization of the channels.*

these interfaces for Customer Lifecycle Management.

Going forward even Customer Care Systems would need to interface with Social Media interfaces to be able to serve the customers on the interfaces of their choice.

Similarly service delivery systems will also need to evolve to support new age Digital Services partners and content/service delivery by use of new age technologies in AI/ML, AR/MR/VR, Facial Recognition, low latency simulcast, multi-player gaming or eSports etc

Similar capabilities will be needed in the backend systems mentioned above to support smart speakers, which will be another channel that customers of tomorrow will use heavily for their needs. Digitalization will play a big role in managing Sales and Distribution system much more effectively for real time tracking of sales, inventory, new product launch, effective utilization of feet on street and incentivization of the channels. Traditional CSPs who have succeeded in making the digital pivot will have the same set of unique digital capabilities that are the cornerstone and hallmark of success in today's digital ecosystem.

### Making the transition

One could approach this transition in two different ways. Firstly, replace existing legacy systems with a robust digital core allowing the operator to offer digital services just like any other digital service providers. Since this approach will be driven by big ticket investments, and a long gestation period, the operators will've

to assess their risk appetite as well as market conditions before committing to such changes. The other way to make this transition is to wrap the legacy telecom systems and processes with new digital capabilities as well as new digital thinking which will catalyse them into digital service providers. In order to make this transition the operator will have to bring digital transformation across its entire telco value chain consisting of discovery, acquisition, fulfilment & distribution, servicing and retention. Secondly, it will have to put the digital enablers in the backend for making the digital transition. So, it will need a renewed building blocks (discovery, acquisition, fulfilment, servicing, retention), as well as digital enablers to magnify BSS capabilities.

### Building Block for CSP transformation

For many years SMS, IVR, & USSD were the primary channels for **discovering** new services. The popularity and high open rates of SMS allowed telecom operators to push messages on the basis of some predetermined rules or triggers based on context. Similarly, IVR provided a convenient way to search operator databases for information. USSD also provided a medium to the customers to extract information from telecom databases with hash codes.

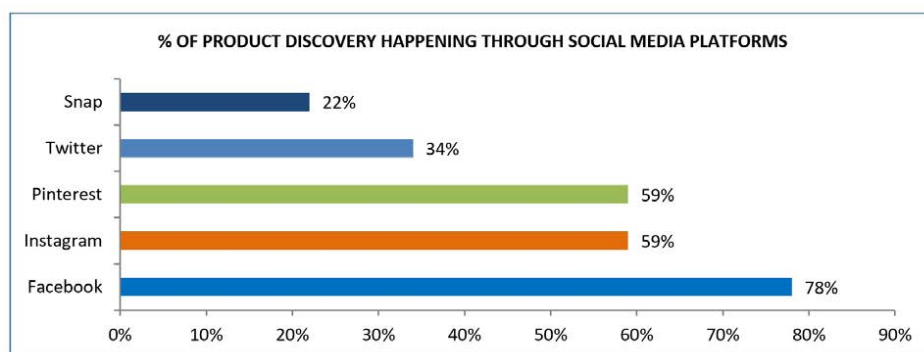
However, with MENA customers spending more time on social channels like twitter, Facebook, Instagram, telecom companies are realizing very quickly that they can no longer depend on these traditional channels for driving customer engagement. To understand the shifting nature of customer engagement, one has only to look at the latest Hootsuite & APCO worldwide data, according to which Facebook is the most dominant platform in the Middle East, with 180 million users,

up from 56 million just five years ago. After studying 172 million interactions, Crowd Analyzer came to conclusion that Middle East's youth were using social platforms to discuss brands, lifestyle, business & politics. One of the findings Twitter has the highest penetration globally in Saudi Arabia and Saudis use YouTube on a per capita basis more than any other country globally. 56% of MENA's population – regularly use the Internet well above the world's average and in some of the smaller GCC countries it is 90%.

As these digital behaviours get strengthened and reinforced in time, telecom companies will have to build new capabilities which would allow them to acquire and reach out to customers on these new digital channels.

While traditional **acquisition** channels like email, POS, & website content are efficient in their own right, they are not aligned to the digital needs of today's customer who have a digital first agenda on their mind. For example, in today's world where digital first companies like Amazon, Uber are bringing markets right into the customer's home and on their mobile, why should the customer have to go to their retailer for something as simple as a top-up or a recharge?

In order to cater to these customers, telecom companies have to bring new capabilities like digital marketplace, IoT enablement, e-kyc, multi-channel management. A digital marketplace would allow the customer to add new services to their product from any device, any location at any time of their choosing. One of the roadblocks of MENA's e-commerce is the lack of access to a broad and deep selection of products amply made clear by Souqs 8.4 million products compared





to 550 million on Amazon. A digital marketplace enabled by telecom can work to overcome these limitations by bringing buyers and sellers of digital services on a single platform. Similarly, with the rise of voice assistants like Alexa, today's digital first customers are getting things done through voice search. Telecom companies with a digital mindset can use this channel for streamlining customer acquisition. With IOT devices proliferating and reaching 1.1 billion connections in MENA, Telcos need to integrate their digital services with these for seamlessly acquiring and delivering digital services. As per Internet Trends Report 11% consumers purchase a product/service immediately after discovering it in social media and 44% purchase it later. Social media is driving both product discovery and purchase.

At the backend of every telecom service is **distribution and fulfilment**. An efficient system would consist of an ecosystem of motivated partners working efficiently, on time, driving value. Traditional distribution and fulfilment systems were built for a pre-digital world, with static workflows. Order raised in system would've to go through several hoops – supplier, whole-seller, retailer before getting fulfilled. However, in a digital world, where time is of essence, telcos need digital workflows to drive speed and innovation.

In this context, a digital supply chain would allow telecom operators to get a comprehensive, real time view of their business, which would help them in

managing their business end to end while realizing new efficiencies and opportunities. In this digital ecosystem, telcos will new tools to manage partners, as a highly motivated and connected partner would become critical for their continuing growth. For example, a Fleet on street app (FOS) provides partners with the visibility to drive business efficiently. Similarly, with commissions defined in digital supply chain, commissions would be paid out in real time as soon as the sale is made motivating the partners to work even harder.

Customer **service** is critical to every enterprise. Over the years, telecom companies made massive investments in back offices, self-care apps, as well billing systems to improve the customer experience. However, the coming of the digital tide has changed the customer's definition of service. Today's customer wants to be serviced quickly, without any hassles. No one wants to talk to a customer service rep these days. Long wait times invariably lead to attrition. Also, the services have to be rendered intuitively, with each customer interaction improving iteratively basis learnings that were gleaned from the last interaction.

With the proliferation of virtual assistants telcos will have to make it easier for customers to service their requirements. With AI and Machine learning, telcos will be able to know their customers better and provide highly contextualized services catering to customer personas.

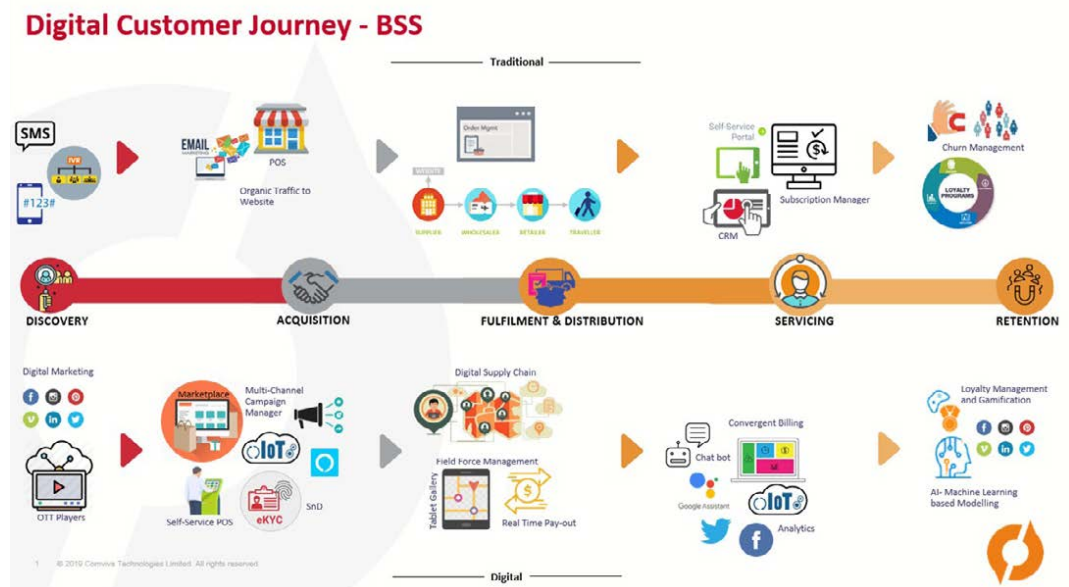
By registering on social networking sites such as Twitter and Facebook, vendors explore new platforms to market their latest services, products, and solutions to gain public feedback and opinions.

Speaking of **retention** customer attrition is a lost investment for the telecom company, as it can cost 10 times more to bring a new customer than retaining one.

Rather than using rules based loyalty or churn management solutions, telcos should be looking at customer data for getting insights on their customers and reducing churn The best way to retain a customer is to keep him/her engaged. Improving recommended services is still a challenge and telcos are yet to match OTTs in this respect. OTT players like Netflix boast of their users consuming 8 of every 10 recommended content. Telcos need to deep dive into consumer behaviour and recommend services accordingly. To be able to reduce churn, telcos need to be ready with the next best option for a customer. The increased importance of sentiment analysis and the advances in text analytics are encouraging organizations to include social media in their business processes and help predict complex consumer behaviour and reduce churn and increase customer satisfaction; thereby increasing the lifetime value of a customer.

The below picture shows the modules Comviva has to offer for every stage of Digital Customer's lifecycle:

*Digitalization will play a big role in managing Sales and Distribution system much more effectively for real time tracking of sales, inventory, new product launch, effective utilization of feet on street and incentivization of the channels.*



### Enabling block for CSP Transition

Consider how easy it is to book a cab for your destination on Uber and making the payments once you've reached your destination. Telecom providers aspiring to become digital service providers want to provide the same level of contextualization and personalization to their customers. However, the biggest roadblock coming in its way is the "chaos" and the "complexity" of the existing BSS systems that restrict its ability to launch digital services quickly and efficiently.

Since BSS upgrades are costly and time taking, the 'big bang' approach of transformation has seen to fail. This approach does not fit to serve the agile world in which we live, one where subscribers want everything personalized, now and on-demand.

Another favoured approach to digitization is to add new digital systems to support new digital services like Netflix etc. and new lines of business i.e. 5G, IOT etc. These new systems can be added as an overlay to existing legacy systems. The new add-on system can support a segment of customers initially and once stable can replace legacy system over time. This phased approach reduces the costs and risks involved in large scale transformations. By using this

approach, operators can leverage a modular, micro-services driven approach and prioritize which service or "platform component" they need to replace first. This not only promotes faster service delivery but also reduces the cost and implementation timelines pertaining to digital transformation.

### Looking into the future

While many of the operators have gone ahead with 5G trials the jury is still out on 5G usage cases like connected cars because of the long gap between investment cycle and the revenue cycle. However, in the interest of future proofing their business, the operators should invest in platforms that can be scaled for driving 5G usage cases of the future. Operators have to cautiously and judiciously roll out 5G and 5G based digital services in high dense urban areas and gradually move to other areas with specific use cases. As per GSMA survey, 85% of operators in 5G era will play the role of Platform and digital service providers and only 10% will play the role of sole connectivity providers.

### Conclusion

Comviva believes that the classical telecom operator model has become a liability for operators in the Middle East. In order to recognize new opportunities in revenue and customer engagement,

*Operators have to cautiously and judiciously roll out 5G and 5G based digital services in high dense urban areas and gradually move to other areas with specific use cases. As per GSMA survey, 85% of operators in 5G era will play the role of Platform and digital service providers and only 10% will play the role of sole connectivity providers.*

it has become imperative for the Middle East operators to drive linkages between customers, channels, products, digital services, technologies, locations and user segmentation. Over the years, Comviva has leveraged its ecosystem of partners to drive digital service for its client. Now, with its new digital capabilities, it is providing traditional telecom operators with the building blocks needed to become full digital service providers. 📍

### About the Author:

Atul Madan has over 20 years of experience and has held a variety of senior executive roles in the software and telecom domains. At Comviva, Atul heads the Digital Services business unit which focuses on leveraging the mobile to develop world-class lifestyle solutions spanning music, video and content and digital services for diverse geographies - Middle East, Africa, Europe, Latin America and South Asia. Atul has helped grow Comviva's digital services business, which contributes 35% to Comviva's total business. Atul has wide experience of PSTN, 3G, CDMA and ATM Switching Systems and has been responsible for developing products in the areas of IP Switching, Routing and X.25.

## TECHNOLOGY NEWS

### Telenor Launches 5G Pilot in Norway

Telenor has launched what it claims is Scandinavia's largest 5G pilot in the Norwegian municipality of Elverum. Telenor is Norway's first operator to integrate 5G into its mobile network. Through the project, delivered in partnership with Ericsson, 50 pilot customers in the municipality will be

connected to the 5G network to test 5G on mobile handsets, broadband and TV, as well as smart home solutions. Petter Furberg, CEO, Telenor Norway, said, "This is an important day both for the residents of Elverum and us at Telenor. With the launch of Scandinavia's largest 5G pilot, we have

strengthened our commitment to 5G. The residents of Elverum have exciting times ahead of them, reaping the benefits of what next-generation mobile technology has to offer." Over the next year, Telenor also plans to launch 5G in the Norwegian cities of Fornebu, Trondheim, Bodø, Oslo, Askvoll, Svalbard, Kvitfjell and Frøya. Jenny Lindqvist, Head of Northern & Central Europe at Ericsson, said, "The success of this 5G pilot signals great things in store not just for Elverum but for Norway as a whole. The benefits of 5G's high speeds, low latency, and superior reliability will make a real difference." Earlier this year, Telenor Denmark announced 5G trials with Nokia, while in Asia this month, Telenor's Malaysian operation, Digi, partnered with Cyberview to open a 5G lab in the country. The 'OpenLab' will be a collaborative space for businesses academics and developers to test new 5G use cases.



### Three to Enhance 4G with 1400MHz Spectrum

Three UK is deploying 1400MHz or 'L-Band' spectrum at its busiest sites to improve 4G performance as data usage soars. 6,000 sites carrying 80% of Three's traffic will be upgraded with new antennas and 1400MHz L-Band spectrum. Three says customers with compatible handsets will see speed improvements of up to 150%, or 50% for those without. Further, at 12,500 sites, Three will switch some of its 3G spectrum over to 4G, saying this will deliver improvements of up to 40%. Three says 3,960 sites have already

benefited from a 15% improvement in performance thanks to the deployment of carrier aggregation technology. The 4G upgrade, which is part of a £2 billion infrastructure investment program, will run until 2023 alongside Three's 5G rollout, which began in Central London in August. Three claims to be the first UK operator to break the 10GB monthly data usage barrier per customer. In July 2019, average usage across the Three UK network was 10.4GB per month, compared to the UK average of 2.9GB. David Dyson, chief executive

officer at Three UK said, "5G is a game-changer for Three's current and future customers. It will bring faster speeds, a better experience and masses of capacity which will benefit our 4G customers as well. While we are investing heavily in 5G, 4G is still very important for our mobile and home broadband services. "These upgrades will ensure that our data-hungry customers are getting the best possible 4G experience as 5G rolls out."

### Sunrise Extends 5G to 262 Towns and Cities

Swiss telecoms operator Sunrise has announced it is providing 5G coverage in 262 towns and cities across the country. The firm says it covers at least 80% of the population within each of those towns and

cities and states its 5G network is able to offer speeds of up to 2Gbps. As previously reported by CommsUpdate, Sunrise's 5G service went live on 4 April, with initial coverage of 150 towns, villages and cities.

The network utilizes spectrum in the 700MHz and 2.4GHz-2.5GHz frequency bands.

## FCC Launches 5G Testbeds in Two Cities

The US Federal Communications Commission (FCC) sought to make it easier for companies to test next-generation technologies, creating two new urban innovation zones in New York City and Salt Lake City, Utah. Its move is designed to cut regulatory red tape and make it easier for companies to test new technologies outside of a traditional campus or laboratory setting. Trialing new technologies like 5G would usually require companies to seek individual licenses from the FCC for each experiment.

However, those approved to test in the Innovation Zones will be allowed to conduct multiple, unrelated pilots under a single authorization. In a statement FCC Chairman Ajit Pai said the areas would provide innovators with broader access to resources while also protecting licensed users in those areas. The New York City zone encompasses just under a tenth of a square mile in Manhattan and allows fixed and mobile testing across a variety of bands including 2.5GHz, 3.7GHz to 4.2GHz (C-Band), 5.9GHz, 28GHz, and 38.6GHz

to 40GHz. In Utah, operators will have access to a total of four square miles of test space, comprised of three connected areas including a college campus, downtown area and corridor connecting the two. Fixed and mobile testing there will be permitted across low and mid-band spectrum ranging from 700MHz to 7.1GHz. Both zones will be active for a period of five years, though the FCC could extend the terms.

## 5G Network Now Available at Beirut Airport



Lebanon launched its mobile 5G network service at the Beirut Rafik Hariri International Airport. "Beirut's airport is the first in the region to provide 5G service for its passengers," said Telecommunications Minister Mohammed Choucair from the airport where he announced the news. Choucair thanked all parties collaborating to take this move, he said: "We thank the General Manager of OGERO and the Middle East Airlines. We hope to see an improvement not only at the airport but throughout Lebanon." For his part, Transport Minister Youssef Fenianos said: "Everything is on the application that we launched in collaboration with Ogero to facilitate the travel of passengers." "The service will be available for all passengers," he noted.

## Ucell, Uzmobility Testing 5G in Uzbekistan

State-backed Uzbek mobile operator Ucell announced on its website that it has begun testing 5G mobile network technology in response to recent calls from the country's President and the Ministry of Information Technologies & Communications (MITC) inviting operators and tech providers to submit 5G deployment proposals. Ucell gained permission to test a 5G network earlier this month, and is now using equipment provided by Huawei to conduct tests at the company headquarters in Tashkent. So far, peak data speed has reached 1.376Gbps (downlink). Ucell is currently preparing 'a demonstration of 5G in test mode' at ICT Expo 2019 (part of Uzbekistan's ICT Week) on 25-27

September. The operator adds that later this year it will switch on a live 5G network section at Tashkent's International Business Centre, before gradually adding further 5G coverage in other locations. Another state-owned Uzbek cellco, Uzmobility (part of Uzbektelecom), also disclosed on its website details of 5G tests, similarly in partnership with Huawei. Uzmobility said that it installed its first set of 5G base stations on its network on 14 September which were 'put into operation for pre-trial testing' using 'frequencies up to 6GHz' and non-standalone network architecture, supported by its existing 4G infrastructure. Uzmobility added it will be testing technologies including 'multiple

non-hierarchical (disproportionate) access and Massive MIMO', with internet access speeds of around 1Gbps. Based on test results, it will draw up a program of commercial 5G equipment procurement and rollout which it expects to take 'more than one and a half years'. On Uzbektelecom's Facebook page, a company engineer posted a 5G testing device screenshot showing a data connection speed of 1.455Gbps (downlink)/114Mbps (uplink) on the Uzmobility network in Tashkent. The engineer added that 'in the near future' more details would be published 'about the zones where it will be possible to test 5G'.

## 5G Rolling Out Faster Than 4G, Europe Focuses on eMBB

The 5G market is developing much more quickly than the previous generation 4G LTE standard, with a total of 31 5G commercial service launches globally by the end of the second quarter of 2019, new analysis from IHS Markit reveals. The report finds that the deployment of 5G is now "widespread", with projects in 17 countries in Asia, Europe, the Middle East and North America. This level of deployment has been achieved just 10 months after the first commercial 5G launches in August 2018. Elias Aravatinos, Senior Research Analyst, Operator Strategy, at IHS Markit | Technology, commented, "Although the 4G/LTE standard was finalized in 2009, it wasn't until 2012 that the pace of launches picked up, and not until the first quarter of 2013 that the total number of launches exceeded 100. "In contrast, deployments

of 5G began just weeks after the standard was completed, setting the stage for the rollout of the technology in locations across the globe in less than a year. We expect the number of 5G deployments to grow exponentially, with possibly hundreds of deployments per quarter during the period from 2020 to 2021, the time when we expect the peak of 5G deployment." The analysis finds that enhanced mobile broadband (eMBB) and fixed wireless access (FWA) are the primary use cases for 5G launches. The split between the services varies dramatically by region. A total of 72 percent of 5G launches by European operators in the first half were exclusively for eMBB services, compared to just 50 percent of the 5G launches in the Middle East. Some operators, mainly in the Middle East, exclusively offer FWA. In

Europe and Asia, there are operators that offer both FWA and eMBB services. A major factor driving the acceleration in the pace of launches is the maturity and experience of wireless operators, according to IHS Markit. "During the transition from 3G to 4G, wireless operators learned valuable lessons that they are now applying to the 5G rollout," Aravatinos said. "In terms of knowhow, the operators are ready and able to ramp up 5G services at a tremendous rate. Currently, the only factors preventing operators from starting even more 5G launches are money and the availability of phones and routers." One inhibitor to 5G's growth could be a lack of 5G-compliant devices, as well as delays with routers in UK and Switzerland. The US ban on Huawei buying American parts and components could also have an impact.

## Malaysia to Expand 5G Trials Nationwide

Malaysia's Communications and Multimedia Minister Gobind Singh Deo has announced that nationwide demonstrations of 5G technology will begin next month, further extending a series of trials that commenced in Putrajaya and Cyberjaya in April 2019, and which were subsequently extended to a total of five states. Local news source The Star Online cites the minister as saying at the GSMA Mobile 360 Digital Societies event in Kuala Lumpur: 'The initial 5G testbeds which were first launched in April this year in the administrative capital of Putrajaya and Malaysia's global tech hub Cyberjaya, has now been extended with nationwide 5G demonstration projects due to commence in October.' The ministry notes that, alongside the two aforementioned trial locations, in July 2019 Gobind confirmed that the testbed areas had been expanded to include Terengganu, Perak and Kedah.



## DOCOMO to Switch on 'Full-Fledged' 5G Pre-Commercial Service

NTT DOCOMO will kick off 5G services on 20 September to coincide with the opening of the Rugby World Cup in Japan, allowing people in Tokyo and major cities such as Nagoya and Osaka to experience the service, ahead of its full commercial rollout in spring 2020. The Japan Times cites DOCOMO's president/CEO Kazuhiro

Yoshizawa as saying that the cellco is 'marking Friday as the day we begin our full-fledged 5G services'. The pre-commercial next-generation network service will be available at competition venues for the Rugby World Cup and other locations, the company said in a statement, noting that three 'special smartphone

devices' compatible with the 5G network will be available, enabling users to view the game from multiple perspectives. The trial service will also be available at four NTT DOCOMO stores across Tokyo, Nagoya and Osaka, it said.

## Sunrise Opens 5G Service to Public; UPC to Offer 1Gbps Nationwide

Swiss full-service provider Sunrise has made its 5G services available to the public, having initially launched a limited offering in April this year. The operator is initially focusing on using its 5G network to provide high speed broadband services to customers outside of the footprint of the nation's fiber-optic networks. As such, Sunrise now offers customers 5G as an option for subscribers to its home broadband plans and will utilize the technology that provides users with the best connection speed based on their location, with no additional cost. The

telco's 5G 'fiber over the air' service can also be bundled with TV and landline telephony services, and subscribers that are also signed up to a Sunrise mobile plan can benefit from the 'Sunrise Advantage' discount scheme, in the same way as its fibre or copper-based broadband services. Sunrise's 5G service is currently available in over 262 towns and cities, covering at least 80% of the population in these locations. Meanwhile, cable broadband provider UPC Switzerland has announced that it will launch gigabit broadband speeds nationwide from 25 September.

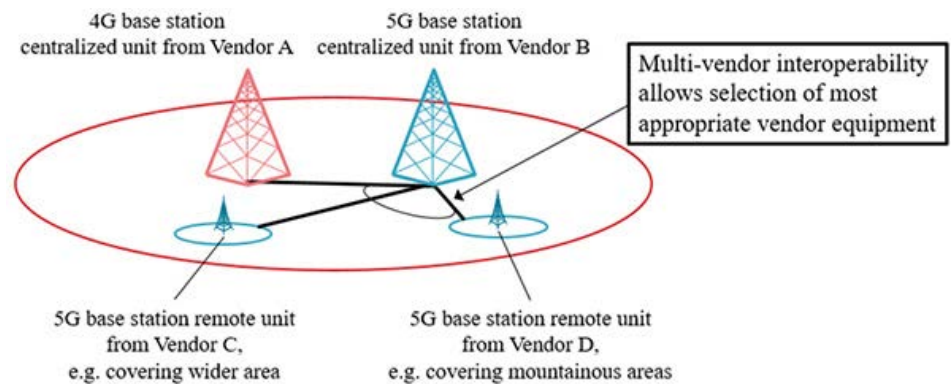
According to the operator, download speeds of up to 1Gbps will be made available throughout its footprint 'all at once.' UPC CEO Severina Pascu explained: 'From 25 September, rural and alpine regions will also be able to benefit from Giga speeds for the first time. This is an absolute novelty in the Swiss telecommunications market.' UPC is currently the subject of a takeover bid from Sunrise, though the agreed sale has been challenged by the latter's shareholders, and the agreement is awaiting approvals.

## DOCOMO to Deploy 4G/5G Multi-Vendor RAN, Claims World First

Japan's NTT DOCOMO has announced that in collaboration with Fujitsu, NEC Corp and Nokia, it has successfully achieved multi-vendor interoperability across a range of 4G and 5G base station equipment compatible with the international standards of the Open Radio Access Network (O-RAN) Alliance. Claiming world first in terms of the 'realization of this level of multi-vendor interoperability in 4G and 5G base station equipment conforming to O-RAN specifications', the cellco's statement goes on to point out that 'O-RAN standards include front haul specifications and X2 profile specifications'. DOCOMO will deploy the equipment in the pre-

commercial 5G service it plans to launch on 20 September 2019, concurrent to which the operator plans to expand 5G

coverage by combining 5G networks with existing 4G networks using equipment from diverse vendors.



## Claro Begins Testing 5G Technology



Claro, Ecuador's leading mobile network operator (MNO) by subscribers, has demonstrated 5G technology at an event organized by the Ministry of Telecommunications in Guayaquil to promote its 'Digital Ecuador' strategy, reports El Universo. In a statement, the company said interactive exhibits would enable users to experience the faster download speeds enabled by 5G, as well as applications such as virtual and augmented reality, and the Internet of Things (IoT). The operator, which recently announced plans to invest USD500 million in network upgrades over the next three years, also revealed it will soon begin 5G technology tests in Quito in partnership with hardware vendor Huawei. Ecuador's government outlined plans in July to allocate 3.5GHz spectrum in 2020 in preparation for the launch of 5G services.

## Beeline Launches Moscow 5G Pilot Zone; MegaFon Reports 2.46Gbps in 5G Test

Beeline has become the third Russian cellco to launch a 5G pilot network zone in Moscow, in partnership with Huawei and the Department for Information Technologies (DIT) of the city authorities. Beeline's 5G pilot zone around the Luzhniki Stadium follows the launch of similar zones in the capital by rivals Tele2 Russia and MTS. Beeline is testing ultra-wideband mobile access using new-generation

smartphones including Huawei's Mate 20 X, reporting peak data transfer rates to a subscriber device of 2.19Gbps. Vasil Latsanich, General Director of Beeline, said: 'Today we are in active stages of preparation for the launch of 5G networks, testing new generation networks simultaneously with several vendors in different cities of Russia. We expect the first 5G smartphones and routers to appear in

Beeline stores this year.' A fourth Russian operator, MegaFon, is gearing up for the launch of a Moscow 5G pilot zone, and this week it announced testing 5G data transfer and packet connections, file downloads, voice and video calls on smartphones in cooperation with Qualcomm and Nokia, achieving data speeds up to 2.46Gbps.

## Industry Primed for Next-Gen Wi-Fi Technology

Kevin Robinson, VP of marketing at the Wi-Fi Alliance, tipped the Wi-Fi certification 6 program, to improve experience in congested areas, providing a major coverage boost in stadiums, train stations and airports. Speaking to Mobile World Live, Robinson explained the benefits of the new generation of the technology will be largely noticeable in busy environments, due to its more efficient usage of the spectrum compared with previous versions. As opposed to previous generations of Wi-Fi, which are focused on delivering performance at a high level for one device, Robinson said Wi-Fi 6 certification is looking to optimize the performance of all connected devices. "In a home environment you might have a sensor device that has very low data requirements, but it needs to sleep off in order to conserve battery power. You might have an AR or VR headset that has very strict latency requirements. And then you might have a tablet that uses a lot of data

but doesn't necessarily need low latency. Wi-Fi 6 is able to tailor how it serves each of those diverse device categories, so that each gets the type of data service it needs." The security landscape is supposedly set to improve as well, with the new generation now requiring support for WPA3 – the latest generation of Wi-Fi security. Wi-Fi Alliance, the non-profit organization which certifies Wi-Fi products, is expecting

"incredible" interest in Wi-Fi 6 from industry players including service providers and enterprises, as well as end users. "We are seeing manufacturers that highlight Wi-Fi 6 as one of the more important features in their devices, such as iPhone 11", Robinson added. With 5G deployments underway, Robinson believes Wi-Fi 6 will also complement the mobile technology.



## MTS, Tele2 Russia Both Announce 2.1Gbps 5G mmWave Speeds in Pilot Zones

Tele2 Russia has claimed peak data speeds up to 2.1Gbps and minimum latency of 9ms on its 28GHz mmWave 5G pilot network zone in central Moscow, using Qualcomm Snapdragon mobile device technology. Tele2 is inviting any users of compatible smartphones or

other devices to test the network, which it launched last month in partnership with Ericsson on Tverskaya Street. Larger Russian cellco MTS, which launched its Moscow 5G mmWave pilot zone soon after Tele2, has similarly announced hitting speeds of 2.1Gbps in partnership with

Nokia, using a pre-production Samsung S10 5G smartphone featuring Qualcomm's Snapdragon 855 platform and X50 modem. MTS is also partnering Huawei in its 5G piloting program.

## Wind Hellas Demos 5G in Thessaloniki

Greek telco Wind Hellas has switched on a trial 5G mobile network at the Thessaloniki International Fair. The firm is giving attendees the chance to experience 5G technology using Huawei Mate 20X handsets, though commercial services are not expected to be implemented until next year at the earliest. In October 2018 Wind also signed an agreement with local authorities in the city of Kalamata on the Peloponnese peninsula to install a pilot 5G network. Greece's telecoms regulator, the Hellenic Telecommunications & Post Commission (Ethniki Epitropi Tilepikoinonion kai Tachydromeion, EETT), is planning a sale to allocate 5G-capable spectrum, including 2×30MHz in the 700MHz band, 65MHz in the 1500MHz range, 2×15 plus 2×45MHz in the 2100MHz band, 280MHz at 3.6GHz and 2,500MHz in the 24GHz-28GHz range. While some frequencies will be sold via auction, others

will be offered for free. Greece is currently home to three mobile network operators

(MNOs), Cosmote, Vodafone and Wind.



## Operators Join European Quantum Communication Infrastructure Pilot



The European Commission has launched a pilot project to test quantum communication infrastructure in several European countries. The OPENQKD initiative aims to boost the security of critical applications in telecommunications, healthcare, utilities and government services. It will

create and test communication network infrastructure with a built-in quantum element, using Quantum Key Distribution (QKD) – an ultra-secure form of encryption that allows data to be transmitted with a very high level of security. The project aims to lay the groundwork for a pan-European quantum communication infrastructure that uses satellite as well as ground-based solutions. The testbed will test the interoperability of equipment supplied by different quantum manufacturers. The OPENQKD consortium consists of 38 partners from 13 member states and Horizon 2020 associated states, including quantum equipment manufacturers, network operators (such as BT, Orange, Deutsche Telekom and Telefonica), system integrators, SMEs, universities, certification and standardization bodies, and end-users.

Quantum moves towards the market Hannes Hübel, a scientist at the AIT Austrian Institute of Technology, and project leader

of OPENQKD, said, "After successfully demonstrating the basic concept of QKD, quantum-based cryptography has achieved a mature state and we are proud to lift quantum technology now onto a market-ready level – ready to be deployed in everyday-life applications." The Europe Commission agreed to fund OPENQKD following a Horizon 2020 call for proposals in 2018. OPENQKD's activities will take place throughout Europe, in Austria, Spain, Poland, Germany, Netherlands, Switzerland, France, Italy, UK, Greece and the Czech Republic. OPENQKD will also work to identify new quantum use-cases by supporting start-ups and SMEs, as well as offering modern test facilities. A further objective for the project is to devise standards and security certifications for this infrastructure. Initially, the OPENQKD project will have a budget of €15 million over three years.



## Ericsson Makes 5G Data Call Using Dynamic Spectrum Sharing

Ericsson says it made the world's first 5G data call using dynamic spectrum sharing. The call was made on a 3GPP Frequency Division Duplex (FDD) low band using commercial hardware and Ericsson Radio System software. The data call was set up in August at Ericsson's lab in Ottawa, Canada using an Ericsson macro radio that supported both 4G and 5G. The call was made between a 5G mobile test device powered by the Qualcomm Snapdragon X55 5G Modem-RF System and a commercial LTE smartphone. The LTE smartphone and the 5G testing device data call sections were running simultaneously on the same FDD spectrum. This is innovative because in the past, new generation radio access technologies were deployed on separate spectrum blocks. This required operators to buy new spectrum or re-farm their existing spectrum. Spectrum re-farming is a slow process that could take as long as 10 years to complete. With dynamic spectrum sharing (DSS), operators can introduce 5G immediately in the same band as 4G. The technology dynamically allocates spectrum resources between 4G and 5G based on user demand. Ericsson says its DSS is based on proprietary scheduler algorithms that enable optimal performance as the mix of 4G and 5G devices in the network changes over time. Verizon's CEO Hans Vestberg has repeatedly said that the carrier plans to use Ericsson's DSS as an integral part of its 5G strategy. However, Ericsson's DSS technology only works on its New Radio equipment deployed in the same spectrum currently being used for LTE. And, Verizon has not divulged whether it is deploying Ericsson NR equipment in any of its LTE spectrum. When talking about 5G, Verizon mainly talks about its mmWave deployments in high frequency spectrum that has never been used for LTE. On an earnings call with investors earlier this year, T-Mobile CEO John Legere said, "To get to dynamic spectrum sharing, you'll deploy New Radio. So, I am yet to hear anybody in Verizon declare that they are deploying New Radio in low-band or mid-band. And, if you want to use DSS, you are effectively committing in the same breath to rolling out 5G in mid- and low

band. I haven't heard that yet as a declared strategy for a Verizon." Ookla analyst Milan Milanovic told FierceWireless that Verizon owns spectrum in band 2 in the 1900 MHz range, band 4 in the 2100 MHz range, band 5 in the 850 MHz range, and band 13 in the 700 MHz range. "My assumption would be that they [Verizon] will use band 2, which is deployed everywhere and the AWS band 4," said Milanovic. "I think that's the most likely they'll use. But, we're just guessing. This is a good strategy to compete on 5G coverage. I think most operators would do the same thing without greenfield FDD spectrum." In addition to deploying New Radio equipment in its existing LTE spectrum, Verizon will also need 5G-capable user equipment. Although Ericsson used Qualcomm's Snapdragon X55 5G Modem for its 5G data call, Milanovic said current commercial devices sold by Verizon are powered by the Snapdragon X50 modem. Durga Malladi, Qualcomm's general manager for 4G/5G, said in a statement today, "With DSS support included in our comprehensive Snapdragon X55 5G Modem-RF System architecture, and we're looking forward to helping fast-track the mobile industry to nationwide coverage during the second phase of 5G commercialization next year."



## MegaFon Gets Ready for 5G with Microwave Transport

One of Russia's largest operators, MegaFon, has chosen Ericsson to develop a new nationwide transport network. As part of the three-year contract, the partners say Ericsson will supply mobile transport solutions based on its MINI-LINK platform to offer high capacity, efficient use of spectrum, low-energy consumption and simplified operations and maintenance. According to Ericsson's Microwave Outlook Report 2018, 40% of global backhaul connections are expected to be based on microwave by 2023. Russia covers 17,098,246 km<sup>2</sup> (excluding the Crimea) and spans has nine time zones, with a population of almost 147 million.

Frederic Vanoosthuyze, Chief Technology and IT Officer (CTIO) at MegaFon, says: "MegaFon pays great attention to the implementation of the most promising technical solutions and the readiness of all elements of the company's infrastructure to launch a new standard of mobile communication, setting the direction of development in the industry. "The transport network is one of the key elements that determine the level of service for our customers, where we constantly test and pilot innovative technologies, together with partners like Ericsson." Ericsson said key features of the MINI-LINK 6000 portfolio for 6-38GHz include a high

density of radio interfaces (up to 15 radio directions in three radio units), system gain enabling higher capacities, and longer hops or small antennas. MINI-LINK 6000 also supports modulations up to 16k quadrature amplitude modulation (QAM), large buffer sizes (up to 720MB) and up to 112MHz channels. MINI-LINK 6000 is used together with MINI-LINK 6363, which Ericsson claims is the world's smallest high-power radio, available in bands from 6 to 80GHz. Other features of MINI-LINK 6352 for E-Band (70/80 GHz) include 10Gbps capacity in a single carrier as well as multiple 10 Gigabit Ethernet interfaces.

## Orange and Ericsson Begin Live 5G Trial in Warsaw



Orange Polska has begun Poland's first live urban test of 5G technology in Warsaw in conjunction with Ericsson. Operating on a government-granted test license in the 3.4GHz-3.6GHz band, the test network has been set up between nine sites in the Ochota and Powisle districts of the Polish capital. Orange Poland has made more than 100 5G smartphones and routers available for invited customers to test and experience 5G download speeds of up to 900Mbps. The operator expects to roll out commercial 5G in Poland in 2020-21, following the acquisition of the necessary 5G spectrum. Jean-Francois Fallacher, CEO of Orange Poland, said: 'Today we are one step closer to launching the Polish fifth-generation mobile network. We are technologically ready for this challenge. After more than a year of trials in laboratories and in the field, we have launched a network operating in the capital city.'

## KT, Tessares Claim First '5G Low Latency Multi-Radio Access Technology' test on Live Network

South Korea's KT Corp has announced the completion of a world-first '5G low latency multi-radio access technology' test in a 5G commercial network in collaboration with Belgian tech company Tessares. The 5G multi-radio access technology, which the 3GPP has named ATSSS (Access Traffic Steering, Switch and Splitting), is one of the 5G differentiators standardized in the 3GPP Release-16 5G System Architecture Standard (3GPP TS 23.501). ATSSS was defined in collaboration with KT, Apple, Deutsche Telekom, Orange and Cisco, and is based on Multi-Path TCP technology. ATSSS reduces the initial session setup time to achieve 5G ultra-low latency in a

multi-radio context, resulting in a setup delay of less than half compared to previous approaches. KT and Tessares have jointly led the international standardization of this initial delay reduction technique through the IETF TCP Working Group. KT launched its 5G network for enterprise users in December 2018 ahead of a wider consumer launch in April 2019, and by August it was operating 35,415 5G base stations across major cities, according to TeleGeography's GlobalComms Database. Low-latency multi-radio access network technology is being applied to improve data speed and service quality for consumers as well as for KT's enterprise-dedicated 5G service,

which is expected to greatly contribute to the activation of delay-sensitive enterprise applications such as 5G smart office and smart factories. Sun-woo Lee, Senior Vice President, KT Infra R&D Laboratory, said of the latest ATSSS test: 'The success of this low latency test will allow customers to take advantage of existing LTE and Wi-Fi networks, as well as 5G, to enable wireless services at higher speed and quality.' Tessares CEO Denis Periquet added: 'We are convinced that mobile Internet usage requires an efficient combination of all existing network assets such as Wi-Fi, LTE and 5G.' 📶

## ARTICLE

## What is the Going Digital Toolkit?



**Molly Lesher**

Senior Digital Economy Policy Analyst  
Organisation for Economic Co-operation and  
Development



Digital transformation affects many aspects of the economy and society in complex and interrelated ways, and the Going Digital Toolkit helps countries navigate these changes and the trade-offs that policy makers need to make. The Toolkit is structured along the lines of the Going Digital Integrated Policy Framework, which includes seven policy dimensions that need to be co-ordinated to shape a common digital future that improves the lives of all people. These policy dimensions include:

- **Access** to communications infrastructures, services and data
- Effective **use** of digital technologies and data
- Data-driven and digital **innovation**
- Good **jobs** for all
- **Social** prosperity and inclusion
- **Trust** in the digital age
- **Market openness** in digital business environments



The Going Digital Toolkit maps a core set of indicators to each of the seven policy dimensions and allows users to interactively explore these data to assess a country's state of digital development. The Toolkit also contains OECD policy guidance and insights related to each of the policy dimensions to help governments design and implement policies that are fit for the digital age. In due course, the Toolkit will incorporate innovative policy practices. Users can explore the Toolkit using three entry points: 1) **policy dimensions**, 2) **countries** and 3) **themes**.

### 1. Analyse your country's performance by policy dimension

The Going Digital Toolkit allows users to assess performance in each dimension of the Going Digital Integrated Policy Framework. For example, the Use policy dimension includes indicators of how people and firms use digital technologies by country. Related publications and policy guidance are also provided to help design and develop well-suited policies.



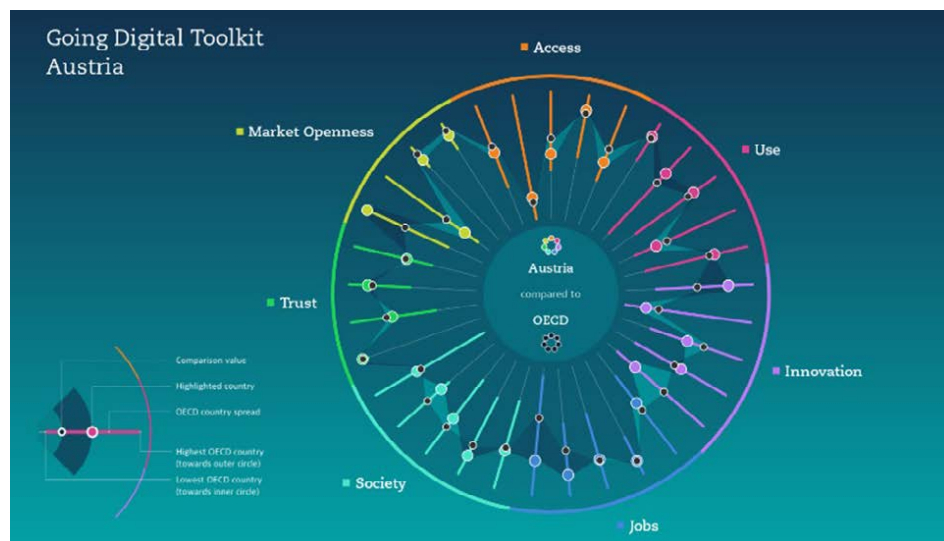
Visit the Going Digital Toolkit now!  
[goingdigital.oecd.org](http://goingdigital.oecd.org)

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For best results, please use the latest version of Microsoft Edge, Google Chrome or Mozilla Firefox to explore the Toolkit.

### 2. Compare your country's overall state of digital development

How does your country compare? Find out by mapping your country's performance on the Going Digital indicators against another country, or to the EU28 or OECD average. Each visualisation shows all of the Going Digital indicators at a glance, grouped by the seven policy dimensions. In the overall visualisation, each indicator has been normalised to express each country as a proportion of the highest OECD country value.



### 3. Explore the indicators and policy insights by theme

Users may wish to learn more about particular themes, including: 1) **data and data flows**; 2) **development**; 3) **digital government**; 4) **digital technologies**; 5) **gender**; 6) **productivity**; 7) **skills**; and 8) **small and medium-sized enterprises (SMEs)**. Such issues cut across several policy dimensions of the Going Digital Integrated Policy Framework. For example, issues related to SMEs are relevant for the Access, Use, Innovation, Trust and Market Openness policy dimensions. SMEs create jobs, spur innovation and underpin growth across the economy, but also face challenges in successfully adopting and using digital technologies.



*This article, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.*

## REGULATORY NEWS

## Saudi Technical Chief Presents Kingdom's IT Advances at UN Gathering

The Kingdom's expanding role in the ICT sector can help toward connecting half the world's population to the internet,

Saudi officials told the UN. With more than 93 percent of Saudis now with internet access, the country's Communications

and Information Technology Commission (CITC), headed by Dr. Abdul Aziz Al-Ruwais, participated in a meeting of the UN Broadband Commission for Sustainable Development, held in New York. Al-Ruwais highlighted the importance of using innovative methods to finance broadband projects and best regulatory practices to stimulate competition and investment in the ICT sector. Al-Ruwais noted the "qualitative leaps" achieved by the sector in the Kingdom over the past two years, including an increase of more than 300 percent in ICT spectrum services, the launch of at least 2,000 sites supporting 5G technologies, and a 450 percent rise in average mobile internet speeds. He said the Kingdom now had more than 93 percent of its people with internet access, placing the country among the top 20 nations in the world for internet use.



## FCC Proposes CBRS Auction Rules: Over 22,000 Licenses by County, Possible CMA Option

The FCC is considering rules for an auction of spectrum in the CBRS band that call for licenses by county. A total of seven licenses, each for 10 MHz of unpaired spectrum, would be available per county, yielding a total of more than 22,000 licenses nationwide. The commission also asked for feedback on whether to offer bidders the option to bid at a cellular market area (CMA) level in the 172 CMAs that are classified as metropolitan statistical areas. The 172 CMAs referenced comprise about one-quarter of all CMAs. The auction would be known as Auction 105 and would begin June 25, 2020. Participants would have the option of bidding for up to four licenses in a license area. The action came in the form of a public notice adopted at today's monthly FCC meeting. The CBRS band includes mid-band spectrum between 3550-3700 MHz. A portion of the band was recently made available for commercial

uses on an unlicensed and shared basis. CBRS spectrum is considered "mid-band" – a band that has received considerable attention in recent months as carriers have begun rolling out 5G networks. As FCC Commissioner Brendan Carr noted at today's FCC meeting, network operators are expected to use a combination of low-band, mid-band and high-band spectrum to meet a variety of coverage requirements. Some stakeholders, including Commissioners Michael O'Rielly and Jessica Rosenworcel, believe the U.S. needs to be more aggressive in making mid-band spectrum available for 5G. "The great step forward we take today doesn't eliminate the need for more mid-band spectrum," said O'Rielly. "Let's get the C-band done." The latter is a reference to spectrum currently in the hands of satellite providers, who may have more spectrum than they need for the chief

function the spectrum currently supports – distribution of video programming. The FCC is considering making a portion of the band available to commercial operators, but key issues about how that would occur have yet to be resolved, including whether the satellite providers would auction the spectrum or whether the FCC would handle that task. Rosenworcel noted that 16 other countries have recently conducted auctions of mid-band spectrum and argued that the CBRS band auction should be conducted sooner than June 25. She also expressed concern about the possibility of CBRS spectrum being auctioned on a CMA basis in certain areas, arguing that this approach could shut out smaller entities from acquiring licenses in those areas, which in turn, could minimize opportunities for innovation.

## UAE First Country in Region to Transition to Internet Protocol Version 6

The UAE ranked first in the Middle East in the transition to Internet Protocol Version 6, according to statistics from Ripe NCC, Akamai Technology and Google, less than two years after it has been launched in the country by the Telecommunications Regulatory Authority. The transition to IPv6 will have a significant positive impact on the implementation of 5G mobile technologies and digital transformation in the UAE on the back of the inability of IPv4 to meet the growing demand in light of the rapid growth in internet use. Hamad Obaid Al Mansoori, Director General of TRA, said, "TRA's efforts to implement IPv6 are part of our strategy for the future, especially for the internet and its applications in the UAE. There is a growing reliance on the internet for communication not only between people, but between different devices to serve man." "When we launched the first phase of the transition to the sixth edition of the internet, we aspired to expand the horizons of the internet in the country, based on the UAE strategy for Artificial Intelligence launched by the leadership as a pillar to achieve the Vision 2021." Al Mansoori expressed his gratitude to internet service providers in the UAE, Etisalat, du and Ripe NCC's regional office in Dubai for their cooperation with the TRA and their work helping in the transition. "The internet is the backbone of the era of artificial intelligence, the fourth industrial revolution, and big data, and therefore we must take all measures that provide investors, companies and institutions with internet protocols, and work to accommodate the exchange of data between millions of devices." The UAE Smart Government is preparing plans and adopting future strategies necessary for the implementation of IPv6, including security standards, expansion and meeting the growing demand for communication in the era of data flow and the Internet of Things. The TRA is working with the country's



internet service providers, Etisalat and du, to formulate the best strategies and policies towards the transition and ensure a better future for the internet sector in the UAE. The TRA has signed a Memorandum of Understanding with Ripe NCC, aiming to enhance mutual cooperation and exchange of expertise between different sectors for the development of the internet in order to improve the efficiency of internet operations in Middle East.

## Standards Bodies Promote Convergence of 5G and Wi-Fi

Wi-Fi's critical role in the success of 5G is shown in a white paper from the Wireless Broadband Alliance (WBA) and the Next Generation Mobile Networks (NGMN) Alliance. The white paper was developed with input from mobile operators (including BT and Orange), telecom equipment manufacturers (such as Accuris Networks, Broadcom, Cisco and Huawei) and Wi-Fi advocates. WBA and NGMN a Joint Task Force to produce the RAN Convergence White Paper which looks at the importance of existing and future Wi-Fi and cellular convergence. It highlights techniques that enable convergence and identifies solutions to bridge the technology gaps.

According to the paper's findings, mobile operators will benefit from the convergence of Wi-Fi and 5G by gaining improved visibility into Wi-Fi networks. This will enable them better to control customers' experience, deliver improved services to customers and provide enterprise management solutions for Wi-Fi network to enterprise customers. Wi-Fi operators will gain improved visibility and transition management as they operate overlapping cellular and Wi-Fi networks, which will ultimately result in an improved user experience. Enterprise Wi-Fi networks will also be able to access 5G services provided by operators. Importantly, the paper

identifies new business opportunities arising from the convergence of Wi-Fi and 5G at the network and RAN layers, for enterprise, manufacturing, public hotspots and residential applications. A new set of 5G use cases and verticals could combined resources from cellular and Wi-Fi networks to support cheaper solutions that meet diverse sets of requirements like throughput, latency, connection density, coverage, availability and reliability. The integration of the two has some technical challenges and the paper explores the benefits of creating a standardized interface between them.

## ITU Inter-Regional Workshop Focuses on Preparations for World Radiocommunication Conference (WRC-19)

An Inter-regional Workshop focused on preparations for the upcoming World Radiocommunication Conference (WRC-19) opened in Geneva on the 4th of September. This preparatory workshop for WRC-19, the third such meeting met 4-6 September 2019. Discussions centered on the agenda of the World Radiocommunication Conference as well as regional priorities and inputs that have been prepared both for WRC-19, which will be held in Sharm El-Sheikh, Egypt from 28 October until 22 November 2019, and the Radiocommunication Assembly (RA-19) that will precede it at the same venue, 21-25 October. Experts representing the Regional Groups and the ITU Member States preparing for WRC-19 will share latest information and explanations on their positions for the Conference. Information on the status of readiness of the Conference by ITU and the host country, Egypt, will also be provided. Among the issues on the agenda at this Workshop that will come up at WRC-19:

- Identification of frequency bands for the future development of International Mobile Telecommunications (IMT), including possible additional allocations to the mobile service.
- Identification of frequency bands for High Altitude Platform Stations (HAPs) – aircraft positioned in the stratosphere for very-long-duration flights – which can be used for a variety of applications, such as telecommunications, emergency/public safety communications, intelligent transportation systems, maritime

surveillance, and environmental monitoring.

- Conditions of use of Wireless access systems, including radio local area networks (WAS/RLAN), to provide effective communication for portable and mobile computer-based equipment.
- Updating and modernization of the Global Maritime Distress and Safety System (GMDSS), with consideration of new frequencies for additional GMDSS satellite providers to expand geographical coverage, including in Polar Regions, for safety in maritime navigation and search-and-rescue operations, as well as to enhance collision avoidance systems.
- Frequency bands used by science services will be considered to ensure that Earth exploration-satellite, meteorological-satellite and other systems continue to be able to provide environmental monitoring, prediction and mitigation of the negative effects of disasters caused by climate change as well as to monitor the earth's resources and any other key services.
- Consider additional frequencies with appropriate regulatory, technical, and operational conditions for earth stations in motion (ESIM) communicating from aircraft, maritime vessels and land vehicles with satellites on the geostationary orbit (GSO); enhance the international regulatory framework to improve satellite broadband connectivity including from new non-GSO satellite systems composed of

multiple, multi-satellite constellations. "WRC-19 will play a critical role in helping achieve many of the Sustainable Development Goals (SDGs), such as dealing with the accelerating climate crisis, reducing food shortages, improving safety in transportation systems in the air, on land, and on the sea, while providing improved connectivity for people worldwide," said ITU Secretary-General Houlin Zhao. "This inter-regional workshop marks a key step in preparing for the World Radiocommunication Conference, which will take place in Sharm El-Sheikh this fall." "The multi-trillion dollar telecommunication industry is looking forward to the decisions taken at the World Radiocommunication Conference (WRC-19)," said Mr Mario Maniewicz, Director of the ITU Radiocommunication Bureau. "The global harmonization of spectrum for fixed, mobile, satellite and broadcasting industries will be essential in achieving economies of scale and in connecting the world to cutting edge developments and innovations in telecommunications." Dr. Amr Badawi, former Executive President of the National Telecom Regulatory Authority (NTRA) of Egypt and the proposed Chairman of WRC-19, said, "This Inter-regional Workshop is an excellent opportunity to have a final look at the priorities facing WRC-19 and to ensure preparations for this important conference are on track. I look forward to welcoming participants from around the world in Sharm El-Sheikh and to the deliberations which will shape the future of global telecommunications."



## GSMA Calls for 5G Spectrum Focus at WRC-19

Industry body the GSMA called on governments across the globe to increase their support for identifying mmWave spectrum for mobile, a move it argued will be crucial to the future deployment and success of 5G technology. In a letter sent to ministers and heads of regulatory authorities in 170 countries, the GSMA urged governments convening in Egypt for the ITU World Radiocommunication Conference (WRC-19) in November to identify spectrum for mobile in the 26GHz, 40GHz and 66GHz bands. The body forecast mmWave 5G will contribute \$565 billion to global GDP and governments' decisions "on new radio spectrum for 5G services will determine whether, and when, the promise of 5G will be fully realized". Those three bands, in particular, will enable key capabilities for 5G including

ultra-high capacity and high-speed services, it argued. It also pointed to research by the mobile industry and ITU over the past four years in the technical study of frequencies, along with analysis undertaken by governments and industries, which it said showed mobile could safely operate in these bands without interfering with services including weather sensing services using adjacent airwaves. "On behalf of the mobile industry and, more importantly, the citizens and businesses all over the world that depend on robust mobile networks, the GSMA Board urges governments to identify spectrum in the 26, 40 and 66 GHz bands at WRC-19 for mobile. By doing so, you can lay the essential foundation for a bright 5G future," GSMA wrote.

**DELIVERING THE GREATEST VALUE FOR SOCIETY AT WRC-19**

**Collaboration will unlock the full potential of 5G to enable a Better Future**  
When governments convene in Egypt for the ITU's World Radiocommunication Conference (WRC-19) this November, their decisions on new radio spectrum for 5G services will determine whether – and when – the promise of 5G will be fully realised. WRC-19 provides an opportunity for governments and industry to work together to ensure that spectrum resources are used in the most efficient and effective ways to the benefit of citizens worldwide. The mobile industry has already demonstrated the contribution that mobile networks play in delivering on the targets of the UN Sustainable Development Goals, and we remain dedicated to improving economies and societies through the innovation that 5G will deliver. However, this new generation of services will depend on the spectrum decisions taken by governments this November. The GSMA Board, on behalf of the global mobile industry, therefore calls on governments to support the identification of spectrum for mobile at WRC-19.

**WRC-19 is a crucial step in 5G's development**  
5G has the potential to improve the lives of billions of people around the world in the years to come – enhancing healthcare and education, cleaning up cities and oceans and creating new benchmarks in industrial productivity, entertainment services and smart transport. WRC-19 presents the opportunity to identify mmWave spectrum in the 26, 40 and 66 GHz bands. These bands enable key capabilities of 5G such as ultra-high capacity and ultra-high-speed services. Identification of this spectrum by the ITU, under reasonable technical conditions, will allow the mobile sector to deliver fast and innovative digital services that will capture the imagination of consumers and business people around the world.

**5G will be a good neighbour**  
The mobile industry has a long history of working with governments at the WRC to identify the necessary spectrum for mobile services. Based on this experience, we understand the complex nature of the negotiations and the need for governments to strike the right balance between different users of spectrum. Identifying mmWave spectrum for mobile requires careful consideration. That is why the industry has been so actively involved at the ITU over the past four years of technical study of these frequencies. The methodical analysis undertaken by governments and industry through the ITU process has demonstrated that mobile can safely operate in these bands without causing harm to other spectrum-using services.

**Spectrum is required for growth**  
From the beginning, the mobile sector has shown that it can maximise the use of its spectrum resources. In the process, more than two-thirds of the people on the planet – over 5 billion people – have been connected. Over the next 15 years, mmWave 5G will contribute US\$565 billion to global GDP, and hundreds of millions more will be connected to voice, data and broadband. Fully realising this growth will require the action of governments at WRC-19.

On behalf of the mobile industry and, more importantly, the citizens and businesses all over the world that depend on robust mobile networks, the GSMA Board urges governments to identify spectrum in the 26, 40 and 66 GHz bands at WRC-19 for mobile. By doing so, you can lay the essential foundation for a bright 5G future.

Yours sincerely,  
The GSMA and the GSMA board members

## Cybersecurity Investments Hit a New High in the Middle East

Cybersecurity is an integral for the Middle East region. With investments at an all-time high, organizations are seeing this time as an opportunity to double down. The region is playing host to a number of different countries, one of which is Russia. The comeback for Russia is down to the region's lucrative markets and prospects. Just last month, Russia opened its first Russian Centre for Digital Innovators and Information and Communication Technologies in Dubai's Internet City (DIC), marking its first official foray into the Middle East's technology sector. Traditionally, Russian presence in the

region has primarily been political or military driven but with this, it is hoping to expand its mandate and scope. Another country is Saudi Arabia, which is working in conjunction with the UAE. It is believed that almost 70 per cent increase spending of medium-to-large organizations in the buildings and cities sector in the UAE and Saudi Arabia expect to increase spending on digitalization and Industrial Internet of Things (IIoT) technologies in the next five years. Of course, cities like Abu Dhabi within the UAE are also getting involved. In partnership with Trend Micro, the Abu Dhabi Digital Authority

(ADDA) has launched an initiative aimed at strengthening the protection of Abu Dhabi organizations' servers and hybrid cloud data centers. With GISEC around the corner, the show may serve as a great networking opportunity on a scale no other region can match. It is the biggest Cybersecurity show in the region officially supported by the likes of Dubai Police and Smart Dubai. Happening between April 6-8, 2020 it will bring together 8,300+ InfoSec professionals, 170+ top ranked companies from 80 countries for a business to find its right audience.

## South Africa: Woan Must Get Only a 'Small' Spectrum Set-aside: Treasury

Government's planned wholesale open-access network (Woan) should only get a small set-aside of radio frequency spectrum, with the rest auctioned off to commercial operators, national treasury has said. In a strategy document published on its website on Tuesday, treasury has set out plans for the revival of South

Africa's moribund economy. It deals with everything from electricity distribution to telecommunications and helping support and grow small and medium enterprises. The document makes no bones about the challenges facing the economy. "The combination of low growth and rising unemployment means that South Africa's

economic trajectory is unsustainable," it says. "Government should implement a series of growth reforms that promote economic transformation, support labor-intensive growth and create a globally competitive economy."



## RIPE NCC and CITC Join Forces to Promote IPV6 Deployment in Saudi Arabia

The Réseaux IP Européens Network Coordination Centre (RIPE NCC), in collaboration with Communications and Information Technology Commission (CITC), held five workshops and three training courses to foster the deployment of Internet Protocol version 6 (IPv6) in Saudi Arabia. The course took place over a four-day period at CITC headquarters in Riyadh, Kingdom of Saudi Arabia (KSA), and was attended by CITC, local Internet Service Providers (ISPs), telecom operators and other interested parties. The RIPE NCC conducted three training courses and five IPv6 workshops including:

**Basic IPv6 Training Course** – which elaborated on the imminent IPv4 run-out, the necessity to switch to IPv6 and how to prepare for deployment.

**IPv6 Security Training Course** – which provided an overview of IPv6 security issues and how to address them.

**Measurements and Tools Training Course** – an introduction to RIPEstat, a web-based interface providing information about IP address space, Autonomous System Numbers (ASNs), and related data for hostnames and countries; and RIPE Atlas, a vast Internet measurement platform that employs a global network of over 10,000 probes to actively measure Internet reachability and connectivity.

**Dedicated workshops for the mobile operators and ISPs.**

Eng. Raed Al-Fayez, Head of Internet Services at CITC, said: "There are many opportunities and challenges for the Internet in KSA. The workshop and training courses helped us to understand how deploying IPv6 can help Saudi Arabia improve its current

Internet infrastructure. These meetings also provide the perfect opportunity to review the Kingdom's capability to meet its 2030 vision. We look forward to continuing our successful collaboration with the RIPE NCC." Chafic Chaya, Regional Communications Manager for Middle East at RIPE NCC, commented: "We would like to thank our partners at CITC for their efforts and contribution, which has reaffirmed our commitment towards our members and the Internet community in supporting them with our technical expertise. Capacity building is crucial to technological advancement and migrating to IPv6 will provide KSA with better economic opportunities.



## China Agrees to Help Transform ICT Services in Zimbabwe

Zimbabwe and China have signed a memorandum of understanding (MoU) to cooperate on the development of ICT services in the African nation. According to a report from The Herald, the MoU aims to create an environment 'to enable the sector's players to collaborate, and will go a long way in reducing the digital divide and contributing to various economic activities'. Some of the areas of cooperation covered by the MoU include:

the development of Zimbabwe's fiber-optic backbone network, mobile broadband network and internet connectivity; the development of international and cross-border land cables, as well as international submarine cables; the development and operation of international voice and data services in Zimbabwe; research and development of ICT and the establishment of manufacturing and assembling factories in Zimbabwe to develop and assemble

ICT products. Zimbabwe's ICT, Postal and Courier Services Minister, Kazembe Kazembe, highlighted the contribution of Chinese equipment suppliers such as ZTE and Huawei: 'The Chinese firms operating in the ICT sector in Zimbabwe have assisted in transforming our sector as we strive to bridge the digital gap. These companies have reinforced the good relationship that Zimbabwe has enjoyed with China.'

## Polish Operators Considering 700MHz Collaboration for 5G

A press report from Poland says the country's four main mobile network operators (MNOs) are preparing to sign a letter of intent with state-backed telco Exatel which could lead to the construction of a shared 5G network in the 700MHz band.

Telko.in writes that Orange, T-Mobile, Play (P4) and Plus (Polkomtel) are considering working with Exatel on the project which would see one entity manage all available frequencies in the band and lease capacity on the shared infrastructure to retail

service providers. CommsUpdate reported earlier this week that Poland's Minister of Digitization Marek Zagorski has said he is in favor of a single nationwide network in the 700MHz band.

## UK Could Switch Off Copper Networks by 2027

Broadband providers are reportedly in talks with the UK government and regulator to set a deadline to switch off copper networks and move customers over to fiber. Sky News reports that BT is leading the way by drawing up a six-point plan and that the government is meeting with industry representatives from BT, TalkTalk, CityFibre and Openreach. It's understood that copper would be phased out region-by-region, although the 2027 cut-off date for the switchover has been likened to the end of the analogue TV signal in 2012. Greg Mesch, Chief Executive Officer at CityFibre, stressed that competition would be key in such a switch-over. He said, "In light of our funded and mobilized Gigabit City program to deploy wholesale full fiber infrastructure to at least five million homes, Ofcom's exclusive focus on BT Openreach as the vehicle for migration from copper to fiber is wrong. Retiring the copper network needs to be managed in a

way that promotes competition, benefiting every builder of fiber networks, rather than simply reinforcing BT Openreach's existing market dominance. Consumers should have the power to switch to any full fiber network. "CityFibre stands ready to play its part in transferring the nation's homes and businesses onto a new generation of fiber networks." According to the latest statistics from Ofcom, the UK's full-fiber broadband coverage now stands at 8%. Ofcom acknowledged that technologies other than fiber could also deliver Gigabit speeds, noting Virgin Media's latest copper-based cable transmission technology as well as 5G wireless networks. UK Prime Minister Boris Johnson has stated his goal for 100% rollout of fiber-optic broadband to properties across the UK by 2025. In August, UK telcos published an open letter, outlining their requirements to make this vision a reality. Issues pinpointed included: reform of the 'fiber tax'; action on

wayleaves; connectivity mandates for new builds; and tackling the skills challenge. The National Infrastructure Commission has estimated that building and maintaining a full-fiber network across the UK would cost £33.4 billion over 30 years. The letter, signed by the leaders of the Internet Services Providers' Association, the Federation of Communications Services and Independent Networks Cooperative Association, said, "Nationwide full-fiber coverage is not a can that can be kicked down the road, and these issues need to be resolved by your Government within the next 12 months to ensure that industry can continue to accelerate rollout. "Industry is ready and willing to work with yourself, your Government and the new Digital Secretary to ensure that Britain's connectivity is fit for the future. But that work needs to start now, and 100% fiber coverage requires a 100% commitment from Government."

## Philippines NTC Renews NOW Telecom's Operating License



An affiliate of NOW Corp. reported that it had secured government approval to continue offering telecommunications services. In a disclosure, the Velarde-led company said the National Telecommunications Commission (NTC) had granted NOW Telecom's request to extend its "authority to install, operate and maintain...mobile telecommunications, data and voice telecom network, trunked radio dispatch communications system, digital trunked radio system, and telecommunications operations." NOW Telecom could also upgrade its system to a nationwide wireless communications network, allowing it to deliver mobile

telephony communications and multimedia transmission capability across the country. It is also looking to prioritizing local government units and agencies for its broadband data transmission services. NOW Corp. President Rodolfo Pantoja lauded the approval, saying this paved the way for a more level playing field. "We have been providing guaranteed broadband to enterprises, including the government sector. We reiterate our belief that at present, there is an insufficiency in telecommunications facilities that can effectively address the needs for day-to-day real time operations, and at the same time provide disaster mitigation during time of emergencies," he said in the disclosure. The NTC's approval comes as the agency's chief expressed skepticism over NOW Telecom's bid to become the country's fourth major telco player after it signed last month a memorandum of understanding with the Philippine Fiber Optic Cable Network Ltd. Inc. on the nationwide rollout of a fiber optic cable network. Philippine Fiber Optic Cable Network is owned by the HyalRoute

Group, a Singapore-based company that offers a shared-communications fiber network. Through this partnership, NOW Telecom intends to offer Fifth Generation (5G) plans and offerings. "There are many players, in the first place. If you talk about mobile, tatlo lang [there are only three]," NTC Commissioner Edgardo Cabarios said on the sidelines of an event in Bonifacio Global City, Taguig City, referring to PLDT Inc., Globe Telecon Inc. and Dito Telecommunity Corp. According to him, the firm's spectrum — "3500 MHz mid-ban" — is limited. "You cannot really compete [with the major players. You're only] hitting [a] niche [market]," Cabarios said. NOW Telecom received in February 2018 a 25-year extension for its congressional franchise, allowing it to operate until 2043. The firm, which had shown interest to become the country's third major telco player, has said it was open to partner with chosen player Dito — formerly the Mislattel Consortium — as it acknowledged the need to forge deals with other industry players in its bid to further boost its presence in the local market.

## MCIT Saudi Arabia Launches 3rd Edition of ICT Competition

Under the patronage of the Ministry of Communications and Information Technology (MCIT), and organization of Huawei international, the third edition of ICT Competition was launched at a ceremony attended by Chen Weiqing, Chinese Ambassador to Kingdom of Saudi Arabia, Mark Xueman, Vice President of Huawei Technologies Co., Dennis Zhang CEO of Huawei Tech. Investment Saudi Arabia Co. Ltd, in addition to representatives from ICT commission, General Institution for Technological and Vocational Training and a number of Saudi universities. The competition, which aligns with the ambitions of Vision 2030 and National ICT Strategy 2023, promotes innovation and creativity. Contestants are tested on their knowledge of cloud computing, switching, routing, and network security. In addition, the competition gets participants up-to-date with the latest technologies such as IoT, AI, Big Data and most importantly 5G, the future technology. The competition comprises three stages: preliminary, national final and international final. The top teams will advance to the national final stage, which will take place in November 2019. The national winners of the competition will not only receive certificates, trophies, and prizes, but will also have a once-in-a-lifetime opportunity to travel to China and gain insider access to a top global ICT company. Dr. Ahmed Altheneyyan, Deputy Minister for Technology and Digital Capacities Development at MCIT, said: “

This initiative comes within the Ministry's strategic plans to qualify human capital in digital transformation as the main pillar and effective tool of development, through an integrated program to develop national cadres, disseminate digital knowledge and create a competitive environment that attracts and stimulates innovation and digital entrepreneurship, which will contribute to the growth of the ICT Sector.” “Huawei's ICT Competition provides a platform that encourages and educates youth in the field of ICT, preparing them to further develop the sector in the Kingdom, thereby increasing its value and potential for the future of Saudi Arabia,” he added. Mark Xueman, Vice President of Huawei

Technologies Co., said: “Working with MCIT for the third edition of the Huawei ICT Competition in Saudi Arabia is an honor. We are proud to once more invite students to participate in this exciting competition, which offers valuable real-life experience opportunities, as well as the chance to win the prize of a lifetime working with Huawei's experts in our China headquarters.” In the 2018 edition of the competition, the team from Saudi Arabia won third place in the final round of the competition, which took place at Huawei's headquarters in Shenzhen, China, a great honor and a big boost for them to score more successes at the regional and international arenas.



## DT Obtains Government Approval for Sale of Telekom Romania to Orange

Deutsche Telekom (DT) has received approval from the Romanian government to sell its stake in Telekom Romania Communications to Orange, reports local business news website Economica, citing sources within the company. Srinu Gopalan, a DT board member, is said to have met communications minister Alexandru Petrescu last week to discuss the deal,

opening the way for a potential deal to be concluded in the coming weeks. DT owns a 54.01% stake in Telekom Romania Communications (formerly RomTelecom) through Greek telco OTE, while the Romanian government via the Ministry of Communications & Information Society (MCSI) controls the remaining 45.99%. In a separate deal, DT is expected to sell

its Romanian mobile subsidiary Telekom Romania Mobile Communications to Bulgarian businessman Spas Rousev, who is reportedly backed by Russian investment funds. Telekom Romania Mobile Communications (renamed from Cosmote Romania in September 2014) is owned by OTE (70.00%), with the remainder held by Telekom Romania Communications.

## Regulator Settles 5G Spectrum Dispute between Telefónica and 1 & 1 Drillisch

The dispute between Telefónica and 1 & 1 Drillisch led to an extra seven week-long delay in the allocation of 5G frequencies. Golem.de reported that the spectrum allocation at the Marathon spectrum auction, which finally concluded on 12 June, having begun in March, had given rise to a disagreement between the two parties. A statement from Telefónica Deutschland said the spectrum allocation for Vodafone and Deutsche Telekom (DT) was clear at the end of the auction in the 3.6GHz (3.4GHz to 3.7GHz) range. Vodafone gained the lower end of the 3.6 GHz spectrum, from 3.4 GHz upward, while DT was awarded the upper range, from 3.7GHz downwards. Telefónica and 1 & 1 Drillisch were left needing to agree

on the exact allocation in the middle range between the frequency blocks awarded to the other two. 1 & 1 Drillisch spent €1.07 billion on 5G frequencies to enable its CEO, the self-made billionaire Ralf Dommermuth, to achieve his dream of founding a fourth German mobile network. In January 2019, after Drillisch said it would enter the spectrum auction and rely on network roaming for national coverage while building out 5G, Reuters commented that Drillisch, "Threatens to shake up a cosy oligopoly that has left Europe's largest economy lagging on connectivity just as the United States, China and South Korea forge ahead on 5G." The dispute over the middle ground caused an additional delay of just under seven weeks.

Telefónica and 1 & 1 Drillisch would not comment on the dispute. A spokesperson for United Internet (which owns 1 & 1 Drillisch), Mathias Brandes, told Golem.de: "We are in talks about a national roaming agreement with network operators and talking to potential partners about grid construction. Once this is done, we can work with grid planning and construction can begin." Telefónica's spokesperson, Guido Heitmann, confirmed the regulator had carried out the final allocation and that that company was satisfied with the decision, and "Based on this allocation, more concrete planning of frequency usage for the further grid expansion is now possible."

## ETSI Demonstrates Latest OSM Release SIX - Gain Hands-On Experience at the ETSI OSM Hackfest

The upcoming ETSI Open Source MANO Hackfest, in Patras, Greece, will showcase and demonstrate the recently announced ETSI OSM Release SIX. New users will gain hands-on experience with OSM, being guided through various functionalities from basic operations - installation and configuration - to more advanced capabilities, such as 5G network slicing and closed loop operation, with a focus on network services, a modelling of virtual network functions and onboarding activities. Experienced users and developers will have the opportunity to build complex examples and experiment with OSM code, fine-tune, test and demonstrate new features over the OSM Remote Labs network. ETSI OSM Release SIX facilitates the management of complex services thanks to the extended capabilities to create network service operations (primitives). It includes support for edge platforms, enabling the delivery of end-to-end service and slice orchestration from the edge to the core, a critical point for 5G networks. In addition, the extension

of its Service Assurance (SA) framework now enables control, storage and reaction to a much wider set of events and conditions. Release SIX also delivers an improved control over orchestration roles with fine-grained control of operations per role and project, and better real-time feedback to the operator. ETSI has led the standardization world in using Plugtests interoperability events and advanced specification techniques to improve the quality of its standards and facilitate the development of interoperable products. "Through these events, specific working tools and an extensive review of our engineering processes, we're onboarding the new generation of telecoms professionals who will expect to work in an agile and innovative way," states Adrian Scrase, ETSI's CTO. A "5G Day" will take place during the Hackfest on 11 September to discuss how ETSI Open Source MANO is enabling key 5G use cases. Advanced media applications such as virtual reality or live ultra-high-quality video transfer will be discussed. Other

topics such as the applicability of several virtualized service functions over vehicular networks and how such platforms can leverage and facilitate test activities for the automotive industry will also be covered. Tata Elxsi, a global digital and technology services provider and an OSM participant and distributor, will showcase an end-to-end service orchestrator solution for the broadcast industry based on ETSI OSM Release SIX at IBC, on 13-17 September in Amsterdam. The ETSI OSM community keeps growing and 20 more organizations, including new service providers, VNF vendors and integrators, have joined the group since OSM Release FIVE. The list includes A10 Networks, Accenture, Adlink Technologies, Aptira, Benu Networks, Easy Global Market, Ecode Networks, Everis Spain SLU, hSenid Mobile Solutions, Hillstone Networks Corporation, NCSR Demokritos, NOS Technology, Optare Solutions, STC Solution, Strikr Systems LLP, Tata Consultancy Services, Telenity, Thinkpalm Technologies Pvt Ltd, Ubitech Ltd, University of Patras, Videotron.

## The GCC e-Government Executive Committee Concludes its 21st Meeting with the Participation of TRA

The 21st Meeting of the Executive Committee of the e-Government of the Gulf Cooperation Council (GCC) concluded in Riyadh, Kingdom of Saudi Arabia, with the participation of the United Arab Emirates represented by the Telecommunications Regulatory Authority (TRA). The participating delegations discussed 13 topics on the agenda of the meeting, in addition to the latest developments in the Gulf region regarding the e-government sector. During the meeting, the GCC representatives reviewed the report of the General Secretariat on the implementation of the Ministerial Committee's resolutions and progress reports on the implementation of the joint initiatives emanating from the e-Government Guidance Strategy, which was developed in recognition of the importance of e-government as a tool for sustainable development to achieve the well-being of the people in GCC countries and its importance in supporting integration among the GCC countries. The E-Government Executive Committee aims to develop e-government at the national and Gulf level, enhance cooperation among the GCC countries, support e-integration between GCC countries and use e-government as a tool for sustainable development and enhance GCC competitiveness in the field of e-government regionally and globally. On this participation, H.E. Salem Al Housani, Acting Deputy Director General for Information and e-Government Sector, said: "The UAE is keen to participate actively in all initiatives and events emanating from the GCC, as it embodies the strong relations that bind the GCC countries, and contribute to the consolidation of security and stability in the region and the well-being of its people. During the meeting, we reviewed the two initiatives of the UAE aimed at enhancing the online presence of the GCC countries, namely the top-level domain (.GCC) initiative to preserve and enhance the Gulf identity, and the GCC portal initiative to meet the aspirations of the GCC citizens. We are keen to activate the portal in line with international best practices on the one hand, and to enhance the level of the GCC countries e-presence



on the other." The meeting discussed the initiative to develop the GCC portal, which was launched by the UAE. The discussions included the development of the portal using the UX Lab at the UAE Centre of Digital Innovation (CoDI), in addition to simplifying the steps to obtain information, developing the portal design in line with the latest international developments, activating e-participation on the portal and including participation topics such as e-advice, blogs, enriching the portal with success stories and Gulf experiences in digital transformation projects and digital governance services, and developing and updating digital content according to a joint GCC mechanism. The meeting led to the approval of the feasibility study for the GCC top-level project submitted by the UAE. The study has taken into account the global developments and the requirements of "ICANN" in the registration of the domain, focusing on the possibility of investment in the .GCC domain. The project aims to create a generic top-level domain on the Internet that represents and strengthens the Gulf identity in the field of information technology, contributes to the development and dissemination of GCC websites, offers new options to the GCC Internet community, and supports online innovation. The meeting also discussed the Secretariat's memo regarding the MoM

of the 16th Meeting of The GCC Committee of National Centers for Computer Emergency Response. The discussions included a review of the Executive Plan for the GCC Cybersecurity and Safety Strategy, an update on the "IP Reputation" system developed by the UAE, the data leakage protection service, sharing of information and methods of Cybersecurity, and new Cybersecurity newsletters. During the meeting, the MoM of the Public Key Infrastructure Working Group meeting was reviewed, which included determining the requirements and action plan necessary for the use of digital certificates, setting the coordination mechanism between the GCC national centers of digital certification, compatibility of e-signature systems and standards among the GCC countries, and the trust lists approved for digital certification service providers. The UAE gave a video presentation that reviewed the list of trusts for digital authentication providers within the country, and the services that the list will provide to regulate and increase the reliability of electronic transactions. The meeting discussed the outcomes of the first meeting of the Unified Software and Hardware Procurement Team. It focused on reviewing the experiences of the GCC countries in the areas of general framework agreements and the need to benefit

from the services associated with the framework agreements, such as increasing the number of consultancy hours and free training courses, reducing the operational cost and localizing the services provided. Additionally, it discussed the investment revenues of the framework agreements and accompanying services. The participating members thanked the United

Arab Emirates for sharing the names of the programs used to measure the actual consumption of products and services. The meeting also discussed the integration of the common e-services in the GCC countries through the GCC e-government network on a unified platform to be defined in each of the GCC countries, and the addition of the agreed e-services links

on the GCC e-government portal. They also discussed the system of identity verification in the GCC countries, the service of establishment and management of commercial activities owned by GCC nationals, the service of navigating through e-portals, the exchange of traffic violations in the GCC countries, and the retirement and pension services in the GCC countries.

## FCC Proposes \$950 Million for U.S. Virgin Island, Puerto Rico Broadband Fund

The FCC said that it will vote later this month on a proposal to make \$950 million available to rebuild broadband networks that were "devastated" by Hurricanes Irma and Maria in 2017. According to a press briefing by FCC officials, the plans – spearheaded by FCC Chairman Ajit Pai – call for separate funds for mobile and fixed service and for a separate Virgin Island and Puerto Rico broadband fund. Officials said plans include shifting funding from traditional high-cost Universal Service Fund (USF) programs for the islands, which would be phased out. Additional funding also would be provided through the USF high-cost program, the officials said. They noted that the program is funded by service providers but did not specify whether the extra funding would come by reducing funding for other program recipients or increasing the contribution factor used to calculate service provider contributions.

### FCC Puerto Rico Broadband Fund

The FCC proposal for Puerto Rico would allocate \$510 million over 10 years for fixed broadband and \$254 million over three years for mobile broadband. The U.S. Virgin Islands would receive \$186 million over 10 years for fixed broadband and \$4 million over three years for mobile broadband. Funding for fixed providers in Puerto Rico would be awarded based on proposals submitted by the providers that would consider price, network performance and network resiliency and redundancy. Providers would have to deploy service supporting speeds of at least 25 Mbps downstream and 3 Mbps upstream. Proposals to provide service at either of two higher speed tiers would be favored, with proposals to provide gigabit speeds having the most favored status, followed by proposals to provide 100 Mbps service. Proposals to provide lower-latency service also would be favored, as would proposals to provide more reliable service by, for example, using buried rather than aerial fiber. In addition, proposals requesting a lower level of funding overall would have priority. Proposals would be made to provide service throughout a municipio, of which there are 78 in Puerto Rico. Providers would be required to make service available to every home and business within a municipio.



### U.S. Virgin Islands, Mobile Broadband Fund

Funding for fixed providers in the U.S. Virgin Islands would be awarded in a similar manner, but that territory would be divided into just two geographic areas – one including St. Croix and the other including St. Thomas and St. John. Mobile broadband funding for Puerto Rico and the U.S. Virgin Islands would be allocated to service providers based on the number of subscribers the providers served as of June 2017. Providers would be allowed to use up to 75% of funding on LTE networks and up to 25% of funding for 5G networks supporting speeds of at least 35 Mbps downstream and 3 Mbps upstream. The proposal outlined today appears quite similar to one that Pai made last year. The chairman may have reasoned that with the nation's attention focused on the current Hurricane Dorian, this would be a good time to formalize the proposal for Puerto Rico and the U.S. Virgin Islands. Today's FCC press release notes that the proposed \$950 million for Puerto Rico and the U.S. Virgin Islands is in addition to \$130 million in extra funding that the commission previously provided to restore hurricane-damaged networks in those islands since 2017.

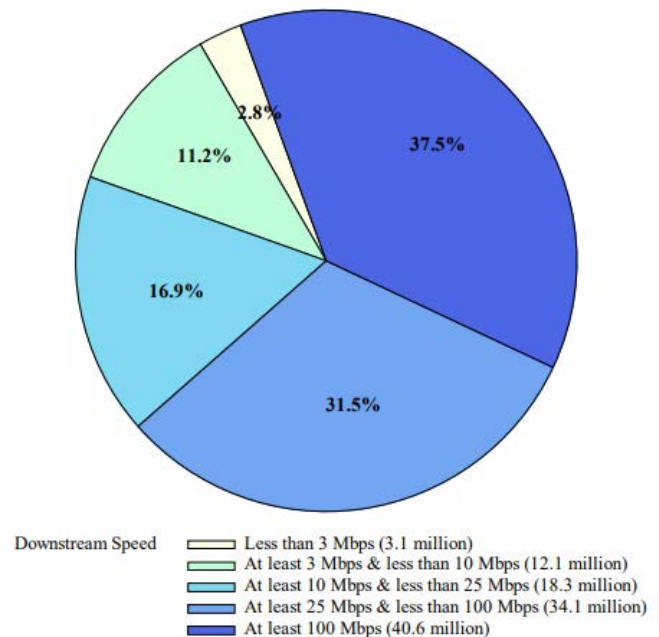
## Latest National Broadband Data from FCC Finds Median U.S. Internet Speed of 60 Mbps

The median U.S. internet speed was 60 Mbps downstream and 5 Mbps upstream as of December 31, 2017, according to a report released this month from the FCC. More than two-thirds of internet customers (69%) subscribe to service at speeds of at least 25 Mbps, including 37.5% who subscribe to service at speeds of at least 100 Mbps, the commission said. The December 2017 data apparently was the most recent available when the FCC did its analysis, which is summarized in the report titled "Internet Access Services: Status as of December 31, 2017." The data is obtained from FCC Form 477 data. The percentage of customers taking higher speed service has been steadily increasing in recent years. As of December 2014, only 44% of customers subscribed to service at speeds of at least 25 Mbps, of which only 9.5% subscribed to service at speeds of 100 Mbps or higher. Conversely, the percentage of customers taking the lowest speed services has been decreasing. As of December 2017, only 2.8% of internet customers subscribed to service providing speeds of less than 3 Mbps, down from 7.9% in December 2014. While some industry observers argue that mobile subscribership has reached a plateau, the growth rate in mobile internet subscribers is higher than that for fixed internet subscribers, according to the FCC. The report found a 4% overall growth rate in internet connections between December 2016 and December 2017, including 4.5% growth in mobile internet connections and 2% growth in fixed connections. Total fixed internet connections were 108 million and total mobile internet connections were 313 million as of December 2017, the FCC said. The number of residential fixed internet connections per 100 U.S. households was 75 as of June 2017, according to the commission.

### Other interesting data points from the new report:

Cable modem was the most popular fixed broadband technology, representing 62.3% of connections over 200 kbps, followed by

Distribution of Fixed Connections (108.2 million) by Downstream Speed as of December 31, 2017



DSL (21.9%) and fiber-to-the-premises (FTTP – 12.9%).

The FCC identified more than 1100 service providers offering FTTP and more than 700 offering DSL. In comparison, there were less than 400 providers using cable modem technology and less than 100 offering mobile wireless.

The high number of FTTP providers illustrates the impact of the nation's smaller rural carriers, many of whom have deployed FTTP, along with the impact of competitive providers such as Google Fiber, that have deployed FTTP.

## First 5G 3.5GHz Test Permit in North Netherlands Issued, Although Limited to One Indoor Location

5G application testing venture 5Groningen has secured the first test permit for 3.5GHz 5G spectrum in northern Netherlands, where the frequency band is currently reserved for military/intelligence usage. Due to the restrictions, 5Groningen has only been granted permission for using the 3.5GHz spectrum in one specific indoor location, the organization disclosed on its website. The permit was issued to Economic Board Groningen (EBG) by the Dutch frequencies regulator Agentschap Telecom after lobbying by MPs led to 5Groningen being granted an exception

by the State Secretary for Economic Affairs, Mona Keijzer and the Minister of Defence, Ank Bijleveld. TeleGeography notes that allocation of the 3.5GHz band for 5G mobile services is currently not permitted due to the spectrum's usage by the satellite traffic interception station in Burum (Friesland province) – operated by the Joint Sigint Cyber Unit (JSCU) of the General Intelligence & Security Service (AIVD) and Dutch Military Intelligence & Security Service (MIVD) – which prevents commercial utilization of 3.5GHz spectrum in northern Netherlands (all areas above

an imaginary line between Amsterdam and Zwolle). In December 2018 the government proposed to relocate the JSCU satellite station to an as-yet undecided European country, with Mona Keijzer stating the move was essential for 5G development. In June 2019 the State Secretary confirmed the goal of launching a 3.5GHz 5G mobile license auction by the end of 2021 or early 2022, adding that the government would 'provide more clarity about the solution' for the 3.5GHz issues later in 2019.

## ITU Telecom World 2019 Highlights Tech Innovations Improving Lives

A host of life-changing innovations were highlighted at the lively Awards Ceremony, which marked the close of four busy days of showcasing, networking and debates at ITU Telecom World 2019. Award winning innovations from SMEs, governments and major corporates came from areas as diverse as online education, 5G airships and drones, green 5G, digital addressing, transforming digital heat from datacenters, nanosatellites and enabling barrier free emergency calls. Winners and finalists in several categories were presented with trophies and certificates by ITU Secretary-General Houlin Zhao in the presence of government ministers, industry leaders, representatives of media and other high-level delegates from across the globe. The Global SME Excellence winner was announced following action-packed live pitching from finalists in the Awards Ceremony itself. "ITU is delighted to announce the Award winners here in Budapest, where the Awards, along with other international services to SMEs, were first launched at ITU Telecom World 2015," said ITU Secretary-General Houlin Zhao. "Since then, we have watched this platform grow, support and promote examples of tech for good. This week we have showcased and explored the products and solutions that can change lives and make connectivity truly meaningful. With our ITU Telecom World Award winners, we now recognize another fresh crop of innovators, who I hope will now go forth and take their business onto the global stage."

The Awards comprised:

**Global SME Awards:** recognizing the best innovative ICT-based solutions with social impact from SMEs present at the event in five classes – Best business model; Most innovative use of ICT; Greatest social impact and Most scalable solution. The Global SME Excellence Award was awarded to the SME with the highest all-around score.

**Global Industry Awards:** for the most promising innovative solutions with social impact in the areas of digital inclusion and principles, meaningful connectivity. Solutions and sustainable impact, as selected by a specially-convened expert jury.

**Government Award:** awarded to the National Pavilion with the most promising innovative SMEs.

**Host Country Awards:** recognized the best and most innovative SME or solutions at the event from Hungary, the event host.

All SMEs in these categories underwent a rigorous application and selection process, with an external jury of social entrepreneurship and tech experts assessing each entrant on the basis of business model, scalability, innovation and social impact. Those shortlisted for the Global SME Awards were invited to take part in a quick-fire pitching sessions in front of an expert jury, during the event, as well as benefit from an SME Program of workshops, capacity building, pitching sessions, SME-focused Forum sessions. Also among the SME pitchers, joining an

ITU Telecom World Event for the first time, were the EQUALS Fellowship winners, 24 talented female entrepreneurs from developing countries around the world who exhibited on the showfloor, pitched their innovative solutions and took part in the SME Program.

### AWARD WINNERS

**Global SME Excellence Award:** Winner – Immersion4, Switzerland

**Best Business Model:** Winner – Vokacom, Ghana

**Most innovative use of ICTs:** Winner – Immersion4, Switzerland

**Greatest social impact:** Winner – UX Information Technologies, Mozambique

**Most scalable solution:** Winner – Prime Molecular Technologies Africa, South Africa

### ITU Telecom World Industry Awards Winners and projects

**Digital Inclusion & Principles:** Ruangguru App, the largest tech-enabled education provider in Southeast Asia, providing a better, accessible and more affordable alternative to quality learning for students and teachers.

**Meaningful Connectivity Solutions:** KT 5G Skyship, a disaster safety specialized platform integrated with the world's first 5G, unmanned airship and drone technology.

**Sustainable Impact:** Huawei, Green 5G Power to boost climate action. The project innovates technologies that reduce energy consumption by up to 20%.

**ITU Telecom World Government Award:**





Winner – Mozambique

#### ITU Telecom World Host Country Awards:

Winner – Tressorit, Hungary

Highlights of the Forum Summit, ministerial roundtables and panel discussions at ITU Telecom World 2019 included:

A ministerial roundtable on the role of government in deploying the fifth generation of mobile technologies - 5G - and other high-capacity network concluded that each country should have its own strategy to ensure their people have affordable access to mobile broadband communications. There is no one-size-fits-all formula. Policy-makers and regulators have a key role to play in defining this strategy.

Radio technologies play a central role in meaningful connectivity, and global harmonization of the radio-frequency spectrum is vital for efficient use and economies of scale. A dialogue of regulators concluded that governments and industry needed to strengthen partnerships and use a mix of both incumbent and innovative terrestrial and space services to provide connectivity not only to urban areas, but also rural

and less populated areas. The upcoming World Radiocommunication Conference 2019 will find solutions to the shared use of limited radio-frequency spectrum in the centenary spirit of consensus. A session on new radiocommunication technologies provided an overview of innovative ways to provide affordable connectivity to all. These include high-altitude platform systems (HAPS), small satellites and non-GSO satellite systems.

The 'Smart ABC' program shared insight into the latest advances at the intersection of artificial intelligence, banking and smart cities.

ITU is developing the global standards for IMT-2020 which are expected to define "5G" in 2020. Industry preparations for IMT-2020 dominated the debate at a meeting of Chief Technology Officers.

The 'Smart Incubator' program brought together start-ups from developing countries to discuss how international standards support business growth.

Disasters kill at least one million people each decade and leave millions more homeless. When disasters strike, such as Hurricane Dorian, they have an immediate

and devastating effect on the lives of people. ITU joined the Crisis Connectivity Charter, a mechanism created between the satellite industry and the wider humanitarian community, to improve coordination and enhance disaster response and preparedness through emergency telecommunications. Satellite communications are often used for rescue and relief operations as well as in vital life-saving responses, since they remain as a resilient solution even when terrestrial communications have been severely damaged.

ITU, in partnership with Cisco, launched the Digital Transformation Initiative to equip people with the skills needed to effectively participate in today's digital society and economy and accelerate digital transformation.

The winners of the ITU Innovation Challenge and the 24 female entrepreneurs who made up the first-ever EQUALS delegation at Telecom are making a positive impact in their communities and throughout the world through their tech and tech-related enterprises.

## Malaysia Regulator Changes Tune to Spur Competition

The Chairman of Malaysia's communications regulator credited progressive legislation and operators for fuelling a rapid national transformation, from being an internet laggard into one of Southeast Asia's most competitive markets. In a report released in September 2018, World Bank slated Malaysia for lagging in broadband coverage and adoption, along with a lack of competition because a single provider held a high market concentration. Al-Ishsal Ishak, Chairman of the Malaysian Communications and Multimedia Commission (MCMC), said it and the industry acted quickly, releasing a National Fiber and Connectivity Plan, and setting up a 5G task force a month later. In the three quarters to end-June, fiber access

prices fell 48 per cent, uptake increased 21 per cent, and operators introduced higher-speed mobile and fixed broadband packages. Despite the sharp price reductions, the total market capitalization of five telecoms companies in the country increased 25 per cent between October 2018 and August 2019. "We've proved in one year that nothing is impossible," he said, adding the government now sees internet access is not a privilege or a luxury, but a necessity and an economic driver. "This is the first step and we need to learn. But we are well on the way." The 5G task force will submit a final report to the ICT minister in the last quarter of the year. The timeline for commercial 5G launches is 2021 or 2022, with plans to

start a 5G testbed and showcase in Q4 2019, which will run for six months. A priority for the fiber plan was to accelerate network deployments. Top of the list was optimizing spectrum allocation to enable introduction of high-speed services. The regulator is exploring assignments in six bands, and will start a public inquiry for the 700MHz, 2300MHz and 2600MHz bands in Q4. Ishak said the average processing time for a tower approval is four-to-six months, with an average of 20 forms to complete and a fee of \$2,000 per tower. The country has 150 local governments and 15 states, one of which charges \$16,000 in fees per site.

## Swiss Regulator Clears Sunrise Move for UPC

Sunrise scored a win in its troubled move to acquire Liberty Global's cable operator UPC Switzerland, after its domestic competition authority gave the deal a green light. In a statement, the Swiss competition commission explained the tie-up "does not create or strengthen a dominant position" in any of the markets where the companies operate, even though it will make Sunrise the second-

largest operator in Switzerland. It added the companies "complement each other in many areas", noting the acquisition would beef up Sunrise's ability to compete with market leader Swisscom by offering "landline, broadband internet and mobile services" along with digital TV "on its own infrastructure". In a statement, Sunrise CEO Olaf Swantee said the clearance was "an important milestone" on the road towards

creating a new, converged, operator. The approval will be welcome relief for Sunrise, which is embroiled in a spat with its largest shareholder, Freenet, over the terms of the CHF6.3 billion (\$6.3 billion) deal. With regulatory hurdles cleared, Sunrise noted the next step will be a shareholder meeting scheduled for 23 October. It expects to close the transaction by end-November.

## NCC Vows to Protect Telecoms Consumers against Cybercrime

The Director, Consumer Affairs Bureau, Nigerian Communications Commission (NCC), Mrs. Felicia Onwuegbuchulam said the commission is more than determined to protect telecoms consumers from cyber criminals in the country, adding that it has evolved measures to achieve this. Onwuegbuchulam, who made the disclosure at the 53rd Consumer Town Hall meeting of the commission held in Oyo, also said the theme: "Mitigating Effects of Cybercrimes: The Role of Telecom Consumers," was aimed at informing and educating consumers on the roles required of them in mitigating cybercrime. Represented by her deputy, Alhaji Ismail Adedigba, she said the NCC evolved the initiative to identify, discuss and jointly proffer effective solutions to different issues affecting telecoms consumers in the country. According to her, "As a tripartite program, the forum aims to, on a continuous basis, engage telecoms consumers by educating, informing and empowering them with information they need to know, their rights when violated by the service providers. "Since we started organizing this event some years back, we have treated different thematic topics, which have produced key resolutions that have been communicated to service providers for implementation. "Indeed, this has helped to guarantee improved services and value for money spent on telecom services for the consumers. Telecom consumers have been the ultimate beneficiaries of the initiatives." She added

that the theme of the event was aimed at highlighting the threats of cybercrime to users of telecoms services and to sensitize them on the role they needed to play against the preying eyes of cyber criminals and hackers. Onwuegbuchulam stated further that consumers were important stakeholders in the current cyber space, noting that individuals and corporate users of telecom devices often make use of internet in the connected world. "it is our belief as a commission, that without consumers becoming aware of cybercrime trends and making efforts to ensure safe use of connected devices, cyber criminals will continue to make cyberspace unsafe. "Our belief is that the most effective ways to protect telecom consumers from effects of cybercrime is through continuous consumer education and awareness such as the one we are having here today," she said. She maintained that the commission had embarked on various initiatives to increase access to the internet for Nigerians, adding that they are conscious of dishonest individuals using the internet for illegal activities. "The hackers and cyber criminals deploy sophisticated systems to intrude into your connected devices as telecoms consumers to perpetrate their exploitation schemes. Cybercrime is on the increase. The commission is committed to using its various outreach programmes to embark on series of awareness campaigns with a view to keeping consumers well informed on the risks associated with being online," she said. Adedigba, in his personal

address, said the town hall meeting (CTM) was to bring together telecoms consumers in the rural and semi-urban areas, adding that such was to bring them together with service providers as well as the regulator for a face-to-face interaction on telecom issues affecting the consumers. According to him, "This was organized to sensitize telecoms consumers on the rising wave of cybercrime in its various forms, the dangers it poses and the role, which telecoms consumers are expected to play in reducing the impacts of cybercrimes on them. "Let me emphasize at this juncture that while the regulatory intervention and other initiatives are ongoing to sanitize our internet space, telecoms consumers must play their response. Thus, the need for you all to take this meeting seriously as we educate you on what your roles should be in minimizing the effect of cybercrime." The Alaafin of Oyo, Oba Lamidi Adeyemi, lauded the NCC for educating the people on cybercrime, its various forms, the dangers it poses and the role expected of consumers in mitigating such danger. The monarch, who was represented by the Bashorun of Oyo, Chief Yusuf Ayoola, called on NCC to make the interface regular so as to reduce cybercrime drastically in the society. He also warned the youths to shun criminal activities among which is cybercrime, urging them to embrace honesty, patience and hard work, which he said, were hallmarks of the Yoruba.

## Yemen Telecom Ministry renews the License of SabaFon Mobile Company for Two Additional Years

A press release issued by the Ministry of Communications and Information Technology indicated that Eng. Misfer Abdullah Al-Numair, Minister of Communications and Information Technology, signed the agreement to renew the license of SabaFon Mobile Company for the years 2020-2021 as a final period for the work of the second generation technology during which the transition to the fourth generation. The statement said that the renewal of the license granted to the company came after several meetings with the company and under an official request submitted by SabaFon Company to renew the license of the second generation and application for a license to operate the fourth generation, which the company submitted to the ministry last June. Eng. Misfer Abdullah Al-Numair, Minister of Communications and Information Technology, pointed out the importance of this agreement for SabaFon to give it the opportunity to move to 4G technology and develop its operating

systems and enhance and expand its services. And the license has been renewed for the company as a licensed legal company and one of the mobile operators and telecommunications services. Al-Namir pointed out that the ministry deals with all mobile phone companies in the Republic of Yemen with one mechanism and without discrimination. The Minister urged SabaFon and all licensed telecommunications companies to expand their coverage and maintain and replace the stations and towers that were destroyed by the aggression in order to improve and improve the communications services provided to citizens in all governorates of the Republic, thus reducing the poor coverage and the low quality of telecommunications services suffered by them. Citizen, noting the role provided by all telecommunications companies in order to continue to provide communications services to Yemeni citizens in various governorates of the Republic in light of the aggression and siege. He also

called on the world and all international community organizations, especially the United Nations and the international telecommunication authorities, to assume their moral responsibility and intervene immediately to stop the destruction of the telecommunications sector and systematically target towers, networks and telephone exchanges. Developing its services and moving towards 4G technologies over the past five years. We also call on them to raise the urban imposed on civil-use communications equipment as essential services affecting the lives of civilians and daily life, and a right guaranteed by the covenants. Human rights and international laws. According to the agreement signed by SabaFon Chairman, the company was granted a renewal of the mobile license for two years until the end of 2021 for the second generation as a final period for this technology to move to the fourth generation in line with the technological developments.

## Mobile Operators to Disclose Their Impact on Climate

Many of the world's largest mobile operator groups have agreed to start disclosing their climate impacts as part of a new initiative led by the GSMA. More than 50 mobile operators – which together account for more than two-thirds of mobile connections globally – are now disclosing their climate impacts, energy and greenhouse gas (GHG) emissions via the internationally recognized CDP global disclosure system. The move will enable full transparency for investors and customers involved in the mobile sector, the GSMA said, noting that many of the companies are disclosing for the first time. The next step will see the development of a decarbonization pathway for the mobile industry, aligned with the Science-Based Targets initiative (SBTi), to be in place by February 2020. This will include the development of an industry-wide plan to achieve net-zero GHG emissions by 2050 in line with the Paris Agreement. Mats Granryd, Director General of the GSMA,

said, “[This] announcement marks the start of a collaborative action by the mobile industry to tackle the climate emergency, demonstrating how the private sector can show leadership and responsibility in addressing one of the gravest challenges facing our planet. “The mobile industry will form the backbone of the future economy and therefore has a unique opportunity to drive change across multiple sectors and in collaboration with our suppliers, investors and customers.” Paul Simpson, CEO of CDP, said that through the disclosures, “mobile operators will be able to measure and understand their environmental impact, helping them to build sustainability into the heart of their businesses.” GSMA operator members that are disclosing via CDP include América Móvil, AT&T Inc., Axiata Group, Bell Canada, Bharti Airtel, BT Group, China Mobile, China Telecom, China Unicom, Chunghwa Telecom, Deutsche Telekom, DNA Plc, Elisa Corporation, Far EasTone, Globe Telecom, Inmarsat, KDDI

Corporation, KPN, KT Corporation, LG Uplus, Magyar Telekom, Millicom International, MTN Group, MTS, NTT DOCOMO, Oi Móvil, Orange Group, Proximus, Reliance Jio, Rogers Communications, Singtel, SK Telecom, SoftBank Corp., Spark New Zealand, Sprint Corporation, StarHub, STC, Sunrise, Swisscom, T-Mobile USA, Taiwan Mobile, Tele2 AB, Telecom Italia, Telefónica, Telekom Austria, Telenor Group, Telia Company, Telkom SA, Telstra Corporation, TELUS Communications, TIM Brasil, True Corp., Turkcell, Verizon, Vodacom Group, Vodafone Group and Zain Group. The GSMA said the new pathway will help mobile operators set their own targets faster. However, it noted that the timescale at which individual companies reach the target will depend on a number of factors, including their geographic location and their ability to access renewable energy. The GSMA expects that some companies will meet the net-zero target significantly ahead of the 2050 deadline.

## GSMA Slams Impact of High Spectrum Fees

Research by the GSMA found a direct correlation between high spectrum prices and reduced network quality and availability, with millions said to be left unconnected due to regulators' policies. In the scathing report published by the organization's analyst arm GSMA Intelligence (GSMAi), experts found strong links between high spectrum costs, rates of deployment and quality of 3G and 4G networks in both developing and developed markets. The organization used data from

auctions held across 64 markets between 2010 and 2017 before assessing the availability and quality of related services. In both developed and developing markets, it concluded higher spectrum costs played a significant role in slowing network rollout and drove long-term reductions in network quality. GSMAi found in countries with the highest spectrum prices, the average 4G network covered 7.5 per cent less of the population compared with those where operators paid average prices. Brett


Tarnutzer, Head of Spectrum at the GSMA, said: "Spectrum auctions can't be viewed as cash cows anymore. Any government that prices spectrum to maximize revenue now does so with full knowledge that its actions will have negative repercussions on citizens and the development of mobile services." "We now have clear evidence that shows by restricting the financial ability of operators to invest in mobile networks, millions of consumers are suffering."

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## Government of Djibouti to Update Cybersecurity Legislation

The government of the Republic of Djibouti plans to improve and strengthen its Cybersecurity legislation as part of a wider policy to cement information and communication technologies as a key pillar of its future economic growth. In a meeting last month, the Ministry of the

Interior discussed new measures that are expected to become the foundations for a new legal framework. Minister of the Interior Moumin Ahmed Cheick told delegates that 'for any nation, it is an issue of national sovereignty. Because the security of the state's information

systems, the continuity of the functioning of institutions and vital infrastructures for the socio-economic activities of the country, the protection of businesses and citizens are entirely threatened by the scourge of cybercrime'. 

## A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



### Afghanistan

The first ever Information and Communication Technologies (ICT) exhibition to bolster up information technology progresses has been lunched in Kabul. The exhibition was for three days in Continental Hotel that held by the Siam Event and Business Development Center and Ariana ICT in partnership with Ministry of Telecommunication and Information Technology (MTIT), Ministry of Commerce and Industries (MoCI), Etisalat-Afghanistan, Afghanistan Chamber of Industries and Mines (ACIM), International Chamber of Commerce–Afghanistan (ICC), Afghanistan Telecom Regulatory Authority (ATRA) with the Media support of Moby Group. The sectors were participated in this events were included ISP, Telecommunication, Banks Insurance Companies, IT, Universities –Computer Science Facilities, Cyber Security Electronic Companies, Chambers, Online

Stores, Software Companies, Website, Application, and Database Developers, Soft Skills Training Consultancies, Startups. Afghan and Iranian companies put on display their innovation and products in 60 booths. Deputy for International Chamber of Commerce of Afghanistan, Hujatullah Fazli said running of this exhibition is aimed to foster investment in information technology in the country and help domestic companies for further progress. 'Nowadays information technology plays a crucial role during routine life in the society, so such exhibition is sign of struggle to pave the ground for private sectors in the aspect,' he added. Iran Ambassador to Kabul, Mohammad Reza Bahrami has voiced pleasure over running of joint exhibition, saying this is the 'first time that we organize exhibition in a new section' in Afghanistan.

(September 4, 2019) menafn.com



### Bahrain

Telecommunications Regulatory Authority (TRA) Bahrain announces the publication of its Q2 Market Indicators Report for 2019. The report shows that the number of broadband subscriptions reached to 2.34 million subscription at the end of the second quarter of 2019, with an increase of 9% compared to the second quarter of 2018. Broadband penetration rate in Bahrain reached to 156% compared to 143% for the same period of the last year. Data consumption increased to 18% compared to the same period of the last year. The average monthly data consumption in fixed wired broadband reached to 192 GB per subscription while fixed wireless broadband reached to 117 GB per subscription and Mobile standalone usage per subscription is stable at 19 GB. With regard to mobile services, the number of mobile subscriptions is beginning to stabilize at 2.08 million subscribers at the end of

the second quarter of 2019 with a penetration rate of 139% after seeing a downward trend since the beginning of 2017 due to the change in consumer behavior in terms of usage and mobile operators' change of some components of available packages. With regard to outgoing voice calls, mobile voice traffic continue its decline as it declined by 14% compared to the second quarter of 2018. Fixed Telephony Line subscriptions increased slightly compared to the end of the last year, while the fixed wireless telephony services dropped by 9.26%, however, the fixed wired telephony increased by 1.92%. Fixed domestic calls remain stable between the first quarter of 2018 and the second quarter of 2019, while international fixed line calls dropped by 25.67% between the second quarter of 2018 and the second quarter of 2019.

(September 16, 2019) tra.org.bh



### Bangladesh

With addition of nearly 7 million new users in the first eight months of this year, the total number of Bangladeshi Internet users reached over 98 million at the end of August, the statistics of the country's telecom regulator showed. Telecommunication

Regulatory Commission (BTRC) data showed that the number of subscribers in the country reached 98.136 million. Of the total subscribers, the BTRC data showed that there were 92.361 million mobile Internet and 5.735 million broadband Internet

users in the country while the rest of the connections are through WiMAX. The country's cellphone companies in the first eight months of this year saw nearly 5.59 million new users to take the total subscribers base to 162.583 million at the end of last month. Bangladesh has currently four mobile companies, three of which are foreign-backed cellphone operators. The number of subscribers of the mobile operators, Grameenphone, Robi Axiata, Banglalink and Teletalk stood at 75.619 million, 47.760 million, 34.817 million and 4.387 million respectively at the end of August, BTRC data showed. (September 23, 2019) xinhuanet.com

The Finance Minister Mustafa Kamal has stepped in as a mediator in the drawn-out conflict between telecoms regulator the Bangladesh Telecommunication Regulatory Commission (BTRC) and mobile operators GrameenPhone (GP) and Robi. Following meetings with representatives from GP, Robi, the National Board of Revenue and the BTRC, Mustafa Kamal told reporters: 'We will resolve this [issue] within the next two-three weeks ... If we continue with our claims, a resolution will take a long time and that will hamper the mobile operators' business and restrict our revenue growth too.' Earlier this year the regulator requested that the duo pay dues totaling BDT125.80 billion (USD1.46 billion, GP) and BDT8.67 billion (Robi), which were detected in audits and are currently disputed by the two operators. The cellcos had demanded an arbitration, but the BTRC denied the request, claiming that legislation did not allow it. Due to the impasse with the BTRC, the two operators are currently banned from getting approvals for new services and packages and cannot import equipment to maintain their networks. In July 2019 the BTRC slashed GP's bandwidth by 30% and Robi's by 15% for the non-payment of the dues, but the block was lifted by mid-July as it was causing issues to subscribers. Further, the BTRC threatened GP and Robi with cancellations of their 2G/3G concessions if the requested sums are not settled, prompting GP and Robi to file cases with a Dhaka court, seeking permanent injunctions against the telecom regulator's audit claims. (September 19, 2019) The Daily Star

The Bangladesh Telecommunication Regulatory Commission (BTRC) has sent out notices to GrameenPhone (GP) and Robi

Axiata warning the duo that their 2G and 3G concessions could be cancelled in lieu of their unwillingness to pay dues totaling BDT125.80 billion (USD1.46 billion) and BDT8.67 billion, respectively, which were detected in audits and are currently disputed by the two operators. GP and Robi have been given 30 days to respond to the notices, with GP saying in a statement: 'This notice is unjustified and yet another step by the regulator to refuse our invitation to seek an amicable solution related to a disputed audit claim ... We will take necessary measures to protect the rights of the company, our shareholders and customers against unwarranted actions by the regulator.' Due to the impasse with the BTRC, the two operators are currently banned from getting approvals for new services and packages and cannot import equipment to maintain their networks. In July 2019 the BTRC slashed GP's bandwidth by 30% and Robi's by 15% for the non-payment of dues, but the block was lifted by mid-July as it was causing issues to subscribers. (September 10, 2019) telegeography.com

The Bangladesh Telecommunication Regulatory Commission (BTRC) has published its draft guidelines on the licensing of cellular services, which aim to unify the mobile concessions of operators in order to reduce 'operational complexities'. A senior BTRC official was quoted as saying: 'The purpose of the draft guideline is to reduce the complexity for both the operators and the regulator ... There is no point having separate licenses now for 2G, 3G or 4G. It requires additional manpower and man hour causing extra financial involvement.' Currently, each mobile operator has to maintain one generic license for operating a mobile service, in addition to two licenses for 2G services (expiring in 2026), two for 3G services (2028) and two for 4G services (2033). Under the proposed guidelines, mobile operators would be allowed to provide nine types of services including 2G, 3G, and 4G, under one concession; the unified license will come into effect from the date of license issuance and remain valid till 18 February 2033, subject to the renewal of spectrum. An annual license fee for the single license has been proposed at BDT100 million (USD1.16 million), along with a 5.5% share of annual revenues and 1% contribution to the social obligation fund. (September 2, 2019) The Dhaka Tribune



Egypt's National Telecom Regulatory Authority (NTRA) has announced the signing of settlement agreements with three of the nation's mobile network operators (MNOs), which it said: 'aims is to resolve the disputes that lasted for ten years as a result of the appeal of some mobile operators before the judiciary'. In a press release outlining the development, the NTRA said that the agreements would draw a line under the legal battles related to interconnection rates. The regulator noted that the individual agreements had come about after Associate Minister for Networks and ICT infrastructure, Hossam El-Gamal, conducted 'intense' meetings with Orange Egypt, Vodafone Egypt and Etisalar Misr,

with a view to reaching a resolution to the ongoing disputes that would satisfy all parties. Meanwhile, the NTRA's Acting Executive President, Mustafa Abdel-Wahed, stated that the agreements have been made within the framework of implementing NTRA functions that are provided for within the Telecom Act (Law 10/2003). He added that rules have also now been established for future work regarding interconnection rates, including an agreement between MNOs to present interconnection rates that they have agreed upon to the NTRA, which would then be subject to the regulator's approval.

(September 11, 2019) telegeography.com

## Egypt



## Jordan

The revenues of the telecommunications and information technology sectors by the end of 2018 reached US\$2.2 billion, marking a 4.5 per cent growth rate for the two sectors combined, the ICT Association of Jordan announced. According to an [email protected] survey, \$1.42 billion of revenue was attributed to the telecommunications sector, with a growth rate of 1.5 per cent, and \$750 million in revenue to the IT sector, that grew by 10.7 per cent, attributing this increase to tax incentives endorsed in 2016. The survey was based on data [email protected] collected from ICT companies in the Kingdom, and showed that Jordan is still a strategic destination for ICT sectors in the region, the Jordan News Agency, Petra, reported. A total of 17,698 employees worked for the ICT sectors in 2018, without any change in the number when compared to 2017, [email protected] said, noting that the sector witnessed "strong" female participation, as opportunities for women increased by 3 per cent. Males occupy 67 per cent of the total jobs in the sector. As for exports, the IT sector's exports in 2018 totaled \$262 million, where the Gulf Cooperation Council countries and Iraq amounted to 60.5 per cent of the sector's exports, while local revenues stood at \$487 million, which means that 65 per cent of the revenues were generated from the local economy, according to Petra. The association said that despite the 19 per cent increase in local IT revenue in 2018, the sector's growth rate in revenue went down by 2.2 per cent. The investment volume in the telecommunications sector went down in 2018 by 9.5 per cent to \$192 million, Petra reported.

(September 22, 2019) jordantimes.com

The Telecommunications Regulatory Commission (TRC) said that Jordan is preparing to introduce the 5th generation cellular network (5G) technology in a move that aims to make the Kingdom a frontrunner in bringing advanced services to the market. Chairman of the TRC, Ghazi Jabour, said the commission spoke to the country's three mobile telecommunications service providers, Zain, Orange, and Umniah, about conducting technical experiments to operate the 5G technology using the 3640-3700 MHz and 3740-3800 MHz frequency bands. In a press statement, Jabour pointed to the TRC's keenness to provide the necessary support for the implementation of these experiments, noting

that this comes under royal directives to create an investment environment capable of providing services and boost partnership with the private sector. The TRC is also keen on preparing the requirements and appropriate environment to accommodate 5G services in the local market in coordination with the service providers, he added. He stated that the goal is to introduce these services in the near future, make it available to users at a reasonable cost, and bring in investors from the private sector. 5G is marked by its high speeds of transferring large data and its integration with advanced technology based on modern techniques, allowing it to become an economic platform that supports the transition to a digital economy and the concepts of the Fourth Industrial Revolution, Jabour said. He pointed out that the network also provides services and applications in the health, education, transport, water, industry and smart cities sectors.

(September 16, 2019) menafn.com

Jordan advanced by 11.5 points in the mobile connectivity to the Internet index to 53.8 points in 2018, compared to 42.3 points in 2014, as shown by a Global System for Mobile Communications Association report. The index, which includes 163 countries, evaluates the advancements of countries in terms of Internet use over the period 2014-2018, the Jordan News Agency, Petra reported. On the international competitiveness index, the Kingdom advanced four ranks in 2018 to the 52nd among 63 countries, compared with the 56th in 2017, according the annual report of the International Institute for Management Development. This index is an "important" tool for policy makers and decision makers in various economic sectors, as it ranks the competitiveness of the overall economy and sub-sectors, while relying on factors such as economic performance, government efficiency, business efficiency and infrastructure, according to Petra. Telecommunication Regulatory Commission Chief Commissioner Ghazi Jbour said that the advancement in international indexes reflects the Kingdom's development in various sectors, noting that the mobile connectivity to the Internet is an important ranking that shows the level of development in the information and communications technology sector.

(August 31, 2019) jordantimes.com



## Kuwait

The Chairman of regulatory authority Eng. Salim Al-Ozainah, confirmed that he is keen to turn the Kuwait into a regional center for data storage and preservation. This was made in a statement made by the Kuwait News Agency (KUNA) on the chairmanship of the Delegation of the State of Kuwait at the events of the Conference (Huawei Connect 2019) which is held in the Chinese city of Shanghai entitled "Smart Development" from September the 18th to the 20th and that is to announce the strategy of

the Chinese company (Huawei) and its future partnerships. Al-Ozainah added that Citra, in the framework of its future strategy, is working to transform Kuwait into an economic center for the environment, in order to implement the vision of His Highness the Amir of the country, Sheikh Sabah Al-Ahmad Al Jaber Al Sabah (New 2035) in the fields of communications and the technology of information. He revealed the project of the general corridor for communications, which will link Kuwait to Iraq, passing through

Turkey to Europe. Thus, making it easy for the movement of infrastructure from east to west, showing that the environment is in the process of signing an agreement that is "very close" with the Iraqi Ministry of Communications, as well as the presence of a strategy in the environment to build A free zone for the country. He stressed the establishment of a national center for information and evidence in accordance with international standards, which includes government agencies, institutions and government ministries besides the private sector, stressing the urgent need for Kuwait to have such an important center. As for his participation in the conference (Huawei Connect 2019), Al-Ozainah stated that his participation and the accompanying delegation came at the invitation of the International Chinese Company (Huawei) to identify aspects of joint cooperation in various fields, especially in the technologies of 5G networks and their applications, artificial intelligence and smart cities. Al-Ozainah added that during his visit to Shanghai, he held several meetings with several officials and leaders of Huawei and discussed ways of cooperation in the fields of research, development and application with Citra, representing Kuwait. He explained that he reviewed the regional communications corridor project with Huawei officials,

which Citra is working on according to its strategy and how to benefit from it. Al-Ozainah quoted Huawei officials as praising the telecommunications and information technology sector in Kuwait, especially regarding the provision and use of 5G networks, stressing that Kuwait is the second largest in the use of this service after South Korea. Moreover, among the topics discussed were the mechanism of deploying 5G networks in Kuwait as well as optical fibers, especially in areas where there are no fiber-optic extensions, as part of the plan set by Citra in cooperation with mobile operators in Kuwait. In addition, on July 2018, Citra signed a Memorandum of Understanding (MoU) with Huawei to implement the country's Smart City Strategy, which is divided into four phases: Smart Infrastructure Network, Equipment Security, Virtual Networks, and Digital Transformation of Various Industries and Centralized City Management. Kuwait participated in this conference with a delegation headed by Chairman and CEO Eng. Salim Al-Ozainah and included the Board of Directors of Citra, Waleed AlQallaf, Saud Alzaid and Ahmad Ibrahim, in addition to the Consul General of the State of Kuwait in the northern city of Shanghai Meshal Al-Shemali.

(September 20, 2019) citra.gov.kw



TRA Legal Affairs Manager Mr. Elias Chedid and TRA Consumer Affairs and Public Consultations Manager Ms. Corine Feghaly participated on September 16th, 2019 in the workshop on "The role of Information Officers in Enforcing the Rights of Access to Information Law" that was held at the Gefinor Rotana Hotel under the patronage of the Minister of State For Administrative Reform (OM SAR) H.E. May Chidiac. This event was organized by OMSAR

in coordination with the UNDP and OECD and aimed at presenting the importance of the law on the right of access to information for Lebanon, its relationship with the National Anti-corruption strategy and its importance in the field of open government and supporting the achievement of the sustainable development goals.

(September 18, 2019) tra.gov.lb



Nepali Telecom operators added a significant mobile subscribers in the last FY 2075/76, with Ntc adding the highest number of new subscribers. According to the NTA report, a total no of 30 lakhs (3 million) mobile subscribers was added in the last FY. Whereas the Ashad end last year showed the no of mobile subscribers to be 3 crores 75 lakhs (37.5 million). The total number of mobile users in Ashad 2076 reached 4 crores and 6 lakhs (40.6 million). As two of the telecom operators report were not included in the latest NTA report, we have omitted their subscriber number as a whole. Those two telecom operators are UTL and Nepal Satellite whose mobile network are not operational. Recently Supreme Court has also approved the NTA's decision to scrap the Nepal Satellite Mobile License. The total telecom subscribers base in Nepal at the end of Ashad 2076 reached 4 crore and 13 lakhs (41.3 million) now. That means only 7 to 8 lakhs users are non-mobile which includes PSTN, WLL, VSAT and GMPCS. While no of mobile users went up, the fixed-line telephone like the PSTN

and WLL services were found to decline. It is only due to people's preference for mobile instead of Landline phones. Nepal Telecom led the mobile subscriber rise with the addition of 27 lakhs (2.7 million) new customers in the last Fiscal year. Ncell followed Ntc growth with the addition of 1 lakh and 23 thousand (0.1 million) customers only. Similarly, Smart Telecom saw an addition of 2 lakh customers (0.2 million) in that period. Among the six telecom operators, only three have significant market share. While UTL, Nepal Satellite Telecom, and CG Telecom are there for namesake only. After the scrapping of the mobile license of Nepal Satellite Telecom (Hello Mobile), the total number of telecom operator will be only 5. The total teledensity shoots up from 133.83% to 140.25% in that period, of course, the major contributor being GSM mobile technology/service. Regarding the broadband penetration, it went up from 51.1 % to 65.87 %, in which mobile broadband contributes around 85% of the total broadband users.

(September 18, 2019) nepaltelecom.com

## Lebanon

## Nepal





## Oman

The Telecommunications Regulatory Authority (TRA) has directed telecommunications companies in the Sultanate to activate emergency plans and facilitate the activation of local roaming in case of need as a result of the tropical situation Hikaa. In a statement TRA said, "The TRA has directed the telecommunications companies in the Sultanate to activate emergency plans and facilitate the activation of local roaming whenever needed to face the effects that may result from the tropical situation (Hikaa), which is likely to be exposed to the provinces of South Al Sharqiyah and Al Wusta. " "The emergency plan is a regulatory obligation for telecommunications companies to check the readiness of telecommunication networks and be activated in case of exceptional cases and updated periodically," TRA added. (September 25, 2019) timesofoman.com

The Telecommunications Regulatory Authority (TRA) is working on a new regulation under which the developer/building owner will have to deploy and bear the cost of the in-building telecom

infrastructure the design of the in-building telecom infrastructure will have to be incorporated in the actual master plan, making it a prerequisite before the municipality issues a building permit. According to TRA, this is to ensure that a subscriber gets access to quality telecom services at the best available prices in the market and 'such a right to seek out should not be denied'. 'Current contractual arrangements between operators and building owners/developers constrain the fundamental user right of free choice of their telecommunications supplier,' TRA stated in its 'public consultation on the Framework for In-Building Telecommunications Infrastructure', for which it is calling all the stakeholders to submit their comments to it by October 17, 2019. 'The new in-building infrastructure framework is expected to reduce the cost of the telecommunications system and thereby incentivize further and faster investment in fiber network. Thus, it will become a major policy measure to achieve the objectives of the national broadband strategy.

(September 2, 2019) muscatdaily.com



## Pakistan

The Pakistan Telecommunication Authority (PTA) has sought two-month time for submitting a complete plan for launching the 5G telecom technology in the country. The Pakistan Telecommunication Authority (PTA) had requested applications for a license issuance. In May, Minister for Science and Technology had announced that the work on 5G technology in Pakistan was underway and it would be available soon in the country.

(September 18, 2019) dailytimes.com.pk

Pakistani mobile operators Telenor Pakistan and PMCL (Jazz) have made a partial payment of USD 224.6 million and PKR 35.39 billion (approximately USD 224.6 mln), respectively, for their license renewal fee. According to Pakistan Telecommunications Authority (PTA), this partial payment is equivalent to 50 percent

of their license fee. Back in August, Telenor and Jazz agreed to make payments towards renewal of their licenses, to avoid the disruption of their mobile services. Jazz agreed to pay around USD 291 million, and Telenor Pakistan announced it would voluntarily pay USD 224.6 million. The operators were expected to make the payments by 21 August or face the withdrawal of their licenses. However, they contested the amounts set by the Pakistan Telecommunications Authority, saying these were unreasonably high. In July, the PTA set the price of mobile license renewal at USD 39.5 million per MHz for the 900 MHz spectrum and USD 29.5 million per MHz for 1800 MHz spectrum. The payment terms for the renewal fee is 100 percent upfront or 50 percent upfront with the remaining 50 percent in five equal annual installments on LIBOR plus 3 percent. (September 10, 2019) telecompaper.com



## Saudi Arabia

The Kingdom of Saudi Arabia participated in the World Telecom Exhibition 2019 in Budapest, Hungary, as the exhibition brings together governments, institutions and small and medium-sized companies in the field of technology to showcase innovative solutions, communicate, share knowledge and debate with experts. Dr. Abdulaziz bin Salem Al-Ruwais, Governor of Communications and Information Technology Commission (CITC) of Saudi Arabia, delivered a speech at the event in which

he thanked the Government of Hungary for hosting the event, highlighting its good reception and organization. He emphasized the Kingdom's determination to continue to provide the best digital services to its population, having established regulatory governance in order to achieve more qualitative leaps towards the digital economy and contribute to the growth of the telecommunications and information technology sector. He added that the Kingdom recently celebrated the launch of more

than 2000 sites supporting 5G technologies, as well as equipping NEOM Airport as the first airport in the Middle East and Africa to support 5G technologies. (September 10, 2019) spa.gov.sa

The Ministry of Communications and Information Technology (MCIT) of Saudi Arabia has signed a memorandum of understanding with Nokia, a leading global provider of telecommunications, digital infrastructure and networking solutions. The memorandum is aimed at launching a global center for software development and support in the Kingdom. With the attendance of Minister of Communications and Information Technology Eng. Abdullah Al'Swaha and Nokia President and CEO Rajeev Suri in addition to a number of MCIT's senior officials, the memorandum has been signed by Vice Minister of Communications and Information Technology Eng. Haitham Al'Ohali and Head of Nokia MEA Business Development Omar Al'Laithi. The memorandum provides for establishing a development unit, a Nokia Bell labs research unit, and a Nokia repair center for Nokia base station HW modules; the center is to service KSA initially and potentially the GCC at a later stage. It also includes development of programs (independent or in cooperation with SDA or other authorities and customers) in order to provide opportunities for pre-graduates, fresh graduates in COOPT trainings and internships. According to the memorandum, NOKIA shall cooperate with MCIT and CITC (Communications and Information Technology) on initiatives around 5G and IoT and their use cases as per Nokia standards, with a view to support the Kingdom to be a leader in 5G and IoT technology in the MENA region. Moreover, Nokia's experts shall furnish advice and engage with relevant MCIT and CITC stakeholders on current and future technology trends and their economic impact, including but not limited to spectrum allocation, technology updates, business case, monetization studies and workshops. One of the memorandum's key programs is WIELD (Women in Energy and Leadership Development), geared toward investment in future woman leaders for the Energy sector and focused around digitalization and ICT developments, with the aim of driving the Energy industry segments, including a 10+ Weeks Program at 4 locations, KSA, USA, UK and Finland. The intended collaboration is in line with the ICT Strategy 2023, emanating from Saudi Arabia's Vision 2030 and which aims to establish a robust

and cutting-edge digital architecture so that digital transformation accelerates and thus supports the orientations of the Vision 2030, which aims to promote the ICT sector's role in order to build a digital society, a digital government, a thriving digital economy, and an innovative future for the Kingdom. The memorandum will contribute to the development of local technology content through training and qualification of young Saudis, development of digital skills, localization of the software industry and supporting research and innovation efforts, by establishing two software R&D units, supporting high-quality products endorsing quality products that are made in the Kingdom by Nokia, in addition to creating a smart technology industry environment that is attractive to local and international investments, in order to enhance the localization and empowerment of the technology industry and transfer of knowledge. It will also contribute to job creation within the orientation toward diversifying sources of national income, in line with the Vision 2030. In recent years, the Ministry of Communications and Information Technology (MCIT) has entered into many partnerships to promote integration, cooperation and consolidate efforts to achieve the goals of the Vision 2030. (September 4, 2019) saudigazette.com.sa

The royal decree to establish an artificial intelligence (AI) center will enhance the drive toward innovation and digital transformation in Saudi Arabia, according to Minister of Communications and Information Technology Abdullah Al-Sawaha. King Salman issued the decree, to establish the National Center for Artificial Intelligence and an organization called the National Data Management Office, which will be linked to the Saudi Data and Artificial Intelligence Authority. The establishment of the center came in line with the objectives of the Kingdom's Vision 2030 program, and will help develop performance efficiency through the applications of AI and big data, Al-Sawaha said. He added that the establishment of the center was a clear indication of the Kingdom's determination to develop its digital capabilities and build a future based on AI and innovation. Al-Sawaha said that AI would enhance productivity, boost decision-making processes across all sectors, render services provided to Saudi citizens more innovative, and open new horizons to stimulate entrepreneurship and support young people. (September 1, 2019) arabnews.com



## Turkey

A group of Turkish banks have hired Morgan Stanley as financial adviser to sell a 55% stake in fixed and mobile operator Turk Telekom (TT). A consortium of 29 banks led by Akbank, Türkiye Garanti Bankası (Garanti Bank) and Türkiye İş Bankası (İsbank) acquired the TT stake from Oger Telekomunikasyon AS (OTAS), the local holding company of Dubai-based consortium Oger Telecom, in exchange for cancelling debts in December 2018, with the Turkish Treasury retaining a 25% TT stake plus special veto power via one 'golden share'. 5% of the company is held by the Turkish Wealth Fund and the remaining 15% is in free float on the Borsa Istanbul (BIST). The creditor banks own the 55% TT share

via special purpose vehicle (SPV) Levent Yapilandirma Yonetimi (Levent Configuration Management). Akbank, Garanti Bank and Isbank own 35.6%, 22.1% and 11.6% of the SPV respectively, with the other 30.7% split between 26 other banks. In statements to the BIST, the leading banks stated the intention to sell the entirety of the SPV or the shares that it holds. Turkish brokerages Ak Investment, Garanti Securities and Is Investment are acting as local advisers. Having borrowed USD4.75 billion in 2013, TT's previous majority owner OTAS – handicapped by Turkish currency depreciation – defaulted on payments from September 2016 onwards. Upon completing the takeover deal in December

2018 the creditor banks stated a goal to transfer the TT shares to a 'competent' investor. (September 23, 2019) Bloomberg

The Information and Communication Technologies Authority hosted the third SME and Informatics Congress. Informatics Association of Turkey, Ankara Chamber of Industry, organized by the Ankara Chamber of Commerce and KOSGEB cooperation programs; Deputy Minister of the Ministry of Transport and Infrastructure Ömer Fatih Sayan, BTK President Ömer Abdullah Karagözoğlu, KOSGEB Vice President Recep Kılınc, ASO Board Member Özgür Savaş Özudođru, TBD President Rahmi Aktepe and guests from the IT sector attended. Deputy Minister of UAB Sayan made a speech about the importance of SMEs' use of information technologies. Saying that the limits of information technologies have disappeared completely, Sayan said that thanks to online network systems, the world has turned into a small village, but at the same time it has turned into a huge market where competition is much more intense. Sayan emphasized that the value and quality of the countries' commercial and economic lives have increased at the same time as a reflection of this, and that this development and progress means opportunities and opportunities at the same time. Sayan pointed out that the tendency of SMEs to use information technologies is a little below their expectations, "We want SMEs to see IT as an opportunity, not an obligation. On the contrary, this is an opportunity to carry them to the top of the ranking." Information technologies for SMEs, not only the ownership of the web site should not mean that Sayan, "the global world now companies 'I do not invest in technology, prefer traditional ways to achieve success' is close to zero

chance," he said. Sayan, information technology, said he should be kept in work integrated while domestic and forefront of the national production and added: "As a nation, our goal is big. We want to see in 2023, Turkey is the world's largest 10 economies. Sayan announced that the opening of "5G Valley" will be held in Istanbul in October. Sayan emphasized the importance of SMEs, which make up more than 99 percent of the country's total enterprises and bring about 55 percent of the total employment to the economy. "They want to adapt to the new world order" in the words of SMEs to invest in technology called. BTK President Ömer Abdullah Karagözođlu also spoke at the opening of the program. Karagözođlu pointed out that technology has reached a wider audience in today's world than ever before, and that new inventions are made every day. Stating that we witnessed very rapid changes and transformations in almost every stage of life from the economy to health, from the development of communication tools to the advances in transportation, Karagözođlu said, "These developments show that those who do not use information technologies are not able to survive." Karagözođlu stated that it is inevitable for SMEs, which play an important role in growth, prosperity and employment, to benefit from technology in the most effective way in order to gain an advantage in international competition. He stated that the productification process can be listed as acceleration. Karagözođlu pointed out that domestic and national software should be focused on. "We want our companies to produce domestic products in their own fields as well as to prefer domestic and national products. This will bring us closer to the goals of our country."

(September 19, 2019) btk.gov.tr



## United Arab Emirates

The UAE has ranked first globally in mobile-broadband subscriptions and network coverage, and second in mobile-cellular telephone subscriptions, according to the Travel & Tourism Competitiveness Report 2019, issued by the World Economic Forum. Commenting on this achievement, Hamad Obaid Al Mansoori, Director-General of the Telecommunications Regulatory Authority, TRA, stated, "The UAE's global achievements are the result of plans and strategies developed by the UAE Government under the directives of its leadership, and the team spirit of the government entities. Today, we have the best and most advanced services in the UAE, and we have a well-developed infrastructure that makes us ready to enter the age of Artificial Intelligence, the Internet of Things, IoT, and the Fourth Industrial Revolution. Our high global ranking in many international reports confirms that we are on track to achieve the UAE Vision 2021 and the goals of the National Agenda." The Travel & Tourism Competitiveness Report 2019 is issued every two years by the World Economic Forum. It is based on four key indicators: Enabling Environment, Travel and Tourism Policy, Infrastructure, and Natural and Cultural Resources. The report measures 14 sub-indicators: Business Environment, Safety and Security, Health and Hygiene, Human Resources and Labor Market, ICT Readiness, Prioritization of Travel & Tourism, International Openness, Price Competitiveness,

Environmental Sustainability, Air Transport Infrastructure, Ground and Port Infrastructure, Tourist Service Infrastructure, Natural Resources, and Cultural Resources and Business Travel. The UAE also ranked first globally on the Internet and Telephony Level of Competition in 2018, compared to 104th in 2016, according to the Knowledge Index Report, published recently by the United Nations Development Program and the Mohammed Bin Rashid Al Maktoum Knowledge Foundation. (September 10, 2019) gulftoday.ae

More than 200 cyber-attacks against government and private sector companies were reported in the first eight months of the year, the UAE's telecoms authority said. The Telecommunications Regulations Authority (TRA) said 230 cyber-attacks occurred from January to August of this year, a 27.4 per cent decline on the 317 recorded in the corresponding period in 2018. The authority said its Computer Emergency Response Team thwarted 40 attempts to infiltrate computer systems in August alone, down from 51 in the same month in 2018. The TRA said it had launched a series of awareness campaigns across the Emirates, including lectures, seminars and workshops, to promote cyber safety. Instances of cyber-attacks include hacking, identity theft and fraud, the TRA said. 📍

(September 4, 2019) thenational.ae

## REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



### Australia

A parliamentary committee in Australia was asked to investigate and submit a report on the deployment, adoption and application of 5G in the country. Minister for Communications, Cyber Safety and the Arts Paul Fletcher called for the inquiry. The House of Representatives Standing Committee on Communications and the Arts, chaired by David Gillespie, will conduct a study looking at the opportunities and challenges of the next-generation technology. In statement, Gillespie said: "5G will transform the way we live and work, and provide opportunities for family life, industry and commerce. It will power smart homes and cities and provide new ways to experience entertainment, and at the same time transform transport, logistics and industry." Submissions to the committee will be accepted until 1 November. The head of the Australian Mobile Telecommunications Association (AMTA) welcomed the inquiry and said it will contribute to the examination of the technology, including use cases, Australia-based Telecom Times reported. AMTA CEO Chris Althaus told the publication: "As the 5G evolution continues, it is critical government and society alike understand the magnitude of the 5G opportunity, and its relevance and benefit to all sectors of our economy and society." Telstra, with a 50 per cent market share by subscribers, is deploying 5G in ten cities and over the next 12 months plans to expand the coverage to at least 35. The operator launched the country's first compatible smartphone in July, as it

builds out network coverage to support the expected demand for the high-speed service. Optus, the second-largest mobile operator, began connecting its first 5G customers in January 2019 through a fixed wireless access service. It plans to expand the network to 1,200 sites by year-end. In August 2018, Australia effectively banned China-based equipment vendors Huawei and ZTE from participating in the country's rollout of 5G mobile infrastructure due to national security concerns.

(September 19, 2019) [mobileworldlive.com](http://mobileworldlive.com)

A legal challenge to the Australian Competition and Consumer Commission's (ACCC's) decision to oppose a proposed merger of TPG Telecom and Vodafone Hutchison Australia (VHA) has gotten underway in the country, with the case now being heard by a federal court. Peter Brereton, the lawyer representing VHA, said in his opening statement: 'The notion that TPG would, if the merger's blocked, roll out a mobile network is just not of the real commercial world.' Further, he reportedly argued that it would be 'commercially crazy' for TPG to construct its own mobile infrastructure, while also suggesting that a merger of TPG and VHA could, in fact, encourage competition. Meanwhile, The Guardian cites Michael Hodge QC, counsel for the ACCC, as claiming that it was 'entirely commercially realistic' to say that TPG would resume previous plans to roll out a mobile network if the merger was stopped.

(September 10, 2019) [reuters.com](http://reuters.com)



### Austria

Austria's telco regulator has launched a consultation on proposed tender conditions for its next 5G auction, and they are so sensible as to almost be unnerving. The Regulatory Authority for Broadcasting and Telecommunications (RTR) said it wants to establish an investment-friendly framework, and to that end has suggested 20-year licenses and a reserve price for spectrum in the 700 MHz, 1500 MHz and 2100 MHz bands totaling €295 million. That compares to a €1.5 billion reserve in Germany's multiband 5G auction earlier this year, and we all know what operators made of that. "A big concern for us was to establish investment-friendly framework conditions for the development of networks and thus give the operators as much freedom of design as possible," said Klaus Steinmaurer, head of the RTR's telecommunications and post department. Furthermore, licenses won't come with mandated wholesale access, after a recent review led the RTR to conclude that "no more MVNO requirements are

necessary." That's not to say successful bidders will be given entirely free rein. For one thing, there will be the usual stringent coverage conditions. The watchdog wants them to roll out minimum speeds of 10 Mbps downlink/1 Mbps uplink to 98 percent of highways, expressways and selected rail links, and to 90 percent of federal and state highways. Operators will also be required to deliver 30 Mbps downlink/3 Mbps uplink connectivity to 900 underserved locations. However, in line with the RTR's operator-friendly approach, it has proposed a bonus system designed to incentivize bidders to go above and beyond those 900 locations. It works like this: after operators have finished vying for spectrum, they have an opportunity to bid to roll out networks in one or more of around 2,000 areas identified as moderately or poorly served. For each underserved area that they win, the operators will receive a rebate on their spectrum bids. "To grant this bonus, a substantial sum has been reserved from the pot of minimum bids,"

Steinmaurer explained. It's almost as if the regulator's main priority is ensuring decent 5G coverage, rather than securing a giant windfall for the government. Nonetheless, it will be interesting to see what the operators make of the proposals. "Once the tender conditions have been approved by the Federal Minister of Transport, Innovation and Technology, the start of the second 5G auction is scheduled for spring 2020; at the end of the second quarter of 2020, the frequency allocation procedure will be completed," Steinmaurer said. (September 24, 2019) telecomtv.com

The Regulatory Authority for Broadcasting and Telecoms (RTR) has launched a public consultation on the conditions for its planned 'second 5G auction'. The regulator is looking to award 20-year licenses for spectrum in the 700MHz, 1500MHz and 2100MHz frequency bands in spring 2020. The auction will be

divided into two phases: the first will see frequencies in the 700MHz (six blocks) and 2100MHz (twelve blocks) bands allocated, with eight blocks of 1500MHz spectrum set to be awarded in the second stage. Following this, a 'bonus system' has been developed whereby operators will be able to gain a reduction in the spectrum price if they agree to cover additional underserved areas. In terms of coverage obligations, 700MHz license winners will be obliged to supply 900 underserved communities with speeds of 30Mbps download and 3Mbps upload. Furthermore, 98% of motorways and selected railway lines, as well as 90% of federal and state roads, are to be supplied with at least 10Mbps download and 1Mbps upload rates. Interested parties have been given until 21 October 2019 to submit comments on the proposed auction conditions. (September 24, 2019) telegeography.com



## Brazil

The Brazilian Senate's Science and Technology Committee has approved a bill that will modernize Brazil's telecommunications law and boost companies in the sector by lifting restrictions on asset sales. The full Senate could vote on the bill, known as PLC 79. The bill has already passed the lower house of Congress and, if approved by the Senate, will go the President Jair Bolsonaro to be signed. The law aims to encourage investment in broadband in remote areas of Brazil by allowing companies to own outright telecom assets, such as cellphone towers and valuable real estate, that they may sell if they so choose. Passage of PLC 79 is expected to unleash a wave of asset sales and benefit the entire Brazilian telecommunications industry, especially Oi SA, which is in bankruptcy protection and would become more attractive to a buyer. Shares of Oi jumped 4% on news that the bill cleared the committee

stage before drifting back down again on Sao Paulo's stock market, while Telefonica Brasil SA gained 1.1%. The bill could also benefit Claro, the local subsidiary of Mexico's America Movil SAB de CV, and TIM Participações SA, a subsidiary of Telecom Italia SpA. The bill changes the current, more restricted model so that assets used under concessions would no longer revert to the government once a service provider's contract period expires. It also ends the requirement that providers invest in outdated technology such as public phones and landlines. Besides removing restrictions on asset sales, the new law would allow fixed-voice concessionaires to swap obligations they have under current concessions for investments in broadband assigned by telecoms regulator Anatel. (September 11, 2019) reuters.com



## Canada

Canada's leading rural fixed-wireless broadband provider Xplornet Communications has sublicensed 40MHz of AWS-4 spectrum from TerreStar Solutions covering most of the rural households across Canada's ten provinces to support a national 5G wireless broadband network rollout. The 'mid-band' (2000MHz-2020MHz and 2180MHz-2200MHz) spectrum agreement with TerreStar covers 37 'tier three' and 13 'tier four' areas for a period up to March 2035, with an option for Xplornet to extend the term of the agreement should TerreStar's AWS-4 licenses be renewed. The spectrum band can be used to provide fixed or mobile broadband. Xplornet says the spectrum investment will enable it to develop the latest wireless technology to deliver 5G-based services with speeds of 100Mbps and affordable unlimited data plans for rural broadband customers across Canada. The operator is currently working with manufacturers to develop 5G-ready radio

access and consumer premise equipment, meeting 3GPP standards. The AWS-4 downlink spectrum will be paired with available uplink spectrum, including frequencies currently held by Xplornet. AWS-4 is one of a number of bands that will be deployed to deliver 5G services, with Xplornet holding mobile and fixed licensed spectrum in the 3500MHz, 2500MHz, 600MHz, 700MHz and AWS-1 bands. Tim Dinesen, CTO at Xplornet, said: 'Having more mid-band spectrum is an important next step in our plan to advance the availability of wireless broadband services to rural Canadians. We have made significant investments in our broadband network in recent years and are eager to put this AWS-4 spectrum to work, complementing our existing spectrum holdings.' Xplornet intends to invest over CAD500 million (USD379 million) in the next five years. (September 13, 2019) telegeography.com



## Costa Rica

The Superintendency of Telecommunications (Sutel) has announced that it has approved the EUR503 million (USD552 million) takeover of Telefonica de Costa Rica (Movistar) by Millicom International Cellular (MIC). As per Sutel documentation, the acquisition will be carried out via Millicom's local ISP unit, Millicom Cable Costa Rica (which trades as Tigo). The regulator's Resolution RCS-221-2019 assessed: 'There is no evidence of the existence of potential anti-competitive effects

derived from the acquisition of 100% of the capital stock of Telefonica CR by Millicom.' When concluded, the deal will represent the final piece of Millicom's Central American jigsaw, after the recent takeovers of Telefonica assets in Nicaragua and Panama. A triple takeover deal was inked in February this year, with Millicom agreeing to pay a combined enterprise value of USD1.65 billion for the three cellular businesses.

(September 3, 2019) [telegeography.com](http://telegeography.com)



## El Salvador

El Salvador's Superintendence of Competition (Superintendencia de Competencia, SC) has announced that it has rejected the proposed takeover of Telefonica Moviles El Salvador (Movistar) by America Movil (AM) for a second time. The SC says that the 'resolution of inadmissibility' was agreed on 26 August and relayed to the two parties on 28 August; the competition watchdog notes that AM had failed to supply it with certain background information relating to the transaction. On 2 September AM and Telefonica both waived their right to file an appeal against the decision, but the SC notes that this does not prevent AM from submitting a new application, once the necessary information has been satisfactorily completed. In January 2019 Spanish telecoms giant Telefonica agreed to sell its businesses in Guatemala and El Salvador to AM for USD333 million

and USD315 million, respectively. The closing of the Telefonica Moviles Guatemala sale took place that same month, but the Salvadoran deal was rejected as inadmissible in May. In light of the latest setback, it remains to be seen whether AM – which controls mobile market leader Claro El Salvador – will continue to pursue the merger. This is not the first time that a deal tabled by AM has fallen foul of the authorities; back in September 2012 the regulators blocked the group's attempt to merge Claro with smaller rival Digicel after Claro refused to divest surplus spectrum. Claro led the mobile market as of 30 June with a 32.9% market share, ahead of Tigo (26.0%), Movistar (22.5%), Digicel (18.2%) and Intelfon (0.4%).

(September 12, 2019) [telegeography.com](http://telegeography.com)



## France

Orange France has filed a priority question of constitutionality (QPC) with the Council of State (Conseil d'Etat) challenging the power of sanction of the telecoms regulator Arcep, the company confirmed to AFP. The incumbent operator has been put on notice several times by Arcep between October 2018 and January 2019 for failing to meet its universal service obligation (USO) for fixed telephony services, quality of service (QoS) shortcomings and its commitments in relation to the deployment of fibre. Orange has claimed that the principles of separation of powers and impartiality guaranteed by the Constitution are not respected within Arcep. The operator added that, although the regulatory, investigative and sanctioning powers of the regulator are divided into three groups, this division is not sufficient under the Constitution. The Council of State must now examine the request before deciding whether to send it to the Constitutional Council, which would then have to rule on the matter and, if necessary, repeal the legislative provision. If Orange wins, Arcep could lose its power to sanction operators. In July 2013 the Constitutional Council revoked the legal provisions governing Arcep's powers, thus stripping the watchdog of its authority to enforce sanctions. Arcep's authority was subsequently restored with Decree No. 2014-867 of 1 August 2014; under the new provisions, different members of the

Arcep executive board are now assigned different tasks in order to ensure that the principle of separating investigative and sanctioning powers is met. A body comprising four board members (including the chairman of Arcep) – Reglement des Differends de Poursuite et d'Instruction (RDPI) – adopts decisions on formal notices, investigations, dispute settlements and inquiries, while the remaining three board members make decisions on sanctions. (September 10, 2019) [Le Monde](http://Le Monde)

The French Competition Authority (Autorite de la Concurrence) has approved the sale of Iliad Group's telecom towers in France to Spanish infrastructure group Cellnex. Under the deal, Cellnex will acquire Iliad 7, the subsidiary that manages Iliad's 5,700 domestic towers. The deal is valued at EUR2 billion (USD2.2 billion). Thomas Reynaud, Iliad's CEO, previously said: 'This transaction is part of a long term industrial strategy allowing us to accelerate [the] rollout of our 4G and 5G networks and to increase Iliad's investment leeway ... It enables more efficient infrastructure rollouts in the future, while meeting the challenges of further increasing territory coverage.' Cellnex already operates 2,000 mobile towers in France, which it purchased for EUR700 million back in 2016/17 from Bouygues Telecom. Elsewhere, Iliad Group has entered into exclusive talks with French private equity firm

InfraVia to set up a partnership aimed at accelerating fibre-to-the-home (FTTH) rollouts outside very-densely populated areas of France (representing around 26 million lines). Under the agreement, Iliad will establish a new infrastructure company to manage its fiber lines, and will transfer 51% of the new entity to InfraVia for an enterprise value of EUR600 million.

The infrastructure company will then enter into a 'very long term service agreement' with Iliad, under which it will provide all access and information services for the co-financed sockets to Iliad and other third-party operators. The deal is subject to customary regulatory approvals and is expected to close in the fourth quarter of 2019. (September 3, 2019) telegeography.com



## Germany

Germany's Federal Ministry of Transport and Digital Infrastructure (BMVI) has presented a strategy for nationwide mobile communications coverage to accelerate the planning, approval and development of 4G and 5G networks. The five-point plan focuses on: measures to close gaps in 4G network coverage; the acceleration of Germany as a 5G 'market leader'; the strengthening of transparency in infrastructure development and the use of existing resources such as state-owned properties and infrastructures; the simplification of approval procedures; and providing information via an electronic portal. The presentation of the strategy follows the recent conclusion of the Federal Network Agency's (FNA's) wireless spectrum auction, which included extensive coverage obligations for license winners, and a recently agreed expansion program between mobile operators and the government. 'In our country, uninterrupted surfing and telephoning must come naturally – and not in the distant future, but as quickly as possible,' commented Federal Minister Andreas Scheuer, adding: 'By closing the gaps in the 4G network, we are laying the foundation for nationwide 5G expansion and thus for the digital transformation of the economy and society. One thing must be clear: where there is no mast, there is no reception. That is why we need more acceptance in infrastructure development. Our strategy creates the basis for both.' (September 10, 2019) telegeography.com

German authorities and the country's mobile operators agreed to legally binding coverage targets in return for extended payment terms for the acquisition of 5G spectrum licenses. The pact follows months of arguments and scathing criticism of the conditions imposed by authorities alongside its auction to allocate 5G suitable spectrum, which raised €6.6 billion. Representatives from Deutsche Telekom, newcomer 1&1 Drillisch, Vodafone Germany and Telefonica Deutschland signed the agreement with the Bundesministerium für Verkehr und digitale Infrastruktur, the government agency responsible for telecoms infrastructure. Andreas Scheuer, minister for transport and digital infrastructure, said under the deal, 99 per cent of the country's households will have reliable voice and data services by the end of 2020. "We now have the legally binding commitment of the mobile network operators," he said. "More than 1,400 new mobile masts will be built. This is a clear signal that the expansion of mobile communications in previously

underserved regions is being driven forward with full force." In return for making the commitments, the operators have been given improved payment terms for 5G spectrum, with fees now able to be made over annual instalments until 2030. In a statement, Telekom Germany CEO Dirk Wossner hailed the concession for delivering "planning security" to the operator, enabling it to "get started with 5G". "We want to expand 5G not only fast, but especially in related areas. To close white spots is especially important. Because with that, the basis is laid, that in the future also 5G will be expanded there." Across the new agreement and terms signed as part of the 5G auction, Germany's operators have vowed to provide LTE in 99 per cent of households nationwide by the end of 2020 and meet the same target in each state by the end of 2021; build at least 1,400 masts accessible to any operator; meet minimum data speed targets across major transport routes; and install base stations in specific areas to close coverage gaps. (September 9, 2019) mobileworldlive.com

The Federal Network Agency (FNA, known locally as the Bundesnetzagentur or BNetzA) has revealed it has assigned 3.6GHz spectrum acquired at auction earlier this year, in response to an application by Telekom Deutschland (TD). Following the conclusion of the auction in June, the four license winners – TD, Vodafone, Telefonica and Drillisch Netz – were given the opportunity to come to an agreement on the position of the abstract frequency blocks they had acquired in the bands. As they did not reach complete agreement, the FNA decided on the allocation on 2 August. The FNA says that applications for assignment have also been received from Drillisch Netz and Vodafone, and are to be decided on shortly. 'Once it has been assigned, the acquired spectrum can be used for 5G across the country. It is then up to the companies to provide fast broadband coverage. Network operators can finalize their network plans and roll out their networks rapidly,' explained the FNA's President Jochen Homann. License obligations include coverage of at least 100Mbps for 98% of households in each federal state and for all motorways as well as the most important federal roads and rail routes by the end of 2022. By the end of 2024, all other federal roads must have coverage of at least 100Mbps, while state roads, seaports and major waterways, and all other railway lines must have coverage of at least 50Mbps.

(September 6, 2019) telegeography.com



## Guyana

The Guyanese government's E-Access and ICT Services for Hinterland, Poor and Remote Communities Project is due to connect parts of the Pomeroun-Supenaam region (Region 2) by the end of September, Minister of Public Telecommunications Catherine Hughes confirmed in an interview. According to the Minister, the program has already rolled out connectivity to more than a dozen communities, and the government has also provided internet access to 170 schools and

174 ICT hubs. The minister was quoted as saying of the project's progress: 'There are no longer gaps that say because you are located in a certain part of our geographical landscape that you will be locked out... That traditionally is what we referred to as the digital divide; where the people on the coast have access to the internet among other opportunities while the hinterland does not'.

(September 13, 2019) telegeography.com



## Hong Kong

The Office of the Communications Authority (OFCA) has released the names of companies lining up to bid in its forthcoming auctions of 3.3GHz, 3.5GHz and 4.9GHz 5G-capable spectrum. Unsurprisingly, the roster consists of the territory's four incumbent mobile network operators (MNOs), HKT, Hutchison 3, China Mobile Hong Kong (CMHK) and SmarTone.

The regulator intends to auction a total of 380MHz of spectrum across the three bands, including 100MHz at 3.3GHz, 200MHz at 3.5GHz and 80MHz at 4.9GHz. The first auction – for the 3.5GHz frequencies – will be held on 14 October, and this will then be followed by the 4.9GHz and 3.3GHz sales.

(September 16, 2019) telegeography.com



## Hungary

Hungarian telecoms regulator the NMHH has published the list of participants in the country's upcoming 5G frequency auction, including three of the incumbent mobile network operators (MNOs) – Magyar Telekom, Telenor Hungary and Vodafone Hungary – but omitting the fourth MNO, DIGI Hungary. Following its formal examination of the four applicants which began 8 August, the NMHH says that it did not register the fourth would-be 5G bidder because it 'did not meet

the eligibility criteria'. DIGI is expected to appeal the decision. The multi-band license auction will take place on four separate days, starting with bidding for blocks in the 2600MHz band, followed by 3600MHz, 700MHz and finally 2100MHz bands. The NMHH will disclose all bidding results at the end of the procedure, scheduled to take place in late October/early November. Licenses are valid for 15 years, renewable for five years.

(September 16, 2019) telegeography.com



## India

Sector watchdog the Telecom Regulatory Authority of India (TRAI) has published a consultation paper on potential reforms to merger and acquisition rules, with the goal of simplifying and speeding up the process. The paper outlines the current guidelines for the transfer or merger of licenses and requests suggestions from stakeholders on how the existing rules could be changed India's mobile market has recently undergone a second wave of consolidation but numerous takeover or merger attempts ran into regulatory delays and barriers, ultimately leading to the collapse of several operators. In most of the cases, the Department of Telecommunications (DoT) had required as a condition of its approval that the providers submit guarantees for one-time spectrum charges (OTSC) – the validity of which remains subjudice – leading to a series of legal challenges that drastically extended the time period for the mergers. The TRAI's paper highlights a submission from the Department of Telecommunications (DoT), seemingly blaming the providers and the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) for the delays, stating that the operator's petitions to the arbitration court to set aside certain conditions

imposed by the DoT had 'resulted in uncalled-for delays in mergers being taken on record.' The document also includes input from Virtual Network Operators Association of India (VNOAI) requesting that access to networks for virtual network operators (VNOs) be made mandatory a part of conditions for mergers, to maintain competition. Under the industry group's proposals, the merged entity would be obliged to 'set aside 20% of wholesale capacity for MVNOs on Mobile Bitstream Access (MBA) bases. Elsewhere, the TRAI's highlights potential ambiguity in the text for a Unified License (UL), and has sought suggestions on rephrasing certain clauses to make the terms of the concession unambiguous. (September 20, 2019) telegeography.com

Indian sector watchdog the Telecom Regulatory Authority of India (TRAI) has issued a public consultation paper reviewing its plans to eliminate interconnection usage charges (IUC) for voice calls from January 2020, replacing the system with a so-called Bill And Keep (BAK) model. In its paper, the TRAI notes that the 2017 decision to reduce termination rates to zero from the start of 2020 was based in part on the expectation



that most operators would move to packet switched technologies by the end of 2019, greatly reducing termination costs. In the two years following the ruling, however, the TRAI has found that 'a large number of customers are still served by circuit switched networks for handling of voice calls'. Confirming these findings, the TRAI added that stakeholders have shown that although cellcos have invested heavily in 4G networks they have yet to migrate the bulk of their subscribers to VoLTE technology. The consultation paper asks whether there is a need for the introduction of BAK should be postponed, and on what basis the new adoption date should be decided; the closing date for submissions is 18 October. (September 19, 2019) telegeography.com

India's Department of Telecommunications (DoT) is aiming to launch the long-delayed mass spectrum

auction by the end of the year, the Economic Times writes, citing a senior DoT official. According to the source, the DoT's Digital Communications Commission is expected to green light the recommended pricing for the airwaves later this month and the regulator expects to complete the auction by 30 November. The sale will see over 8,000MHz of airwaves put up for sale across the 700MHz, 800MHz, 1800MHz, 2300MHz, 2500MHz and 3400MHz-3600MHz ranges including 4G and 5G-compatible airwaves. Commenting on concerns over participation in the sale, given the industry's current financial struggles and complaints from sector stakeholders about the 'exorbitant' prices set for the spectrum, the official said: 'There may be a case where there are no takers for a particular band, but we don't believe there won't be any demand'.

(September 11, 2019) telegeography.com



## Liberia

The Liberia Telecommunications Authority concluded a training workshop on International Telecommunications Union's (ITU) Spectrum Management System For Developing Countries (SMS4DC), co-organized by the ITU. The SMS4DC workshop which is targeted towards the Spectrum Managers and the users of SMS4DC tool (both current and prospective). The week-long training brought together about 100 participants from English-speaking countries across Africa to build their capacities and skills to effectively use the SMS4DC tool for efficient spectrum management in their respective countries. The SMS4DC workshop is an historic development for Liberia's Telecommunications sector as it the country's first ITU-organized spectrum workshop, which will pave the way for more ITU sponsored training programs in Liberia to build human

capacity in regulating the Telecommunications sector. Most countries have spectrum monitoring equipment, but the system is being upgraded to version 5 for greater efficiency in spectrum governance. LTA Chairman Ivan Brown expressed its gratitude to the ITU for the opportunity to host the workshop. According to him, the workshop addresses mitigating interferences, frequency allocation, valuation and consolidating cross-border coordination of spectrum management. "The workshop is a demonstration of the commitment of the LTA to achieve the standards of the ITU in more efficiently and effectively managing our scarce spectrum resource," he said. Participants said they came away feeling more equipped in addressing issues of spectrum management in their respective countries.

(September 23, 2019) allafrica.com



## Luxembourg

The Luxembourg Institute of Regulation (Institut Luxembourgeois de Regulation, ILR) has issued a public consultation regarding the modification of its existing radiofrequency plan. The consultation, which commenced on 16 September and will run until 18 October, factors in a series of European Commission (EC) decisions regarding spectrum harmonization which have entered force since August 2018. The spectrum bands included in the consultation are as follows: 24.25GHz-27.5GHz; 3400MHz-3800MHz; and 874MHz-876MHz/915MHz-921MHz. The use of non-specific short-range devices in the latter frequency bands will lapse on 1 July 2020 while the 3400MHz-3800MHz band will no longer be allocated to fixed satellite services from 1 January 2020, potentially

freeing the band up for 5G use. In other Luxembourg-centric news, state-backed full-service operator POST Luxembourg has confirmed its intention to launch commercial 5G services in 2020. The operator notes that it has achieved downlink speeds in excess of 1Gbps during its 5G trials, with latency of less than ten milliseconds. TeleGeography notes that fellow operator Tango previously announced that it had become the country's first operator to have an operational 5G core network, trialing the 3.6GHz system in Bertrange in May this year. Rounding out the country's cellcos, Orange Luxembourg has stated its intention to utilize 3.6GHz and 26GHz spectrum to support its own 5G networks, although a provisional launch date has not been disclosed. (September 23, 2019) telegeography.com



## Malaysia

A statement published by the Malaysian Communications and Multimedia Commission (MCMC) has sought to address 'statements spread through social media' in the wake of the recent announcement that the implementation of the 'National Fiberization and Connectivity Plan' ('NFCP') has been approved by the Malaysian government. Last week, the MCMC confirmed that the government had given the go ahead to the NFCP, a five-year plan due to run between 2019 and 2023 which is expected to cost MYR21.6 billion (USD5.1 billion) and provide 'digital connectivity that is robust, pervasive, high quality and affordable for all Malaysians'. While the NFCP will focus on fiber infrastructure, the MCMC notes that alternative technologies, such as wireless and satellite networks, will also be deployed 'wherever conducive'. The NFCP's main targets include the provision of an average speed of 30Mbps in 98% of populated areas and the availability of gigabit services in selected industrial areas by the year 2020 and all state capitals

by 2023. However, the NFCP announcement generated something of a social media 'storm', specifically: claims that the NFCP is a 'mega-project'; suggestions that the cost of the project has increased from MYR1 billion to MYR21.6 billion since the announcement was first made as part of the government's 2019 budget; and allegations that a company called OPCOM would be the biggest beneficiary of the NFCP. In response, the regulator has now clarified that the MYR1 billion figure mentioned in the budget had specifically referred to the initial allocation for the project, with this meant to fund 'selected infrastructure projects' this year. Meanwhile, the MCMC also stressed that, as the NFCP will comprise 'many' infrastructure projects, including some financed by licensees themselves, utilizing different technologies, there could be 'no specific company dealing with a specific technology can be the biggest beneficiary of the NFCP'.

(September 3, 2019) [telegeography.com](http://telegeography.com)



## Mexico

Mexico's Federal Telecommunications Institute (IFT) has confirmed that it will seek to auction 5G-suitable spectrum in the 614MHz to 698MHz ('600MHz') band in 2020. The commitment forms part of the regulator's 'Programa Anual de Uso y Aprovechamiento de Bandas de Frecuencias 2020' (PABF 2020). In addition, the IFT notes that the 1900MHz and 3.3GHz bands have also been earmarked for nationwide mobile use and are included in the same frequency plan. In March 2018 the IFT approved the relocation of 48 digital television channels in the 614MHz-698MHz band to pave the way for a 'second digital dividend'. All outstanding 600MHz spectrum-holders were successfully migrated to other bands by October 2018 and the watchdog claimed that this timeline made it the first country in the world to fully release the 600MHz band for mobile broadband use. (September 23, 2019) [telegeography.com](http://telegeography.com)

The Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) has voted in favor of transferring ten 2.5GHz licenses from Mexican fixed-wireless access (FWA) provider Ultravision (Ultranet) to

mobile market leader Radiomovil Dipsa (Telcel). As per IFT documentation, the spectrum transfer means that Telcel will control 30.79% of Mexico's mobile spectrum, ahead of Telefonica Moviles Mexico (Movistar, 17.36%), but behind AT&T Mexico (33.63%). Despite Telcel's dominant market share – it controls more than 60% of the wireless market – the watchdog judged that the spectrum transfer will have minimal impact on the competitive environment. The transaction represents Telcel's second notable 2.5GHz spectrum acquisition in recent years. In July 2017 the cellco closed the acquisition of 2x30MHz blocks of 2.5GHz spectrum from Grupo MVS; the frequencies covered 1,575 localities, equivalent to coverage of 75.41% of the national population. For its part, Ultravision awarded Nokia a contract to deploy an LTE-A network encompassing 700 sites across Puebla, Tlaxcala, Aguascalientes, Veracruz, Morelos, Guerrero and Jalisco back in March 2017. The service went live in September 2018. The ISP has clarified to *El Economista* that the sale represents a 'frequency readjustment' and its LTE-A services are unaffected. (September 13, 2019) [telegeography.com](http://telegeography.com)



## Mozambique

The government of Mozambique says that telecoms services are now available to 85% of the population, up from 65% in 2014. A report from Weetracker cites Pedro Ingles, Permanent Secretary at the Ministry of Transport and Communications (MTC), as saying that the authorities are supporting operators to reach 100% coverage with their 4G networks, with capital

being injected via the Universal Access Fund (Fundo do Servico de Acesso Universal, FSAU). According to TeleGeography's GlobalComms Database, Mozambique is home to three wireless operators – Vodacom, TMCEL and Movitel – while the fixed line sector is dominated by TMCEL.

(September 3, 2019) [telegeography.com](http://telegeography.com)



## The Netherlands

Most rural areas in the Netherlands are now equipped with fiber, regulator ACM said, adding that rollout has been slower for urban areas. The regulator started an investigation into the deployment of fiber in the spring, following signs of problems around rollout in urban areas. The results of that investigation will be published in the autumn. Action will then be taken, if necessary. Annemarie Sipkes, ACM's Director for Telecom, Transport and Post, gave a view during Metro Connect Europe of the Dutch fiber optic market. She said that relatively little fiber has been deployed in the country over the past few years. Interest in rollout went on the up recently, mainly due to a greater willingness from investors to make capital available for rollout. As a result, several parties have entered the market. The ACM sees added value in the deployment of fiber networks, in addition to existing copper and cable networks, because they stimulate innovation and will help meet the increasing demand for bandwidth in

the longer term. Most rural areas in the Netherlands have now been fitted with fiber, the regulator said. The market has worked well here, but: "the playing field is now shifting more towards urban areas. In urban areas, rollout seems to be proceeding less rapidly than planned," the regulator said. The ACM added it has received signs about problems here. "If these signals are justified, there is a chance that infrastructure investors, who in particular have pushed fiber rollout in the Netherlands in recent years, will not continue investing in the future." The ACM wants to gain more insight into how telecom companies and investors determine where they roll out fiber, and the problems they encounter. It has therefore started an exploratory study into the deployment of fiber in the Netherlands, holding talks with telecom companies, investors and municipalities. The results of the market study and any resulting recommendations will be published in the fall.

(September 18, 2019) telecompaper.com



## New Zealand

New Zealand's Commerce Commission has published its final report on the country's mobile market, in which it claims regulatory intervention is not needed for a fourth national network. The study found that consumers are benefitting from an increasingly competitive market environment, thanks to the presence of three existing national network-based providers – Vodafone, Spark and Two Degrees Mobile – as well as a growing number of MVNOs. As a result, the Commission does not consider there is any need for regulation of wholesale access at this time. 'Having assessed the state of competition in the mobile market we haven't identified any particular problems or structural issues that could be hampering competition,' Telecommunications Commissioner Dr Stephen Gale said, adding: 'While we consider that, overall, mobile services are in good shape, we do think there is room for consumers to keep pressure on providers to compete harder on price and service quality.' The study found 60% of consumers

say it is easy to compare plans though 68% rarely if ever do, and 54% have not switched providers in the past five years. (September 30, 2019) telegeography.com

The Radio Spectrum Management (RSM), which is part of the Ministry of Business, Innovation and Employment (MBIE), has invited expressions of interest (EoI) for a proposed short-term allocation of spectrum in the upper portion of the 3.5GHz (3590MHz-3800MHz) band for 5G services. The RSM said that applicants need to demonstrate that they have the technical and financial capacity to deliver a 5G service from mid-2020 to October 2022. However, the watchdog noted that that the short-term allocation process would be separate to the allocation of long-term rights commencing in November 2022, and it would not guarantee placement in the 3.5GHz band from that date. All interested parties are invited to submit their EoI forms by 4 October.

(September 23, 2019) telegeography.com



## Nigeria

The Nigerian Communications Commission (NCC) has reserved spectrum in the 26GHz, 38GHz and 42GHz bands for 5G networks, local news source, citing the regulator's Executive Vice Chairman Umar Danbatta. The country is looking to allocate the currently unassigned frequencies to enable the rollout of 5G services in 2020, adding that preparations to trial the technology are underway. 'The steps we are taking during the trials will involve the security agencies, which have a say on the security dimension of this new technology when it is eventually rolled out. So we want to ensure they are fully involved in this trial for the purpose of advising on the elements of the security concerns we should accommodate in the regulatory

frameworks that will guide the deployment of this service if it eventually becomes commercialized,' Danbatta noted. (September 25, 2019) The Guardian

The Nigerian Communications Commission (NCC) has charged telecommunications service providers to evolve measures towards safeguarding their numerous customers from the dubious activities of cybercrime. Speaking recently, at the 52nd edition of Consumer Town hall meeting, held at the Institute for Information Technology in Kura, Kano State, the Director, Consumer Affairs, Mrs. Felicia Onwueguchalam, expressed displeasure over the alarming increase of cybercrime in the country. "There is doubt that cybercrime is on

the increase, and it is my sincere hope that each of the service providers will demonstrate clearly to their esteemed customers, measures that they have put in place on their various networks, as well as the role they think their customers should play toward safeguarding them from the effects of cybercrime," she added. Onwuegbuchalam, who was represented by her deputy, Alhaji Ismaila Adedigba, said the Commission was committed to using various outreach programmes to embark on a series of awareness campaigns, with a view to keeping consumers well informed on the risks associated with being in line, enlightening them on the safety measures to be taken once they use connected devices, as simple as feature phones, smartphones and other more sophisticated internet enabled devices. The Town Hall meeting, with the theme: "Mitigating Effects of Cybercrimes: The Role of Telecom Consumers," stated that one of the most effective ways to protect telecom consumers from the effects of cybercrimes was through continuous consumer education and awareness. "The Commission has embarked on various initiatives to increase access to the internet to Nigerians for positive engagements, we are nevertheless, conscious of dishonest individuals, who are bent on using the internet for illegal activities." She said consumers remained important stakeholders in the current cyberspace, where individual and corporate users of telecom devices often make use of the internet in our connected world, as such, the Commission

believes that without consumers becoming aware of cybercrime trends and making efforts to ensure the safe use of connected devices, cyber criminals would continue to make cyberspace unsafe. "Since we started organizing these events some years back, we have treated different thematic topics, which have produced key resolutions that have been communicated to service providers for implementation. "Indeed, this has helped to guarantee improved services and value for money spent on telecoms services for Consumers and as such telecoms consumers have been the ultimate beneficiaries of the event over the years," she added. She, however, enjoined the participants to take full advantage of the occasion to be well informed and educated on how they can be protected in cyberspace as telecom consumers." (September 2, 2019) [thisdaylive.com](#)

The Nigerian Communications Commission (NCC) has announced it has approved spectrum for the trial of 5G mobile services in the country. Without providing further details, the regulator's Executive Vice Chairman Umar Garba Danbatta revealed the development in Abuja at the ITU's 'First Digital African Week' event. He acknowledged the evolving trends in the ICT ecosystem, giving rise to technologies such as IoT applications and smart cities, adding that the NCC was well positioned to embark on the trial of 5G in the country. (August 31, 2019) [telegeography.com](#)



## Norway

The National Communications Authority (Nkom) has launched a consultation on plans to make broadband a universal service. In a press release regarding the matter the regulator said that two options had been proposed, with the first of those being a proposal to introduce an obligation for operators to provide broadband at speeds of 10Mbps/2Mbps (down/uplink) on request,

while another option suggesting minimum speeds would be 20Mbps/2Mbps is also being considered. Views from stakeholders and interested parties on the proposed broadband universal service obligation (USO) are being accepted until the 3 December 2019 deadline.

(September 4, 2019) [telegeography.com](#)



## Philippines

The National Telecommunications Commission (NTC) has renewed the Cellular Mobile Telephony System (CMTS) license of NOW Corp affiliate NOW Telecom, allowing it to provide a range of cellular services to the Filipino public. The concession 'extends authority to install, operate and maintain an effective and economical telecommunications network, including mobile telecommunications, data and voice telecom network, trunked radio dispatch communications system, digital trunked radio system, and telecommunications operations'. The authority granted last week also includes the upgrade of its existing system to a nationwide wireless communications network which will provide mobile telephony communications and multimedia transmission

capability to all cities and municipalities nationwide. However, with NOW Telecom currently ramping up plans to become the Philippines' fourth major operator, a spokesman for the NTC poured cold water on its plans, suggesting that it believes it can only realistically provide such services in 'niche markets'. Following the license renewal, NOW Telecom president Rodolfo P Pantoja said: 'We have been providing guaranteed broadband to enterprises including the government sector. We reiterate our belief that at present, there is an insufficiency in telecommunications facilities that can effectively address the needs for day-to-day real-time operations and at the same time provide disaster mitigation during time of emergencies,' adding that NOW Telecom is one of only four firms to

hold a CMTS license in the Philippines – the others being PLDT-Smart Communications, Globe Telecom, DITO Telecommunity and ABS-CBN Convergence. Pantoja also praised the approval as a clear sign of the government's efforts in promoting competition by further liberalizing the telecommunications industry, noting that his company's network upgrade 'would provide an affordable and reliable option for day-to-day wireless communications needs of enterprise and some sectors of the general consumer [segment]'. However, NTC deputy commissioner Edgardo V Cabarios suggested NOW Telecom may find it hard to compete in a domestic mobile market dominated by the de facto duopoly of PLDT-Smart and Globe, and soon to see the arrival of fresh competition in the shape of new third telco DITO Telecommunity. 'There are so many players in the market in the first place, but when we talk about mobile there are only three major players,' he said. Cabarios went on to point out that with a limited 20MHz allocation of bandwidth in the 3.5GHz band, NOW 'really cannot compete', but could target a niche market. (September 10, 2019) telegeography.com

In the wake of the successful award of frequency licenses to the country's new third telco DITO

Telecommunity (formerly Mislattel) in July this year, the government of the Philippines is now working to develop a new framework to reallocate unutilized spectrum in the hope it can encourage even more telcos to enter the market. The secretary of the Department of Information and Communications Technology (DICT), Gregorio Honasan II said that plans are afoot to draft a new Frequency Management Policy. When asked about the possibility of a fourth or even fifth player to join DITO Telecommunity, Honasan told reporters: 'We will rationalize that also. It will require getting back frequencies that are allocated. It requires a frequency management policy'. Speaking on the sidelines of the BusinessWorld Industry 4.0 Summit Honasan noted that the proposed Frequency Management Policy would allow DICT to audit the use of frequencies and recover those that are currently underutilized. With the country's big two – PLDT Inc. and Globe Telecom – reportedly promising to support the government's drive to reallocate unused spectrum, Honasan was unable to put a definite timeframe in place for the new policy framework, noting that the focus now remains on the third telco launch. 'I cannot say, I cannot be locked into certain timetables because as we speak, variables are coming up,' he said. (September 9, 2019) GMA News



## Poland

Poland's Minister of Digitization has said he is in favor of a single nationwide network in the 700MHz band which will be made available to all operators on a wholesale basis. Marek Zagorski said that there are several arguments which support this approach. He commented: 'First of all, there is not much of this resource. The available block is not very extensive and it would be rather impossible to divide it. Assuming that we have four 5G operators in the frequency range 3.6GHz-3.8GHz, we would have two in the 700MHz band. This would put someone in a privileged position.' He added that some of the 700MHz band must be reserved for military purposes, so having a single commercial 5G network in that band would facilitate the distribution of spectrum. He went on to give lower infrastructure costs and quicker deployment times as further advantages of a single network, with no need for operators to duplicate their rollouts: 'When we integrate it, we will do it faster and cheaper,' he stated. Poland's 700MHz spectrum is still being used for TV broadcasts, so the minister says that 2022-2023 is a realistic date for the beginning of 5G network rollouts in this band. He says that 3.6GHz-3.8GHz frequencies will be made available sooner which will allow cellcos to get off the ground with 5G technology before then. In February this year state-backed telecoms network operator Exatel said it would seek a role in the deployment of a single open-access 5G network.

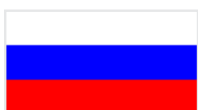
(September 25, 2019) PAP News Agency

Poland's Ministry of Digitization (MC) and telecoms regulator the Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE) have both criticized proposed changes to regulations which could slow down the expansion of mobile networks. The Ministry of Environment (Ministerstwo Środowiska) wants infrastructure such as network towers and base stations to be covered by new environmental planning laws, meaning operators will have to apply for permission before carrying out any work which could 'significantly affect the environment'. Telepolis reports UKE as saying that 'the ordinance is not favorable from the point of view of the development of telecommunications services and may have negative effects'. The MC, meanwhile, commented: 'The Ministry of Digitization believes that one should strive to eliminate all administrative and legal regulations that may affect the development of the country in the area of telecommunications, if these regulations are not justified by the protection of citizens' interests in other areas of functioning.' Critics are worried that the measures would increase red tape and slow down the development of new 5G networks and the expansion of existing 4G systems. (September 19, 2019) Telepolis

Poland's President Andrzej Duda has signed the new Act on Supporting the Development of Telecommunications Networks and Services, also known as the Mega Act (Megaustawa). The Act was

signed on Monday 9 September and will enter force 30 days later. Poland's Parliament, the Sejm, agreed at the end of August to adopt the Mega Act after a number of amendments were introduced over the past few months. The Mega Act is designed to make it easier for companies to roll out broadband infrastructure by removing some of the existing administrative and legal barriers, while also improving rights of access in sensitive areas such as national parks and nature reserves. Measures are also included to ease some of the restrictions on emissions from radio signals, while a Broadband Fund will be established with an annual budget of PLN140 million (USD36 million) which will be used to co-finance network deployments in rural areas. The improvements will help speed up network builds and also lead to lower rollout costs for operators, the government has said. (September 11, 2019) Gazeta Prawna

The Polish government is planning to begin its auction of 5G-capable 3.5GHz licenses in December 2019 or January 2020, a report from Telko.in says. The telecoms regulator, the Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE), will offer four blocks, each of 80MHz, in the 3.4GHz-3.8GHz band, with two of these having nationwide coverage and the other two being 'supra-regional' to exclude parts of the country where the required frequencies are already in use. With four licenses on offer and four main cellcos expected to participate, the auction is expected to be over quickly, with the only battle being for nationwide versus supra-regional concessions. UKE intends to allocate licenses to operators by 30 June 2020. (September 4, 2019) telegeography.com



## Russia

Russia's State Commission for Radio Frequencies (SCRF) is considering holding auctions for 5G spectrum licenses in the millimeter wave (mmWave) 25.25GHz-27.5GHz range in Q1 2020, and will make a decision on the draft proposal in mid-October 2019, according to information supplied to Russian newspaper Izvestia by Communications Ministry representative Evgeny Novikov and two other unnamed federal/market sources. According to the draft, eleven mmWave frequency slots will be up for auction, with licenses valid for ten years. License coverage will be Federation-wide, although certain zones will be off-limits for 5G services, for instance five 5km zones in the Moscow region are reportedly being reserved for future Roscosmos satellite receiving stations. The report also notes that the methodology for calculating the cost of frequencies has yet to be established. In related news, nationwide fixed network operator Rostelecom and state corporation Rostec have created a council to implement the agreement they signed in July with the federal government to create a '5G roadmap' for the development of the technology in Russia. The 35 'preliminary targets' of the roadmap will be submitted

to the government by the end of September and the roadmap's final draft will be submitted at the end of December. (September 20, 2019) ComNews

Russian Deputy Prime Minister Yuri Borisov told that limited frequencies within the 3.4GHz-3.8GHz spectrum band could potentially be converted to 5G mobile usage in large cities, although the bulk of the band is likely to remain allocated to special satellite communications for military/intelligence usage. The conversion of the entire 3.4GHz-3.8GHz band represents a major obstacle as it would involve replacement of all the satellite equipment, Borisov noted. Meanwhile, Russia's 'big four' cellcos MTS, MegaFon, Beeline and Tele2 have agreed to work together on 'clearing' frequencies at 3.5GHz-3.8GHz for 5G network development, Tele2's parent Rostelecom's president Mikhail Oseevsky told reporters on the sidelines of the Eastern Economic Forum, as reported by ComNews. Russia's draft roadmap for the development of wireless technologies says that clearance of the 3.4GHz-3.8GHz and 694MHz-790MHz bands for 5G should be completed in 2019-2022. (September 5, 2019) Daily Vedomosti



## Slovenia

The Agency for Communications Networks & Services (Agencija za komunikacijska omrežja in storitve, AKOS) has invited applications for a universal service provider 'for connection to a public communications network and for access to publicly available telephone services

at fixed locations'. Alongside this the watchdog has opened a tender to find a directory services operator. State-backed Telekom Slovenije and its directories subsidiary Teledat are the country's current universal service providers. (September 23, 2019) telegeography.com



## South Korea

The 5G user base increased by 500,000 for three consecutive months from May. 5G customer additions are estimated to have jumped to 850,000 in August, boosted by the launch of Samsung's Galaxy Note 10 5G smartphone on the local market. In August, Samsung announced that pre-orders for its Galaxy Note 10 smartphone topped 1 million units in South

Korea. Domestic operators SK Telecom, KT and LG Uplus started taking pre-orders for the device on 9 August. Samsung reached 1.3 million Galaxy Note 10 pre-orders, which represents a 2-fold increase from the total number of pre-orders received for the Galaxy Note 9 on the local market.

(September 3, 2019) telecompaper.com



## Switzerland

The Swiss Competition Commission (Wettbewerbskommission, Weko) is expected to grant conditional approval to the proposed takeover of cableco UPC Switzerland from Liberty Global by full-service provider Sunrise. The regulator is scheduled to issue a ruling on the matter by the end of next month, and is likely to require the enlarged entity to open its networks to third party ISPs, according to the sources. Such a move

would improve competition in the wholesale broadband market and potentially reduce prices for customers. The paper cites the recent example of Germany and the acquisition of Unitymedia – another of Liberty Global's subsidiaries – by Vodafone. In that case, the EC imposed a number of conditions on the takeover, including opening its cable network to rival operator Telefonica Deutschland. (September 12, 2019) Handelszeitung



## Taiwan

The National Communications Commission (NCC) will kick off the country's 5G spectrum auction on 10 December 2019. It is understood that, at a hearing called by the transportation committee of the Legislative Yuan, Chen laid out the schedule for the sale, confirming that the NCC aims to award 5G licenses to winning bidders by the end of January 2020. Applications to participate are already being accepted, with a deadline for would-be bidders set as 3 October. To date, seven application forms have been sold to interested parties. Taiwan is expected to offer a total of 2,790MHz in the upcoming spectrum auction, across the 1800MHz (20MHz), 3.5GHz (270MHz) and 28GHz (2,500MHz) bands. The NCC has now also confirmed that the floor price for the 3.5GHz frequencies has been set at TWD24.3 billion (USD784 million), while starting prices for the 1800MHz and 28GHz bands will be TWD3.2 billion and TWD2.5 billion, respectively. Looking further ahead, the report also notes that the Ministry of Transportation and Communications (MoTC) is planning to launch a second round of 5G spectrum auctions in 2023 – after consulting with the NCC. In this secondary sale process, the MoTC was cited as saying it has tentatively planned to release bandwidth totaling 200MHz in the frequency range of below 6GHz, in addition to between 37GHz and 40GHz in the range above 6GHz. Detailed plans for this second frequency sale will not be finalized until the results of this year's auction are revealed, the MoTC confirmed, however. (September 24, 2019) Focus Taiwan News Channel

Taiwan's National Communications Commission (NCC) has reportedly confirmed that those companies successful in acquiring 5G-suitable spectrum in the country's forthcoming auction should be required to share their new resources with smaller operators that do not manage to bag frequencies. As per a revised version of the auction rules issued last week, the local telecoms regulator has stipulated that companies that secure 5G spectrum must include sharing arrangements in their respective business plans. It is understood that the tweaks to the rules follows a degree of pushback from operators, which had called for greater flexibility, including the ability to reach sharing agreements at the base station level. All three of the nation's larger mobile network operators (MNOs) – Chunghwa Telecom, Taiwan Mobile Company and Far EasTone – have reportedly welcomed the changes. The NCC began accepting applications to take part in the auction process last week (4 September), although the regulator's Acting Chairman Yaw Shyang-Chen is cited as saying that the authorities have yet to receive bids from any potential new entrants. With only the nation's existing MNOs reportedly having thrown their hat in the ring, Yaw was said to have suggested it is unlikely any new players will step forward to participate in the sale process. A deadline of 3 October has been set for applications, with the NCC expected to start examining applications immediately after that date, with a view to approving bidders for an auction that will get underway in December. (September 12, 2019) Light Reading



## Thailand

The National Broadcasting and Telecommunications Commission (NBTC) is being asked to strictly monitor the import of some digital equipment into the country amid a fresh worry over its possible threat to national cyber security. The NBTC, which is authorized to give permission for the imports, will be asked to discuss its work and ways to prevent such a risk with the House committee on telecommunications, digital economy and society, its Deputy Chairman Setthaphong Malisuwan said. "We need to work together to develop measures to protect our cyber security," he said. The worry has been raised as Thailand needs to invest in infrastructure to prepare for new telecommunication services, including 5G technology which allows for speedy transfer of data. That may cause the country to import more digital equipment from foreign giant technology companies. The products, however, may bring threats to cyber security, Col. Setthaphong said. The digital equipment used in the banking and aviation sectors is at "high risk" of being attacked and seeing private data hacked, he said. Even medical equipment linked with the internet must be closely watched, he added. Col. Setthaphong wants the NBTC and state agencies working on digital technology to pay more heed to certain digital products which are increasingly used under the Internet of Things (IoT).

(September 17, 2019) bangkokpost.com

The Digital Ministry was tipped to be pressing ahead with plans to turnaround the fortunes of state-run TOT and CAT Telecom, readying a proposal which would see the pair complete a merger by mid-2020. A merger plan was approved by the State Enterprise Policy Office which the Digital Economy and Society Ministry intends to present to the country's cabinet by October. It is the government's latest attempt to revive the loss-ridden organizations, which together employ about 20,000 staff. Buddhipongse Punnakanta, Digital Economy and Society Minister, told the newspaper a merger "is the best solution to eliminate redundancy of their business operations, as well as creating added value for their existing assets." The ministry asked the operators to submit detailed plans within 45 days, covering the employee and management structure; assets and valuation; and business agreements and contracts with other private companies. If approved, the combined company, National Telecom Co, would start operations in the second quarter of 2020. It would come under the control of the Finance Ministry. The merger of the state enterprises, which the government insists will not lead to job cuts, has long been pushed to eliminate overlapping services, covering mobile, broadband and international gateways. (September 5, 2019)

Bangkok Post



## United Kingdom

British telecoms regulator Ofcom has published its second interim update to the 'Connected Nations' report that it initially released in December 2018. In terms of the key findings in this update, the watchdog noted that the number of properties in the UK now able to access superfast broadband – which it defines as having a download speed of at least 30Mbps – had increased to more than 28 million by May 2019, representing 95% of homes and businesses. Meanwhile, access to ultrafast broadband (i.e. services with a minimum 300Mbps download speed) has also improved, and was available to 54% of premises by May 2019, up from 53% as at January 2019. In line with this, full-fiber availability has also increased, with almost 2.5 million premises, or 8%, having access to such technology; Ofcom noted this represented a rise of more than 400,000 properties in the four month to May 2019, 'with the commercial rollout of full fiber now being delivered quicker than ever'. Rounding out the key findings related to fixed broadband, Ofcom noted that the proportion of properties without access to a 'decent' broadband connection (defined as having downstream speed of at least 10Mbps), remained at 2% of premises. It did say though, that it expects this figure to fall once it completes work to include the coverage of all major fixed wireless networks in its reporting. With regards to mobile coverage, Ofcom said that this remained largely

unchanged since its spring update in May 2019, with 4G services reportedly available to 77% of premises (indoor) at that date, and 4G geographic coverage standing at 66%. With 5G connectivity now being rolled out by UK mobile operators, Ofcom said that it plans to collect information on these deployments for the full Connected Nations report that it is scheduled to publish in December 2019. (September 18, 2019) telegeography.com

The regulator Ofcom is consulting on proposals to apply code powers to F&W Networks and Fibrenation. The consultations close on 30 September. Fibrenation, a fully-owned subsidiary of TalkTalk, operates a FTTP access network in York and is currently expanding the network to the neighboring areas of Ripon, Harrogate and Knaresborough. It is seeking code powers to enable it to operate more independently of TalkTalk and to support the expansion of its network to serve 3 million premises across the UK. F&W Networks is a new market entrant seeking code powers for plans to deploy a FTTP access network serving smaller towns across the UK. It plans to build a network to more than one million homes by 2024, targeting areas not currently served or not planned to be served by rival FTTP network operators. F&W Networks might consider using FWA technology in areas where it cannot deploy an FTTP network or to provide outdoor broadband



coverage; and it may also provide wholesale duct access as a standalone service. Ofcom believes that both networks will benefit the public, improving the

quality of services available and help meet growing consumer and business demand for connectivity. (September 1, 2019) telecompaper.com



## United States

The Federal Communications Commission (FCC) is seeking comments on its proposed plans for the auction of spectrum in the 3.5 GHz band, its commissioners having voted to launch the sale on 25 June next year. The FCC has outlined a structure in which spectrum will be available via so-called priority access licenses (PALs), each of which will comprise 10 MHz of unpaired spectrum. Seven PALs will be available in each county-based license area, giving a total of 22,631 to bid for across the US. The regulator is seeking comment on a number of areas of the auction process, which has been dubbed Auction 105. It proposes an ascending clock format, similar to that used in Auction 102 – which raised US\$2 billion from the sale of 24 GHz frequencies earlier this year – and a format that has been approved for Auction 103, its latest millimeter wave sale that is due to take place later this year. The format would see participants bid for generic license blocks in specific counties. The regulator is also exploring the option of allowing participants to bid for airwaves across multiple counties in 172 metropolitan areas, and permitting them to lodge bids for more airwaves than they are eligible to actually hold. In addition, it has also outlined rules on credit caps, upfront payments, bidding eligibility, minimum opening bids, and a number of other auction functions. (September 29, 2019) totaltele.com

The Federal Communications Commission (FCC) approved a mid-2020 start date for its first mid-band spectrum auction, despite pressure from one member to pull the timeline forward into 2019. Bidding on licenses for the shared 3.5GHz band will begin 25 June 2020. Comments are currently being sought on the proposed auction structure, including a motion to further expand the geographic area covered by each license. The FCC previously increased the license zones for the band in October 2018. Commissioner Jessica Rosenworcel (pictured, far left) warned further expansion would narrow the pool of players able to make use of the spectrum and “unacceptably risk the opportunities for innovation in this band and new entry points for 5G”. She also argued the 3.5GHz auction should take precedence over the FCC’s third sale of mmWave spectrum scheduled for December, citing a dire need for mid-band airwaves for 5G. “I would hold this auction this year, before we bring to market any higher band spectrum including the 37GHz, 39GHz and 47GHz bands.” The action comes shortly after the FCC gave the go ahead for initial commercial deployments in the unlicensed portion of the 3.5GHz band. (September 27, 2019) mobileworldlive.com

The Federal Communications Commission (FCC) has announced that the Wireless Telecommunications Bureau (WTB) and Office of Engineering and Technology (OET) have approved five Spectrum Access Systems (SAS) administrators to begin initial commercial deployments in the 3.5GHz band. As such, SAS operated by Amdocs, CommScope, Federated Wireless, Google and Sony have satisfied the FCC’s laboratory testing requirements and are approved to begin their initial commercial deployments (ICDs) as previously proposed. The FCC’s reviews were carried out after consultation with the Department of Defense (DoD) and the National Telecommunications and Information Administration (NTIA). The FCC has proposed to stage Auction 105 – its sale of 5G-suitable spectrum in the 3550MHz-3700MHz (3.5GHz) band – on 25 June 2020. The auction will offer seven Priority Access Licenses (PALs) in each county-based license area, for a total of 22,631 PALs nationwide. Each PAL will be a ten-year renewable license, consisting of an unpaired 10MHz channel. Alongside the anticipated 5G usage cases, the 3.5GHz band is also expected to pique the interest of wireless internet service providers (WISPs), major cablecos who have entered the MVNO space and entities wishing to deploy private LTE networks. (September 17, 2019) telegeography.com

The US Federal Communications Commission (FCC) has proposed to stage Auction 105 – its sale of 5G-suitable spectrum in the 3550MHz-3700MHz (3.5GHz) band – on 25 June 2020. The auction will offer seven Priority Access Licenses (PALs) in each county-based license area, for a total of 22,631 PALs nationwide. Each PAL will be a ten-year renewable license, consisting of an unpaired 10MHz channel. As per the FCC proposal, bidders will be allowed to bid for up to four generic blocks of spectrum per county. Interested parties are invited to submit feedback on the proposed auction by 28 October 2019. (September 6, 2019) telegeography.com

US Federal Communications Commission (FCC) Chairman Ajit Pai announced members will vote later this month on whether to approve a mid-2020 start date for a long-awaited auction of licensed spectrum in the 3.5GHz band. The vote would seek comment on draft procedures for the auction, with the target of commencing bidding on 25 June 2020. License zones and terms for the band were established in October 2018. In a blog post, Pai said the 70MHz of licensed airwaves the FCC aims to offer in the auction is “prime

spectrum for 5G services". Indeed, the move would help alleviate a shortage of mid-band spectrum in the country, which is favored by operators for 5G since it offers a balance of coverage and capacity. Operators including Verizon, AT&T, T-Mobile US, Charter Communications, US Cellular and Altice USA, have expressed interest in 3.5GHz, and the CBRS Alliance is in the process of developing technical specifications for 5G operation in the shared band. Initial commercial

deployments in the unlicensed portion of the band were originally expected in 2018, but were repeatedly pushed back as operators awaited final approval from federal regulators. Launches are now expected before the end of 2019, but operators stressed the importance of licensed access for 5G rollouts. The FCC will vote on the auction proposal at a meeting on 26 September.

(September 5, 2019) [mobileworldlive.com](http://mobileworldlive.com)



## Zambia


Mobile Broadband Limited, which trades under the Vodafone Zambia banner, will cease operating next month after the Zambia Information and Communications Technology Authority (ZICTA) announced the cancellation of its license. In a press release regarding the matter, the regulator noted that it had made the 'on the grounds that [the operator] has ceased to fulfil the eligibility requirements under Section 12 of the Information and Communication Technologies (ICT) Act No.15 of 2009 by not being technically and

financially capable of meeting the obligations of the terms and conditions of the license'. Having said the license cancellation will become effective 30 days from 20 September 2019, the ZICTA also confirmed it has withdrawn the frequency bands that were assigned to Vodafone Zambia. This development comes less than a week after reports which said that, amid continuing financial struggles, Vodafone Zambia was to be sold, after its current shareholders had failed to recapitalize it. (September 27, 2019) [telegeography.com](http://telegeography.com)



## Zimbabwe

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has invited bids for the deployment of 100 wireless base stations in rural areas to improve mobile network coverage. The rollout will be financed by the Universal Services Fund (USF), with the base stations to be made available for use by the country's three cellcos, Econet Wireless, NetOne and Telecel. A statement from the regulator said: the

project is planned to be implemented as a turnkey vendor-financed Build and Transfer joint venture agreement. The supplier undertakes the financing and construction of the project and after its completion hands it over to POTRAZ. POTRAZ reimburses the total project investment on the basis of an agreed schedule.' 

(August 31, 2019) [telegeography.com](http://telegeography.com)

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